

Oil, Gas, and Mining

A Sourcebook for Understanding
the Extractive Industries

Peter D. Cameron
and Michael C. Stanley



WORLD BANK GROUP

Oil, Gas, and Mining

ABOUT THE ONLINE PLATFORM AND THIS PUBLICATION

The Extractive Industries Source Book (EISB) is a free online interactive source (<http://www.eisourcebook.org>) that is built upon a coherent and incisive narrative analysis of the extractive sector as a whole, supplemented by hundreds of downloads and other web resources, including specially commissioned reports, summaries, and briefs. The EISB provides end-users with technical understanding and practical options around oil, gas, and mining sector development issues. The end-user community using this resource is diverse, and includes representatives of government, industry, academic institutions, nongovernmental organizations, and individuals.

The online EI Source Book platform was conceived and launched by Michael C. Stanley, Global Lead for Extractive Industries at the World Bank, using a Development Grant Facility (DGF) grant prepared to foster a partnership between the World Bank Group and a Global Knowledge Consortium. This collaboration includes a group of policy centers in universities and other organizations, all focusing on practical solutions to extractive industries challenges, led by Professor Peter D. Cameron at the University of Dundee, United Kingdom. This print version was made possible through the many achievements of the online EI Source Book to date.

Oil, Gas, and Mining

A SOURCEBOOK FOR UNDERSTANDING
THE EXTRACTIVE INDUSTRIES

Peter D. Cameron and Michael C. Stanley

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CONTENTS

Foreword	xi
Acknowledgments	xiii
About the Authors	xv
Abbreviations	xvii
PART I	
EXTRACTIVES FOR DEVELOPMENT	
Chapter 1	Shifting Patterns of Demand and Supply 3
1.1 Introduction	3
1.2 The Demand for Knowledge	4
1.3 The Supply of Knowledge	8
1.4 Bridging the Knowledge Gap	10
1.5 Our Approach	14
1.6 Conclusions	15
Notes	15
References	16
Other Resources	17
Chapter 2	Extractives: Opportunities and Challenges for Development 19
2.1 Introduction	19
2.2 The Opportunities Arising from Resource Abundance	20
2.3 The Challenges	23
2.4 Understanding the Challenges: Changing Perspectives	27
2.5 Applying New Insights	29
2.6 Conclusions	30
Notes	31
References	33
Other Resources	37
Chapter 3	The Extractive Industries 39
3.1 Introduction	39
3.2 Common Features of the Industries	40
3.3 Key Differences of the Industries	42
3.4 EI Sector Dynamics	46
3.5 Conclusions	51
Notes	51

	References	52
	Other Resources	53
PART II		
THE VALUE CHAIN APPROACH TO EXTRACTIVES		
Chapter 4	Policy, Legal, and Contractual Framework	57
	4.1 Knowledge Core	57
	4.2 Getting Started: Facts of EI Life	58
	4.3 Eight Key Challenges	60
	4.4 Policy Priorities	61
	4.5 Hydrocarbons and Mining Laws	66
	4.6 Contracts and Licenses	73
	4.7 The Award of Contracts and Licenses	90
	4.8 Why Regulations Are Necessary	97
	4.9 Investment Guarantees: Stabilization	99
	4.10 Contract Negotiations	101
	4.11 Disputes: Anticipating and Managing Them	102
	4.12 Summary	106
	4.13 Taking Action: Recommendations and Tools	107
	Notes	108
	References	111
	Other Resources	114
Chapter 5	Sector Organization and Regulatory Institutions	115
	5.1 Knowledge Core	115
	5.2 Organization in the Public Interest	116
	5.3 Special Issues	131
	5.4 Summary and Recommendations	144
	5.5 Practical Tools	145
	Notes	145
	References	146
	Other Resources	148
Chapter 6	Fiscal Design and Administration	149
	6.1 Knowledge Core	149
	6.2 Key Fiscal Objectives	150
	6.3 The Main Types of EI Fiscal Systems	154
	6.4 Main Fiscal Instruments under a Fiscal Regime	155
	6.5 Special EI Fiscal Topics and Provisions	166
	6.6 EI Fiscal Administration	173
	6.7 Summary and Recommendations	176
	6.8 Action Tools	178
	Notes	178
	References	179
	Other Resources	181
Chapter 7	Revenue Management and Distribution	183
	7.1 Knowledge Core	183
	7.2 Why Revenue Management is Difficult	184
	7.3 Consume or Save?	185
	7.4 Resource Funds and Their Popularity	189
	7.5 Alternative Means of Addressing Fiscal Sustainability	196
	7.6 Addressing Volatility: Stabilization Funds	198
	7.7 Alternative Means of Addressing Volatility	200
	7.8 Spending Choices and Use of Government Revenues	201

7.9 Revenue Allocation and Subnational Issues	205
7.10 Summary and Recommendations	211
7.11 Practical Tools	211
Notes	212
References	214
Other Resources	218

PART III

TOWARD GOOD GOVERNANCE

Chapter 8	Transparency and Accountability	221
	8.1 Knowledge Core	221
	8.2 Definition and Scope	222
	8.3 The Benefits of Transparency	223
	8.4 Challenges and Special Issues	224
	8.5 Transparency Initiatives	228
	8.6 Emerging Global Norms and Standards	231
	8.7 Conclusions	234
	8.8 Action Tools	235
	Notes	235
	References	236
	Other Resources	238
Chapter 9	Sustainable Development Implementation	239
	9.1 Knowledge Core	239
	9.2 Two Key Challenges	241
	9.3 Challenge 1: Designing and Implementing Policies to Ensure That EI Sector Investments Create Positive and Sustainable Impacts	242
	9.4 Challenge 2: Environmental and Social Impacts	252
	9.5 Tools: Legal and Regulatory	260
	9.6 The Responses	269
	9.7 Summary and Recommendations	281
	Notes	283
	References	285
	Other Resources	289
Chapter 10	Why Governance Matters	291
	10.1 Knowledge Core	291
	10.2 What Is Governance?	292
	10.3 Why Do Oil, Gas, and Mining Generate Specific Challenges?	292
	10.4 Response 1: Appropriate and Adequate Rules	293
	10.5 Response 2: Effective Implementation, Monitoring, and Enforcement	294
	10.6 Response 3: Accountability—Stakeholder Consultation and Participation	295
	10.7 Conclusions	297
	References	297
	Other Resources	298

BOXES

2.1	Changing Perspectives: Reframing the ASM Debate	22
3.1	Key Differences between the Petroleum and Mining Sectors	44
3.2	Features Specific to the Oil and Gas Sectors	45
3.3	Features Specific to the Mining Sector	46
3.4	Convergence of Mining and Hydrocarbons?	47
4.1	Sovereignty over Natural Resources	59

4.2	Licensing across Shifting International Borders	64
4.3	Deep-Sea Mining	65
4.4	Local Benefit	81
4.5	Local Benefit: The Kazakhstani Experience	82
4.6	Contractual Provisions for Natural Gas	84
4.7	Model Mining and Development Agreement	88
4.8	Practices to Avoid	89
4.9	Geodata	91
4.10	The Four Main Forms of Stabilization Clause	100
4.11	Claims under Bilateral Investment Treaties (BITs)	104
5.1	Institutional Structure: The Ministry and the Regulatory Agency	118
5.2	Mining Participation	124
5.3	NRC Success Stories	125
5.4	Petroleum Technical Assistance to South Sudan	128
5.5	Petroleum Reform in Colombia	129
5.6	Petroleum Sector Reform in Brazil	130
5.7	Mining Sector Reforms	131
5.8	Unitization in Maritime Waters	136
6.1	Forms of State Participation	160
6.2	Angola's PSC Fiscal Package for Petroleum	164
6.3	Elements for Action on Taxation of Transfer of EI Interest	165
6.4	Routine Tax Administration: Challenges	174
6.5	What a Well-Designed Fiscal Regime Must Do	177
7.1	Botswana and Chile: Experiences with Fiscal Rules	188
7.2	Savings Funds: Four Examples	194
7.3	Stabilization Funds: The Experience of Chile	199
7.4	Examples of Revenue-Sharing Formulas	206
8.1	Balancing Transparency Interests: Opposing Dodd-Frank	225
8.2	EIs and Social Accountability	227
8.3	The Seven Requirements of the EITI Standard	229
8.4	Civil Society-Led Initiatives	232
8.5	Private Sector-Led Initiatives	233
8.6	Summary: Transparency and Accountability	234
9.1	Liberia: Open Access Regime in Mineral Development Agreements	248
9.2	Objectives of the Parties to an Infrastructure Project	251
9.3	The Deepwater Horizon Oil Spill	253
9.4	Work of ASM-PACE Project: Artisanal and Small-Scale Mining (ASM)—Protected Areas and Critical Ecosystems (PACE)	256
9.5	Reframing the ASM Debate: Integrating It into the EI Value Chain	258
9.6	Potential Opportunities Generated by ASM	259
9.7	Decommissioning and Environmental Protection Plans	268
9.8	Challenges Associated with Artisanal and Small-Scale Mining (ASM)	271
9.9	Essentials of a Good Environmental Protection Regime	272
9.10	Social Impacts: Special Issues	277
9.11	Goal Setting and Community Participation	278
10.1	Environmental and Social Institutional Arrangements	296

FIGURES

1.1	Share of Natural Resources Receipts in Government Revenues (averages, 2000–11)	5
1.2	The EI Value Chain	11
2.1	Price of Oil, 1990–2015	23
2.2	Price of Coal and Iron Ore, 1990–2015	23

2.3	Natural Gas Prices, 2000–2016	24
2.4	A Poor Record of Forecasting Oil Prices	24
5.1	State Organization of the Norwegian Petroleum Sector	117
6.1	Progressive, Proportional, and Regressive Fiscal Regimes	152
6.2	International Fiscal Competitiveness	153
6.3	State Participation and Efficient Taxation Compared	161
6.4	Example of a Production-Sharing Contract in Oil Production	164
8.1	How the EITI Works	229

TABLES

5.1	The Norwegian Approach: Dividing Institutional Governance Tasks and Responsibilities	116
5.2	Ugandan Regulatory and Institutional Framework	116
6.1	Possible Fiscal Mechanisms in Relation to Government Fiscal Progressivity Objective	158
7.1	Country Fiscal Rules	186
7.2	Country Oil Funds	190
9.1	World Bank Group Social and Environmental Standards	262

FOREWORD

This new *Sourcebook* admirably illuminates the spectrum of integrated policy interventions necessary to transform natural resource wealth into sustainable development, ranging from the allocation of resource extraction rights to the use and distribution of revenues. It recognizes and emphasizes the importance of the political and institutional context. The *Sourcebook* ably breaks down the implications of the type of natural resource, describes the organization of the industry, and provides illustrative examples and useful citations from the literature.

This work is especially timely. In September 2015, the world's governments adopted the 17 Sustainable Development Goals (SDGs), defining the world's shared agenda for sustainable development through 2030. Readers of this *Sourcebook* will no doubt note that mineral and energy resources play a major role across the 17 SDGs, and that the SDGs offer a crucial orientation to the mining sector.

First, sustainable development depends on the minerals mined from the earth. The development and rapid scale-up and deployment of renewable energies will further increase demand for a variety of minerals and metals. So too will the ubiquitous mobile Internet technologies, which utilize a range of mineral products to enable our new global information society.

Second, for mineral-rich countries, the rents generated from the extraction of their resources can fund public investments in health, education, infrastructure, and other public goods that are critical for the achievement of the SDGs. Strategic linkages from the extractive sectors to other sectors of the economy can also help to advance employment and innovation.

Third, the management of the extractive sector, and the policies and practices of both governments and their private sector partners, determine the impacts of the extractive processes on air and water quality, biodiversity, gender-based and other forms of inequality, public health, and human rights. In the past, extractive industries have often damaged the environment, created social tensions, and contributed to poor governance through bribery, capital flight, and the waste of resource rents. The SDGs provide key guideposts for sustainable management of extractive resources in relation to both people (with regard to inclusive processes and access to information, for instance) and the environment.

Fourth, SDG 13—to take urgent action to combat climate change and its impacts—will require a deep and rapid shift in how the world approaches its hydrocarbon resources. Known reserves of coal, oil, and gas greatly exceed the levels that can be burned in line with the Paris Climate Goal (part of SDG 13) of keeping global warming “well below 2 degrees C.” The world must therefore make a quick transition to low-carbon energy and create effective and fair mechanisms to share the adjustment burden. How will we handle the global challenge of which assets to strand, paying particular attention to the needs of developing countries?

How individual governments, companies, and the world as a whole approach the management and governance of mineral and energy resources will be important in determining the success or failure of the SDGs. And yet, the complexities of harnessing natural resources for sustainable development are great. Technical solutions are complex and highly context specific; the political challenges are vast and made difficult by geopolitics and a tendency toward short-termism. Many of the social and

environmental risks are large, difficult to calculate, and perhaps irreversible in impact.

Fortunately, the past decade has seen a groundswell of research and debate about how best to put natural resource wealth at the service of sustainable development. The SDGs have brought together governments, the private sector, civil society, and academia in thoughtful and productive discussions about how to ensure that mineral and energy resources help to advance the SDGs, and about the respective roles of each partner, nationally and globally.

To support these ongoing discussions, the authors of this *Sourcebook* have taken the critical step of beginning to assemble a knowledge consortium, bringing together research institutions from around the world to share research on good practice and to mobilize expertise to address remaining and new “knowledge gaps.” Indeed, several of the topics covered

in the pages herein are controversial, and we and others will not agree with all of the positions taken. In some cases, the controversy is made explicit; in others, the controversy is only implicit, and will be clarified by subsequent debate. The rapidly evolving nature of this field also means that some critical topics, such as the implications of climate change for the future of hydrocarbon extraction, are not yet deeply explored. No doubt the *Sourcebook* will continue to evolve as the debates over these topics intensify in the future.

Given the breadth of the SDGs and the targets therein, as well as the myriad challenges of natural resource governance, the new *Sourcebook* and the community of researchers and practitioners that continues to grow around it will help to shed light on the path ahead. Our work in achieving the SDGs is ongoing, and the *Sourcebook* will be an important new tool in our hands.

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on the Sustainable Development Goals

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This *Sourcebook* has been sponsored by a Development Grant Facility, under the Extractive Industries–Technical Advisory Facility, a multidonor trust fund managed by the World Bank. The project has been managed by a consortium headed by the Centre for Energy, Petroleum and Mineral Law and Policy (CEPMLP) at the University of Dundee (U.K.). The final version of the *Sourcebook* was written by Peter D. Cameron, director of the *Sourcebook* project, drawing upon the important contributions of Charles McPherson, Honoré Le Leuch, and particularly Michael C. Stanley, Global Lead for Extractive Industries in the World Bank’s Energy and Extractives Group. In his role as the principal contact and adviser at the World Bank throughout the project, Michael provided a continuous flow of suggestions, advice, and assistance, not least by mobilizing colleagues at the Bank and his many contacts in government and civil society around the world.

From the outset, a driver behind this *Sourcebook* has been to secure as much balance and independence in its content as possible. Strong input from a number of highly reputable policy and research centers, mostly linked to universities, has been important to its establishment and further development. In many instances the substantive inputs are expressly acknowledged in the text itself but the greatest contribution of all from these centers was probably in the integrity and rigor of their work. It set a high standard which was a constant source of inspiration to the *Sourcebook* team.

The first draft of this narrative text was prepared primarily by Charles McPherson, formerly senior adviser and manager at the World Bank, technical assistance adviser in tax policy at the Fiscal Affairs Department of the International Monetary Fund (IMF), and member of CEPMLP’s Global Faculty.

Charles’ early work on the draft brought insights based on his many years advising a diverse range of governments in all continents and contrasting circumstances on how to make the most of their oil and gas resources. Both Charles and Michael Stanley were able to draw upon and share their direct experience in advising governments and their depth of understanding of the corporate sector of oil, gas, and mining. This background contributed to elements of practicality and balance in the *Sourcebook* project that we have sought to carry over into this version.

Between the first and final drafts, the *Sourcebook* text was extensively reworked to address more thoroughly the key issues in oil, gas, and mining. Each of several drafts was modified in response to comprehensive feedback and suggestions, sometimes delivered anonymously, as part of a peer review process. This circuit of writing, review, and revision was aimed at realigning our efforts to meet a high quality standard across a broad subject, reflect diverse areas of specialized expertise, and produce a cohesive text. We have sought to avoid turning the *Sourcebook* into an edited collection of discrete materials covering various subjects and crossing disciplines, loosely organized around the Value Chain concept. Rather, we believe this publication is a highly cohesive work centered around the Value Chain core and, in its tone, avoids the “lecturing” approach in some writings on Good or Best Practice.

The final text benefited from the work of other contributors on particular topics: Jon Hobbs (World Wildlife Fund) and Rachel Perks (World Bank) ensured that the coverage of artisanal and small-scale mining reflected the work in this field by a variety of organizations over the past decade. Jon advised us, too, about the latest trends in thinking about

sustainability issues. Jon was an important and constructive critic of the treatment of sustainable development implementation in the Extractive Industries Value Chain. Contributions on mining were made to the chapters in part II by John Strongman, formerly a senior economist at the World Bank. The aim—and the challenge—was to compare and contrast mining with oil and gas and, in that way, to make a real attempt to contribute to the growing literature on extractives. David Humphreys, another CEPMLP Global Faculty, was invaluable in noting how the contrasts between mining and hydrocarbons could be more sharply drawn. Kasey McCall Smith played an important role in an earlier version of chapter 8 on transparency and accountability, and Eddie Rich of the Extractive Industries Transparency Initiative was of enormous help in ensuring that we updated the sections on that important initiative. The chapters on law, contracts, and sector organization would have been poorer without the comments of Paul Griffin, Honoré Le Leuch, and Peter Roberts, among the best lawyers and contract specialists anywhere in the world. Armando Zamora contributed insights into regulation in Latin America, and Honoré Le Leuch shared his insights into fiscal design. Any errors or shortcomings that remain are not in any way attributable to them.

During its more than three years of gestation, the *Sourcebook* has had to take into account the fast pace of debate on the role of extractives in development. It has had to respond to the reshaping of challenges in understanding oil, gas, and mining activities as the commodities downturn turned out to be longer and deeper than anyone had expected. It has been exciting to note how the pace and trend of research has not slowed or weakened; on the contrary, it has become more detailed and more concerned with the uniqueness of country experiences, and it has produced a greater diversity of tools and instruments for applied knowledge than many could have expected. The *Sourcebook* partner organizations, particularly the

Columbia Center on Sustainable Investment (CCSI) and Natural Resource Governance Institute (NRGI), have, in pursuing their own unique studies and research, played a key role in alerting us to changes that we needed to make in the text to provide users with knowledge that is fresh and leading.

The *Sourcebook's* subject matter crosses law, economics, and resource management, so feedback from peer review by specialists played an important role in its development. The principal manner in which the text developed from its starting point was through the application of a very rigorous peer review policy, coordinated by Kasey McCall Smith of the University of Edinburgh. We are extremely grateful to the anonymous reviewers and to those additional reviewers, such as Rolando Ossowski (formerly senior economist at the IMF), Alan Gelb (senior fellow at the Center for Global Development), Peter Roberts (editor, *Journal of World Energy Law and Business*), and Philip Daniel (formerly senior adviser to the Fiscal Affairs Department at the IMF), who generously provided advice and suggestions.

The *Sourcebook* project was supported at CEPMLP by Daniel Gilbert, the research fellow for the project, and at the World Bank by Noora Aarfa, Norma Garza, Paolo de Sa, and Peter van der Veen. Various CEPMLP students assisted from time to time including Gaspar Andre, Marcia Ashong, Job Kahigwa, Agostina Martinez, Babatunde Osadare, Georgia Panagiotidou, and Mauro Amilton de Celestino Pedro. Peter Cameron is grateful to all his colleagues at CEPMLP for their continuous and robust support, and to Qiumin Li and Alexander and Sophie Cameron, whose optimism about the future influenced the tone of this text. A special mention is made for our friend Michael Levitsky, whose comments and insights were helpful to the authors at the early stages of this project and were much appreciated. At the production stage we are most grateful for the work done by Patricia Katayama, Janice Tuten, and Aziz Gökdemir. None of the above bears responsibility for the final text.

ABOUT THE AUTHORS

Peter Cameron is one of the world's leading authorities on hydrocarbons law and policy and European Union energy law. He is a barrister and professor of international energy law and policy and director of the Centre for Energy, Petroleum and Mineral Law and Policy at the University of Dundee in Scotland, United Kingdom. Cameron led the consortium of universities and policy centers that created the *Extractive Industries Sourcebook*. He also serves as the senior content adviser in the Extractives Hub project, funded by the U.K. Department for International Development.

Cameron has been an adviser or consultant to governments and to international organizations such as the World Bank, European Bank for Reconstruction and Development, United Nations, European Commission, and African Petroleum Producers Association. He is the author or editor of more than a dozen books and over a hundred articles, including a study of stabilization issues, *International Energy Investment Law: The Pursuit of Stability*. He is also joint editor of the online *Encyclopedia of Mining and Energy Policy*. He regularly appears as an expert witness in international arbitral disputes and serves as an arbitrator in proceedings of the International Centre for Settlement of Investment Disputes.

In 2013 Cameron was elected a Fellow of the Royal Society of Edinburgh.

Michael Stanley serves as the global lead for extractive industries at the World Bank Group in Washington, DC. He provides leadership on the policies and practices that guide the World Bank's lending operations in oil, gas, and mining worldwide and ensures that a diverse technical staff remains at the forefront of sector development issues.

Stanley has worked in resource development for more than 30 years in both the commercial and public sectors, and has led projects in Latin America and the Caribbean, Europe and Central Asia, Africa, South Asia, and East Asia and Pacific regions. He is widely recognized for his expertise in the formation of resource development policy that aligns commercial and public sector investments with shared sustainable outcomes, and also for his support of learning and education initiatives for a diverse set of stakeholders. Responding to the challenges of climate change, limited access to capital, increased geopolitical risk, and commodity cycles, Stanley and his teams guide governments each day on resource development issues.

Stanley holds degrees in geoscience (BSc, Western University), mineral exploration (MSc, McGill University), and mineral economics and mining (PhD, University of Arizona) and is co-editor of the online *Extractive Industries Sourcebook*, the open-source platform for the extractive industries.

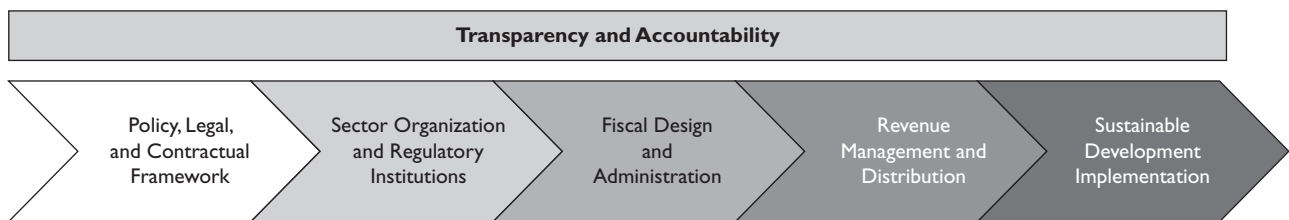
ABBREVIATIONS

AIPN	Association of International Petroleum Negotiators
APT	additional-profits tax
ARM	Alliance for Responsible Mining
ASM	artisanal and small-scale mining
BIT	bilateral investment treaty
BTC	Baku-Tbilisi-Ceyhan
CCSI	Columbia Center on Sustainable Investment
CDA	community development agreement
CGT	capital gains tax
CIT	corporate income tax
CNMG	China Nonferrous Metals Mining Corporation
CODELCO	Corporación Nacional del Cobre de Chile
CSMI	Centre for Sustainability in Mining and Industry
DPSA	development and production-sharing agreement
ECOWAS	Economic Community of West African States
EI	extractive industries
EIA	environmental impact assessment
EIMP	environmental impact management plan
EITI	Extractive Industries Transparency Initiative
ESIA	environmental and social impact assessment
ESMP	environmental and social management plan
EU	European Union
FLO	Fairtrade Labeling Organization
GOXI	Governance of Extractive Industries
HGA	host-government agreement
HSE	health, safety, and environment(al)
ICMM	International Council on Mining & Metals
IFC	International Finance Corporation
IFI	international financial institution
IMF	International Monetary Fund
IOC	international oil company
IPIECA	International Petroleum Industry Environmental Conservation Association
IRC	international resource company
IRMA	Initiative for Responsible Mining Assurance

ISEAL	International Social and Environmental Accreditation and Labeling
IUCN	International Union for the Conservation of Nature and Natural Resources
JDZ	Joint Development Zone
JOA	joint operating agreement
JV	joint venture
LNG	liquefied natural gas
M&A	merger and acquisition
MIA	multilateral investment agreement
MMDA	Model Mining Development Agreement
MMG	Minerals and Metals Group
MTEF	medium-term expenditure framework
MTF	medium-term framework
NOC	national oil company
NNPC	Nigerian National Petroleum Corporation
NRC	national resource company
NRGI	Natural Resource Governance Institute
OECD	Organisation for Economic Co-operation and Development
OPEC	Organization of the Petroleum Exporting Countries
PSA	production-sharing agreement
PSC	production-sharing contract
PWYP	Publish What You Pay
RRT	resource rent tax or rate of return tax
RSA	risk service agreement
RSC	risk service contract
SAR	Special Administrative Region
SEA	strategic environmental assessment
UNDP	United Nations Development Programme
UROA	unconventional resources operating agreement
VAT	value-added tax

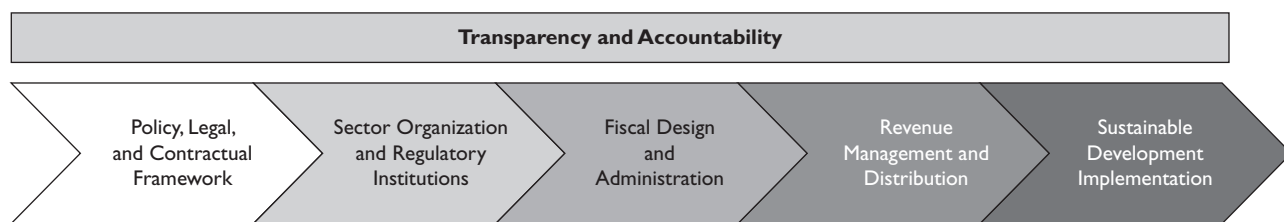
PART I

Extractives for Development



CHAPTER I

Shifting Patterns of Demand and Supply



1.1 INTRODUCTION

Oil, gas, and mineral resource wealth is widespread among developing states, where it frequently accounts for a large share of gross domestic product, export earnings, government revenues, and jobs.¹ Its potential for economic and social transformation is evident for any country capable of harnessing it.² Done effectively, in a single generation converting these nonrenewable natural resources into capital can allow a country to transition from poverty to at least middle-income status and enable its citizens to enjoy a better quality of life.

For low-income countries dependent on aid, a policy shift toward the extractive industries (EIs) offers the prospect of an economy more diverse than one defined by subsistence agriculture. It can help lead the way toward a balanced budget, a reduction in foreign debt, savings, and an opportunity to develop new industries. For countries emerging from serious conflict or severe economic misfortune, such a shift offers the prospect of a fresh start. It is not surprising that the number of countries seeking to use oil,

gas, and mining resources to undergird social transformation is increasing significantly.³ No fewer than 81 countries now have economies driven by these resources,⁴ and almost 80 percent of them have per capita income below the global average—the incentive for their efforts.

Yet EI is a sector that has aroused far more controversy than most and that raises many cautionary flags to newcomers. Contrary to expectations, a significant feature of natural resource development is that over half of the economies it has driven are *not* catching up (McKinsey Global Institute 2013, 6). Since 1995 they have failed to match the global unweighted average per capita growth rate. Even among those economies that have experienced long-term, above-average economic growth, it can be argued that they have not always enhanced prosperity in the wider sense: growth in productivity, resilience, and connectivity, for example.

For many years EIs' relationship to sustainability has been questioned. In a fair number of cases these industries have brought a surge of activity and investment that has triggered high expectations, only to disappoint, as the

benefits are retained by a few and the costs are borne by many. They have been called a “resource curse.”⁵ Development of the country in which the operations take place may not necessarily follow large-scale investment, at least not in the sense that investment generates long-term development impacts. In some cases, the country may even become worse off, depending on the human development indicators used, particularly environment-related indicators. This has led some to conclude that the discovery and development of oil, gas, and minerals is not a blessing at all or even a source of opportunities to accelerate economic and social development.

This debate has been thrown into sharp relief by the sudden end of the long commodities boom that benefited resource-rich countries during the early 2000s, when oil and metal prices reached historic highs. The reversal in commodity prices has underlined the vulnerability of this industry to volatility, unpredictability, and periodic shocks. Preparation for downward swings as well as upward swings is an essential task for any existing or aspiring resource-rich state.

If a single lesson has been learned from this debate, it is the need for governance structures that can ensure that short-term benefits are not obtained at the expense of long-term sustainability. Yet many citizens will find that the challenges of natural resource management are ones for which their governments are not well prepared.

Moving forward is more than a matter of installing or building “capacity.” It requires governments to understand how what is commonly described as “good practice” is continually modified and improved by research and comparative analysis, to test fresh approaches in a country’s unique context, and at the same time to persuade vested interests of the need for change. In practical terms, governments in resource-rich countries and countries that appear to have good resource potential will often inherit legal and institutional frameworks for EI activity that need to be reformed. In some countries, there may be only a patchwork of contracts in place, hardly meriting the consistency and cohesion implied by the commonly used notion of a *framework*. Policies that envisage long-term, resource-led development will often have to be designed from scratch.

In tackling these policy challenges, governments of resource-rich developing countries will quickly become aware of the current wide range of opinions and perspectives on resource-led development, bolstered by an impressive number of case studies and volumes of empirical data.⁶ Some will caution them that negative economic, environmental, and social effects can outweigh the potential benefits of natural resource development. However, recent

research has shown that there is nothing inevitable about either negative or positive links.⁷ A growing body of opinion, discussed in this and in the following chapters, argues that discoveries of oil, gas, or minerals can contribute positively to a country’s overall agenda for social and economic development if the challenges of resource management can be met successfully within the constraints imposed by environmental considerations. Many of those challenges are now thought to lie within the institutional or governance frameworks of the countries themselves. Governments and citizens in countries seeking to promote resource-led development must ask themselves, What should our priorities be and what choices are open to us?

The first question they should address is whether oil, gas, or other mineral exploitation is a good course of action or not. This is especially true in areas of high conservation value. There will be some situations where environmental (or social and cultural) factors are so significant, or occasions when the negative impacts cannot be reliably predicted, that oil, gas, and mining must be considered an incompatible option and a cautious approach should be adopted.

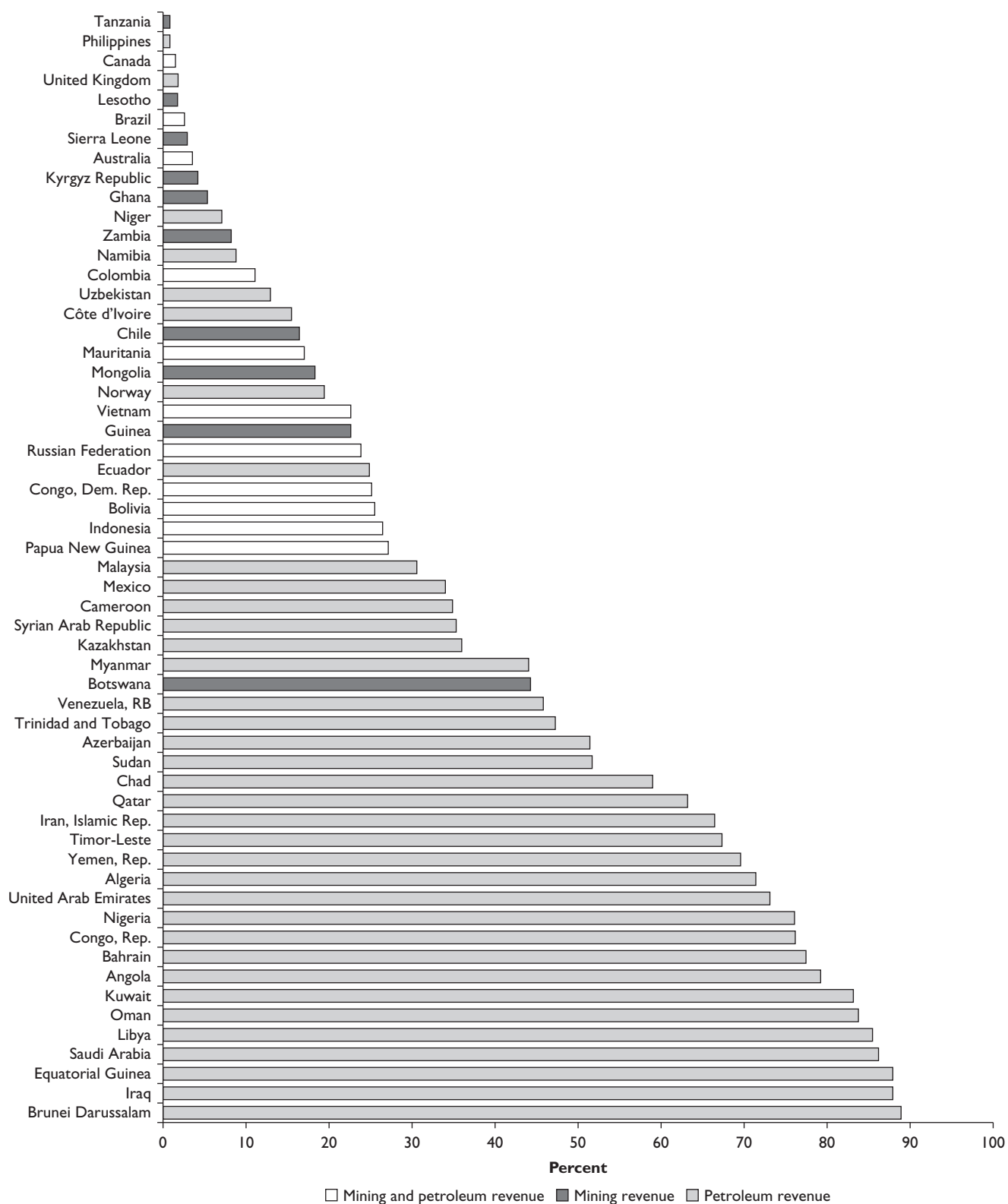
1.2 THE DEMAND FOR KNOWLEDGE

Not so very long ago, governments in many parts of the world were entirely dependent on international firms for the development of oil, gas, and mineral resources. The assumption of control by sovereign states is quite recent, as is their experience of designing and implementing their own policies addressing these resources.

For the first generation of states in the postcolonial world, knowledge of the optimum practices for their oil, gas, and mineral industries was often not readily available. As a result, these states were frequently dependent on and even had their policies shaped by the advice of international institutions and other outside bodies. Their legal and fiscal frameworks often reflected a colonial legacy or a reaction to it by pioneering new relationships with foreign investors designed to increase the state share of the expected benefits. Some of these innovations worked, such as the introduction of production sharing in the oil industry, and others were less successful, such as the use of state-owned companies in mining.

In the twenty-first century, on the crest of a wave of high prices and robust investment, a new generation of states joined or seemed about to join the club of petroleum and mineral producers (see figure 1.1).⁸ The new arrivals have diverse origins: some states have emerged from armed

Figure I.1 Share of Natural Resources Receipts in Government Revenues (averages, 2000–11)



Source: Daniel 2012.

conflicts and are hungry for reconstruction and growth; others have shaken off political ideologies that constrained policy choices and stifled initiative. Compared to their predecessors, the prospective resource-rich states are more open, pluralistic, and confident societies. At least 35 percent of them are low-income or lower-middle income countries (Dietsche et al. 2013, 7). Many of them are in Africa. No one needs to tell them of the potential that oil, gas, and mining operations offer to kick-start or accelerate development. They face a wider range of potential investors than ever before; new markets in Asia hungry for their exports; new areas available for exploration due to technological innovation, such as deepwater drilling; the potential for developing new sources such as shale gas and other unconventional petroleum resources; and the impact of new products and materials that require expanding rare minerals production. The number of prospective resource-rich economies can be expected to grow because large amounts of resources remain to be discovered, not least in Sub-Saharan Africa, where relatively little is known about the value of subsoil assets.

Yet for many of the new generation of resource-rich states, clouds have darkened the prospect of hosting large-scale foreign investment. Price volatility raises urgent questions about the right way to stabilize revenue streams and other benefits in the face of sharp falls in commodity prices. Moreover, the prevalence of decades-old mining codes, inadequate or absent hydrocarbons laws, and a patchwork approach to the conclusion of agreements with investors has pushed reform to the top of states' agendas. The complex implications of large new developments, notably in oil, gas, and iron ore, are also creating unfamiliar challenges for several low-income countries, with implications for their overall economic performance. For those states that have recently joined or that are about to join the club of resource-rich economies, there is an urgent need for guidance about what constitutes good practice in resource management and how to apply it while avoiding the much-publicized mistakes of many of their neighbors.

The aspirations and the needs of these states have stimulated the launch of a knowledge project called *Oil, Gas, and Mining: A Sourcebook for Understanding the Extractive Industries*.

For the new generation of petroleum and mining states, from Colombia to Ghana, from Timor-Leste to Mozambique, gaining knowledge itself is a major challenge. As noted earlier, there has probably never been so much knowledge available about the complex legal, economic,

contractual, and institutional issues that governments must address. There is a plethora of analyses, remedies, and recommendations. Most of this information is accessible, at least potentially, in hard copy or electronically, from almost anywhere in the world. However, it often carries the warnings mentioned earlier. The surfeit of knowledge sits alongside a body of literature replete with declarations about the dangers of reliance on these industries for development. Many prospective resource-rich countries have neighbors that have encountered difficulties in their resource development; even without familiarity with the extensive literature, countries interested in EI development become aware that significant risks can face the unwary. This is also a context in which the familiar shortage of staff with specialist skills and expertise acts as a constraint on the development of policy, the operation of proper institutions, and, of course, the absorptive capacity and interpretation of this wealth of available knowledge. In countries new to oil, gas, and mining development, there is uncertainty about where to find data relevant to their needs and about the reliability of many available sources, and there are concerns about a shortage of qualified staff to assemble, analyze, and utilize such knowledge and about the cost of accessing it.

By contrast, companies engaged in the international oil, gas, and mining business usually have an established body of knowledge and data, as well as an awareness of how to enhance them and the costs involved in doing so. Many companies have their own training centers and even "corporate universities." They are accustomed to working with a plethora of standards, codes, and guidelines, which provide them with benchmarks of good international industry practice, established themselves or through associations, or both. The result is an all too familiar asymmetry of specialist knowledge between the two traditional sources of demand: international investors on the one hand, and government departments and agencies in resource-abundant societies on the other. In the contemporary international economy, asymmetry is exacerbated by the global dimension of foreign investment. Corporations operate across jurisdictions and through highly complex structures of local subsidiaries, affiliates, and a web of offshore entities. As the authors of the *Africa Progress Report* have put it, the "combination of complexity, different disclosure requirements and limited regulatory capacity is at the heart of many of the problems" and "facilitates aggressive tax planning, tax evasion and corruption" (APP 2013, 51). As a result, a robust national response has to be supplemented by cooperation among governments, regional organizations, and the wider international community.

For the earlier generation of resource-rich states, this asymmetry of knowledge is all too familiar, and most have not entirely escaped it. Even with established EI sectors, countries such as Algeria, the Islamic Republic of Iran, Mexico, and Nigeria have felt it necessary to explore new institutional structures for their EI sectors. Even for the two categories of country identified by the International Monetary Fund (IMF) as being less at risk from the effects of the resource curse—(1) upper-middle-income, resource-rich economies and (2) high-income countries that are rich in natural resources—there is ongoing examination of legal and fiscal frameworks, revenue management, and the implementation of measures to ensure wide sustainable development of these exhaustible resources.⁹ For the IMF's group of 29 resource-rich developing countries, the need for policies to be informed by independent, critically assessed knowledge is more obviously immediate.

Demand from whom?

The states that can be described as resource-rich and as sources of demand for knowledge of EI are found in figure 1.1. The IMF distinguishes four kinds of resource-rich state: in addition to resource-rich developing countries, it distinguishes prospective natural-resource-exporting low- or lower-middle-income countries, upper-middle-income resource-rich economies, and high-income resource-rich countries. The kind of knowledge that each group requires will differ. For the poorest of them, for example, it may not be wise to follow Norway's example of saving funds offshore for future generations, when immediate development imperatives focused on poverty reduction exist today.

In practice, the present demand for specialist knowledge is driven by more than the needs of state governments. The new sources of demand for knowledge include national and regional parliaments; local nongovernmental organizations; new media; universities; technical experts; and the various donors of technical and financial assistance, such as national, regional, and global development institutions, and formal and informal civil society networks. Indeed, two leading development economists have observed that “the power and informational advantages of the major international oil companies are far less than before, except perhaps in technically highly demanding fields” (Gelb and Turner 2009, 40). As a result, there is a greater risk of misalignment of incentives. These remarks apply equally to the mining sector. Weaknesses in governance mechanisms can constrain governments' ability to be accountable to their citizens. Indeed, governments may in some cases even collude with

international investors—or with national EI companies where these exist—to act in ways that are contrary to their citizens' interests.

The kind of knowledge required by these groups is different from and more complex than the knowledge that investors typically seek. It is influenced by the negative experiences of other countries in developing their oil, gas, and mining resources. (For donors, it may be influenced by previous EI interventions in those countries.) These groups are aware that poor outcomes have often resulted from bad decision making by governments, and they want to ask questions that will help them mitigate the risk of such decision making in their own country. They will have a keen awareness that resources are finite and present a one-off opportunity for social and economic transformation.

This concern with accountability and transparency is often accompanied by high expectations of benefits from extractive resource development. A high priority is placed by local communities and most civil society groups in resource-rich regions on employment and, close behind, on the development of a domestic private sector. The credibility of governments will turn on their ability to create jobs. The influence of such groups is evident in current policies on inclusiveness, promotion of the purchase of local goods and services by investors, and calls for the elimination of the culture of secrecy that has often shrouded publicly held EI data from citizens. All too often, however, the learning curve of these groups is stunted by either a lack of relevant data (contracts or numbers) or a surfeit of data that can be fully understood only by those already in possession of specialist skills.

Five key knowledge areas

Apart from the hard technical knowledge provided by engineers and geologists, the knowledge of oil, gas, and mining typically sought by groups in their dealings with investors can be broadly classified in five content areas:

1. Policy and legal framework
2. Organization and regulation
3. Fiscal design
4. Revenue management
5. Sustainability, in the sense of environmental and social planning and management and the linkages of these activities to broader impacts across the economy

Each of these categories refers to combinations of levers that are crucial to successful EI development. Each refers to much more than operational knowledge that aspiring

technocrats need to master; each of these categories is informed by changing theoretical frameworks, principles, and lessons from incremental experience. Sometimes deceptively called “good practice,” this body of knowledge is continually adapted and is increasingly influenced by the development challenges of the new and prospective resource-rich countries.

The most basic strategic challenge that a government faces is whether to exploit the resource or to leave it in the ground. In some instances, the benefits of mineral resource extraction will outweigh the environmental and social costs. However, this is a decision that needs to be arrived at through a transparent and inclusive process, which will improve the quality of decision making. Yet, one cannot simply take for granted the decision to exploit the resource. There may be occasions when the environmental and social context is too sensitive or when not enough scientific evidence exists on the potential negative impacts of development. The choice is made more complex by the number of unknowns involved, not least about the geology.

The *Sourcebook* seeks to intervene in this knowledge challenge. It promotes a rebalancing of knowledge in the noted five categories in favor of those governments and stakeholders with the greatest need and the least means to access it.

This complexity of the demand for knowledge in key policy areas has one important consequence: the potential for volatility in policy design and implementation for long-term EI projects has never been greater. The key decisions in developing extractive resources largely remain ones made by governments and investors. Usually, the governments are highly centralized institutions, albeit ones that have varying interests and expectations about natural-resource-led development. Each of these institutions tends to rely on specialist agencies for knowledge inputs, policy implementation, and financial management. These bodies remain vulnerable to the long-standing asymmetry of specialist knowledge between themselves and international investors, evident from the moment that a contract negotiation commences. This familiar challenge is exacerbated by the fact that more than ever before, the constituencies that governments must respond to are highly diverse and inchoate; companies, too, are increasingly accountable to a broad stakeholder base rather than simply a body of shareholders and a company board. Both states and investors have a keen interest in the design of a fair and efficient fiscal regime and in the techniques for optimal management of resource revenues. However, the challenges facing any government in policy design are complicated by the fact that its

“shareholders” are a potentially large and diverse group, with shifting expectations of what can and should be achieved from the development of extractive resources. As a result, its goals are likely to be subject to change and to involve a mix of short- and long-term benefits. Whatever their form of government, people are likely to enjoy greater access to information about the opportunities and risks of oil, gas, and mining development than in any previous generation. Without a knowledge map for resource management, the potential benefits of this new supply are likely to fail to meet demand.

1.3 THE SUPPLY OF KNOWLEDGE

Ironically, in this shifting context of knowledge demand there remain common, almost universal problems that most countries will face as they explore for and develop extractive resources. Some of the fundamental challenges have not changed for many years, and ways of addressing them are long settled. For example, much scholarship and applied knowledge is available about the principal forms of state contract that allow states to cooperate with foreign investors in oil, gas, and mining activity. The main provisions of a mining or petroleum law, which allows states to set a stable framework for these activities, are also easy to identify. There is a consensus, too, about the main issues that governments must tackle when designing a fiscal regime to achieve a fair share of the benefits or an impact assessment to ensure protection of their environment.¹⁰

The established character of such knowledge is likely to be evident in each of the five areas identified as essential for governance of the extractive sector: policy and legal framework, organization and administration of the sector, fiscal design, revenue management, and implementation of sustainable development. The fundamental legitimacy of the extractive industries’ engagement with the sustainability dialogue is also well established: since oil, gas, and mining resources are not renewable, the conversion of nonrenewable natural capital into other forms of (renewable) capital is the fundamental objective.

There are many commonly used expressions for the body of principles and industry practice in its guise as a knowledge benchmark: it can be *good practice*, *best practice*, or even *good-fit practice*. The authors of the *Sourcebook* prefer the term *good practice*, because governments will be the proper judges of what is best for them in their unique contexts. The very best knowledge of welfare-promoting policies, institutions, and governance, demonstrated by

international experience, always needs to be applied to a particular context.

Such knowledge is continually tested in more than a hundred countries around the world, yielding lessons that may influence or change current thinking. It is dynamic. Experience also shows that successful application of this evolving body of generally accepted principles and techniques is heavily influenced by contextual factors, such as institutional framework or political economy. It is increasingly shaped by the growing number of countries using EIs as a development vehicle and the new thinking about development policy they are exposed to from donors, civil society, and media.

The supply of this kind of knowledge has become highly fragmented, with a growing number of organizations offering contributions. They include international financial institutions, development aid agencies, civil society groups, think tanks, and universities.¹¹ The institutions set priorities appropriate to their objectives and constituencies; their educational programs and publications reflect these. For some suppliers, it is the economic issues of fiscal design and revenue management that are of paramount importance; for others, it is the issues of revenue or contract transparency. A significant theme in the literature is the need for states to take the kind of measures that will avoid the so-called resource curse. Similarly, they are likely to emphasize and advocate inclusiveness in decision making by governments. The result is that knowledge of EI development available to a resource-rich state has vastly increased but has also become more fragmented and potentially confusing.

A major benefit of these new sources of supply, however, is that they allow comparisons of policies adopted by different states. It is crucial that any government absorb lessons from its neighbors and others farther afield, identifying policies that have delivered positive outcomes and avoiding the others. One must filter what can seem like an ocean of data offering contradictory assessments. Access to at least some of this body of comparative knowledge has typically been more challenging to a resource-rich government than to an internationally operating company in the extractives sector. The capacity to form an integrated view, to extract lessons appropriate to one's circumstances, and to apply knowledge will still not exist in some states or in those bodies identified as new sources of demand for EI knowledge, such as civil society groups at the national and regional levels or parliaments, despite what may well be their urgent need for knowledge.

International norms and standards have also burgeoned in recent years, with the Extractive Industries Transparency Initiative (EITI) Standard as one of many dozens of

examples. They affect not only governments but also the investors they will typically work with. Efforts to document or map the diversity of initiatives to make them more accessible to governments and limit duplication are also under way.

The aim of the *Sourcebook* is to synthesize cutting-edge research with direct experience in tackling the major issues in oil, gas, and mining development and to link the results to the holistic and integrated scheme of the EI Value Chain. Taking context into account, it examines the toolkit available to policy makers and their advisers to tackle these issues, and it reviews the options generated from successful resource experiences and those less likely to achieve positive outcomes.

For many of the new seekers of knowledge, access is likely to be most effective by means of electronic media. An online supply will offer resources of knowledge far greater than any printed version. However, the supply of data in this form is likely to be a patchwork and add to the modern dilemma of an information surplus and an understanding deficit. For local communities, civil society groups, and indigenous peoples, the supply of knowledge needs to be accompanied by a program of education. Publication of a production-sharing contract between a government and a foreign investor will not in itself lead to understanding or an ability to critically evaluate the contents of such a contract (although it may be a prerequisite). The reader needs to be equipped with an understanding of the key issues that such a contract typically addresses and acquire the basic tools for critical engagement with them.

Understanding the links in the chain of resource management requires a grasp of interrelations among several disciplines and a channeling of law, economics, and institutional design into policy making. Environmental criteria too must be included to underwrite the sustainability of the development. Knowledge of these links and their relations is crucial if a government is to meet the challenges of managing global extractive resources in a long-term, sustainable manner. However, a failure to understand and think through the linkages with other levers is likely to have adverse consequences. In particular, proper weight has to be given to the role of law, contract, and regulation, as well as the links that address economics and environmental and social sustainability. The latter link has too often been given only token recognition in the study of extractives-led development.

The central premise of the *Sourcebook* is that sound technical knowledge and awareness of practical options can lead to better political, economic, and social choices

with respect to sector development and the related risks and opportunities. Such choices are effective, however, only if they are closely linked to institutional capacity and country context.¹²

There is a necessary caveat to these remarks about the supply of knowledge in the EI field. Throughout, the assumption is made that the main players on the governance stage, and governments in particular, are able to recognize their need for greater knowledge of the EI sector and are willing to do something about it. A great deal is known about how to avoid the negative effects of oil, gas, and mining development, and even more knowledge is now in the mainstream about how to tackle legal, contractual, fiscal, and revenue management issues. However, there will always be some who will prefer opaque arrangements that leave scope to conclude deals on terms that are rarely published. Such arrangements may be concluded by governments, companies, or individuals within them for short-term business or personal advantage. They are unlikely to prove sustainable or capable of delivering benefits to the country or its peoples. The *Sourcebook* is not intended for those who are unwilling to harness specialist knowledge in the interest of sustainable economic and social development.

1.4 BRIDGING THE KNOWLEDGE GAP

The *Sourcebook* has been developed as a contribution to the new sources of demand. Drawing on many new sources of knowledge, particularly on an emerging network of knowledge centers and suppliers, it strives to present a compendium of established good practice. It is informed by recent research, includes a critical exposition of principles, and provides analysis of relevant experiences and commonly used instruments. It seeks to meet demand by presenting knowledge in both print and electronic forms, providing a concise, comprehensive, and dynamic guide that nonetheless notes the diversity of opinion and experience. It is guided by the awareness that without good governance and management, dependence on extractive industries can lead to poor development outcomes, including environmental degradation and social dysfunction that will undermine the sustainability of development.

The *Sourcebook* is therefore much more than an assembly of knowledge. It brings together diverse kinds of knowledge on the kind of operational issues that are driving demand and frames them in a new way. It advances and expands the knowledge base on practical approaches to the management of resource wealth. Its “creation” of knowledge includes rigor, accessibility, and the manner in

which it shares knowledge and information with users. Further, it aims to provide an overarching framework for the program of education now needed in this field, to guide knowledge exchange in the form of workshops, seminars, and symposia.

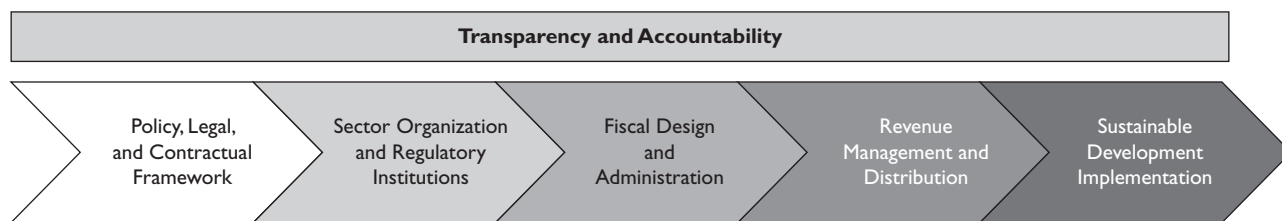
The *Sourcebook* is based on four premises:

1. The oil, gas, and mining—or extractives—industries, or “extractives,” have sufficient common characteristics to justify a unified assessment: the resources are taken from below the surface of land or seabed by human efforts and converted into sustainable opportunities. Key elements follow from this: the importance of geology, ownership by a surface owner, and the need for some degree of complex technology. The infrastructure-heavy linkages to extractives, such as transportation networks or grids, and complex manufacturing processes (crucial to both gas and mining) have fewer claims to homogeneity and can be treated as analytically distinct.
2. Successful management of the oil, gas, and mining sectors requires that all stages of the value chain, and any cross-cutting themes such as transparency and accountability, be carefully considered and viewed as belonging to a whole. Neglect of one aspect may undermine success in dealing with another.
3. No single approach will suit all states. The *Sourcebook* is a *guide* to good practice, which will require adjustments to differing state contexts. The arbiters of that adjustment process reside in the states. Not only will they need to tailor good practice to a particular national context, but also a particular policy is unlikely to suit each province or project or be suitable over time if circumstances—for example, prospects for extraction—change.
4. A focus on applied knowledge will serve the user well only if it is accompanied by a discussion of principles or general theory. Even if the *Sourcebook* provides the user with a very brief introduction to those general principles as they apply to topics such as awards of rights or revenue management, and furnishes guidance on further reading, it seeks to introduce and share with the user the core assumptions that often guide practice in the extractive industries.

The value chain

The concept of a value chain for the extractives sector helps drive the *Sourcebook*’s structure. This framing device captures both the comprehensiveness and the integration of core activities. See figure 1.2.

Figure 1.2 The EI Value Chain



The EI Value Chain emphasizes five distinct but related features in the sector management process (Alba 2009). Every resource-dependent state has to move through each of these if resource-led development is to take place.¹³ They cover (1) the establishment of a legal framework that will convey and enforce rights to investors within a broad policy for development of publicly owned resources, (2) the institutional organization of the sector and particularly the regulation and monitoring of operations in the public interest, (3) the design and collection of taxes and royalties, (4) revenue management and distribution, and (5) the implementation of sustainable development policies.

The EI Value Chain concept allows the *Sourcebook* to illustrate how good practice policy interventions must be made in an integrated manner if natural resource assets are to be transformed into resource wealth along a sustainable path. Public policy decisions have to be made at the various points in the chain; sometimes it may resemble a decision chain. A failure in decision making at one stage in the chain disrupts the sequence and affects the value of the resource assets as they are transformed along the chain. Policy makers need to take a holistic approach to EI sector development.

For each link of the EI Value Chain there are common problems that arise and practices that have evolved to address them. Knowledge of these problem-solving practices and their continuing evolution is the *Sourcebook's* principal subject matter. Understanding entails more than an assembly and description of practices, instruments, and principles. It requires interpretation and contextualization for a proper understanding and appraisal. The dynamic of shifting public policy priorities in problem solving—sometimes in response to international or regional developments—also has to be taken into account.

The fifth chevron—sustainable development implementation—attempts to capture related policy considerations that address the challenge of developing resources in a sustainable way. This chevron differs from

the others in that it is primarily policy based rather than rule based. It presupposes that a strategic choice has already been made to exploit resources as the most sustainable scenario, with trade-offs and costs weighed in a transparent manner.

There are two parts to the approach to implementation. First, because the resources are finite, states must ask whether policies should be designed so that future generations benefit from their development. Are the resources to be developed rapidly without concern for possible spinoffs in infrastructure or other economic development? Or are these considerations to be built in to maximize benefits over the long term and attempt a wider economic and social transformation? Second, it aims to capture environmental and social impacts of oil, gas, and mining activities. Although these are evident at earlier stages of the EI Value Chain, where sustainability criteria should be developed, they are likely to be weighted more to this end of the chain, once production has commenced and revenues are flowing.

Three features of our approach to the EI Value Chain in the *Sourcebook* should be noted:

1. It includes a cross-cutting feature on transparency and accountability to reflect their significance (see chapter 8).
2. It attaches enhanced significance to the establishment of a legal and contractual framework (the rule of law), in contrast to some other versions of the value chain.¹⁴
3. It emphasizes the need to ground the good practice recommendations of the *Sourcebook* in a political economy context—that is, the constellation of specific institutional and governance features that will shape the application of good practice and require such practice to fit if it is to achieve its intended aim.

In a recent study of results chains and logical frameworks applied to the extractive industries, the authors emphasized the risks of their becoming “rigid frameworks (blueprints)

that give people reason to be lazy in their thinking” (BMZ and GIZ 2011). To avoid this, “causal relationships, underlying assumptions and the measurement of change should be the objects of permanent, critical and self-critical debate.” The *Sourcebook* accepts that advice and seeks to implement it in the application of the EI Value Chain. In addition to the preceding comments about our distinct approach, three caveats about the EI Value Chain concept should be noted; they have influenced its application in the *Sourcebook*:

1. *Starting point.* Very few countries will be able to approach the design of their petroleum or mining regimes as if they were starting at the first chevron with a clean slate. All too often they will inherit old, poorly drafted laws and a patchwork of agreements in need of revision. The value chain used in the *Sourcebook* needs to be adapted to less than ideal circumstances, which all too often impose constraints on policy makers and their advisers.
2. *Governance.* The EI Value Chain assumes that a minimum level of governance or potential for governance of the EI sector is in place.¹⁵ In certain states where there has recently been a high level of conflict or where the state itself might be classified fragile, this assumption may not be tenable. Moreover, a feature of the EI sector that has attracted increasing comment is what may be called *fragmented governance*, the often fragile relationships between central and local organs of authority, which can be exacerbated when expectations are boosted by the prospects of resource wealth. Again, this context will impose limits on the assumptions about governance that the EI Value Chain makes. Finally, the Value Chain tacitly assumes a consensus about the kind of governance that is appropriate to optimal EI development. This is a brave assumption to make when (1) experience shows plenty of evidence of failure in institutional design, and (2) contemporary governance requires a much greater level of integration of players for governance to be sustainable.
3. *Player diversity.* The sequential value chain approach of the *Sourcebook* should not obscure an important feature of the EI industries. The dynamics of the EI sector mean that the same players are not always present at the various stages of the chain in a particular project. In practice, there are different types of players that are prepared to engage in EI activities, and as a result different business models are in play.

Chapter structure

Chapters 1 and 2 of the *Sourcebook* introduce the key topics with a brief discussion of the opportunities and challenges associated with resource wealth. This is an important and often contrasting balance, given the vivid examples of countries that have squandered resource wealth or have seen a significant rise in conflict following discoveries of minerals and/or hydrocarbons. Yet for any country that finds itself with geological good fortune, there is the prospect of a new beginning in the development cycle, of a chance to bypass decades of grindingly slow progress and join the world’s wealthier nations in a generation rather than a century. Realizing this vision requires learning lessons, and not only those from the past: some countries with natural resource discoveries may have no past in the extractive industries. It requires a careful assessment of the experiences of other countries, often neighbors, whose policies were designed to reflect different (and sometimes very different) circumstances, constraints, pressures, and hopes. The *Sourcebook* directs attention to the problems that any country embarking on natural resource development will need to address; it pays particular attention to the detail of operations and gives less attention to matters of high principle, leaving others (perhaps better qualified than we are) to address those important matters.

Chapter 3 provides an overview of the distinctive and relevant features of the oil, gas, and mining sectors. The concept of *extractives*—of different products entailing similar development challenges—gained wide currency only in recent years. Previously, oil and gas were seen as very different from mining, an industry with a much smaller market capitalization but with a much larger propensity for controversy in its social and environmental impacts. To an outsider, however, it is self-evident that these sectors have much in common, and that insight lies behind their treatment in the *Sourcebook*. For those who wish to learn about the specifics of each sector—natural gas development, for example, has many differences from oil—the treatment in various chapters attempts to provide this. Laws, policies, and fiscal frameworks need to understand and reflect these real differences while at the same time benefit from an awareness of their similarities. In development terms, the extractive industries are not just another economic sector—where they predominate in a country’s economy, they have a potential to transform the host state like very few other industries. For all states in the global economy, the extractives have a role that is of fundamental importance, one that appears very unlikely to change in the near term. It is all the

more important to ensure that their role is as benign as possible for all parties concerned.

Chapters 4 to 7 follow the first four of the five links in the EI Value Chain. They examine in detail each of its chevrons: legal and policy frameworks, conditions for access to mineral resources, regulation and monitoring of operations, revenue collection, and management and investment. This body of knowledge is the most important and in our view the original contribution of the *Sourcebook* to current debates on the role of EI in development. The four chapters adopt a problem-solving approach, emphasizing the issues that countries typically encounter in EI development and providing options in addressing them. The diverse material is linked by means of the value chain concept. It underlines the importance of an integrated view to EI development and implicitly cautions against a piecemeal approach to policy and regime design, however tempting that may be, given the many unknowns that exist about the exact resource potential of oil, gas, and minerals.

Chapters 8 and 9 provide a review of issues that cut across all of the links in the EI Value Chain: on the one hand, transparency and accountability, and on the other, the implementation of sustainable development policies and projects, including environmental and social considerations. The latter is usually seen as a fifth chevron in the value chain and is presented as such in the *Sourcebook*. However, in reality its subject matter crosses all of the other chevrons, and in this book we have elected to treat it separately to emphasize this cross-cutting character. With respect to the transparency and accountability, enormous efforts have been made in recent years to employ them in the extractive industries, following increasing evidence of spectacular abuse of revenues in certain countries. In this very important area, the *Sourcebook* gathers data and knowledge of existing initiatives, such as EITI and Publish What You Pay. The impacts of such initiatives will be felt increasingly with respect to regulatory compliance by the extractive industries. These are not the only cross-cutting topics, but they cover the most important ones.

Chapter 10 addresses issues of governance that bring together several strands in the *Sourcebook* and look forward to practical implementation of this body of knowledge in specific contexts.

Accessing the *Sourcebook*

The *Sourcebook* has two principal ways of meeting demand for specialist knowledge. It has an electronic version (www.eisourcebook.org) and a printed version. In many

countries access to electronic media is easier and faster than access to a printed copy. The scope of an online version is also as broad as the imagination of the persons creating and operating it and as deep as the demands its users dictate. It can provide a guide but also supply the user with case studies and examples of primary and secondary source material on a large scale. It can lay the foundations of a dedicated program of education in specific areas such as revenue management or contract design. It can allow the *Sourcebook's* objectives to be met in a way that the printed copy cannot.

The electronic version taps the potential of a medium ideally suited to building a compendium of knowledge, using open-source architecture to permit new contributions from a global end-user community with frequent updates based on committee peer review of new submissions. This is reinforced by hundreds of examples of contracts, regulatory instruments, development toolkits, and annotated bibliographies. Third-party comments or contributions are invited and are posted subject to light review. Research papers are specially commissioned from *Sourcebook* partners to address knowledge gaps and are publicly available.

Since its launch in late 2012 the online version of the *Sourcebook* has grown to reach an audience of almost 10,000 unique users a month, including visitors from all of the continents and most of the resource-rich countries on the IMF list.

The online version of the *Sourcebook* is also intended to facilitate end-user dialogue and discussion; it includes an interface for comments and interacts effectively with several other web platforms. One of these is the United Nations Development Programme (UNDP) and World Bank Institute's Governance of Extractive Industries (GOXI) website.¹⁶

The print version complements the online version but has a style and content that matches the potential and the limits of this form. It recognizes not only some readers' individual preferences for print but also the fact that in some countries Internet connections are not yet reliable enough to permit regular access to the online *Sourcebook*. For teaching purposes, a hard copy also has some advantages over an electronic form.

Both the hard copy and the electronic versions use a box feature to highlight particular issues, national experiences, or special initiatives.

Irrespective of the form, knowledge in the *Sourcebook* is layered like a geological structure. The principal layer or bedrock is the narrative contained in each of the *Sourcebook's* chapters. This is the principal content of the hard copy version and is also available in the online version.

This layer is the foundation for comments and diverse views and experiences that are added to the online version by users. In the hard copy, such examples of diverse views and experiences are provided in the text, the footnotes, and end-of-chapter suggestions for further reading (“Other Resources”). The online version also provides access to an annotated bibliography, linked to brief summaries of documents, comprising both primary and secondary source material. A further level is provided in the online version by the growing body of attachments containing annotated sample texts and documents, such as laws, model contracts, and actual contracts; commentaries and studies by independent bodies, industry associations, and advocacy groups; and policy documents. This is in turn supplemented by a layer comprising papers on knowledge gaps; these documents have been commissioned by the *Sourcebook* to address issues that our consultations have identified as inadequately researched or that have acquired a new significance in the existing body of knowledge. The cumulative effect of the layering approach is to allow the user to dig ever more deeply into a particular topic of interest.

1.5 OUR APPROACH

Globally, there are a number of knowledge centers or policy institutes that specialize in the development issues that the *Sourcebook* has identified as priorities. Usually, these are institutions or units with extensive exposure to societies where there is strong demand for knowledge about EI development. The knowledge centers have provided them with assistance in contract negotiation, on-site workshops, and long-term advice on legal and fiscal arrangements. In virtually all cases, they are responding to a need for additional capacity in the state requesting assistance. Their goal is to apply specialist expertise to specific problems that urgently need to be addressed, and these fall within the categories of the EI Value Chain.

In developing its compendium, the *Sourcebook* project has taken a first step toward establishing a global knowledge consortium that brings together specialist centers and universities, convenes discussions, and participates in knowledge management. It has showcased their research into the core subjects of the debate on development in the EI sector. The lead partner in the *Sourcebook* consortium is the University of Dundee’s Centre for Energy, Petroleum, and Mineral Law and Policy in the United Kingdom.

From a core of partners, the *Sourcebook* consortium has grown to include more than a dozen centers and aims to expand further to ensure a genuinely international

collaborative approach. The key criterion for inclusion has been international recognition of the organization’s research relevant to the EI sectors. The disciplines are varied, from economics and law to environmental and policy analysis. As a result, an embryonic international network of diverse institutions with specialist knowledge is now developing. Its goal is to incorporate a set of varied inputs on good practice around the world into the *Sourcebook*, which lies at the heart of the network.

In its first phase, the international partners included the Centre for Social Responsibility in Mining at the University of Queensland (Brisbane, Australia), the Center for Sustainability in Mining and Industry at the University of Witwatersrand (Johannesburg, South Africa), the World Bank and a partnership with the Mining Committee of the International Bar Association (London, United Kingdom). This grouping has developed significantly since the *Sourcebook* was launched in September 2011. Partners now include WWF International; the Columbia Center on Sustainable International Investment, a partnership between Columbia Law School and the Earth Institute at Columbia University (New York); the University of Bourgogne’s Centre de recherche sur le droit des marchés et des investissements internationaux (Center for International Investment Law) (France); the Energy and Minerals Institute at the University of Western Australia; the Extractive Industries Transparency Initiative; and the University of Calgary’s School of Public Policy (Canada). Civil society groups that have joined include Global Witness, PACT (a not-for-profit international development organization), OpenOil, and the Natural Resource Governance Institute. Leading capacity-building bodies now affiliated include the African Center for Economic Transformation (Accra, Ghana), the Commonwealth Secretariat, Evidence and Lessons from Latin America (ELLA), the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development, and Adam Smith International (London). Well established as the foremost source of standards in transparency are the World Bank and the Inter-American Development Bank. To ensure that the *Sourcebook* properly accesses industry practice, partnership status has also been given to leading associations of companies in the EI sector or related bodies: the International Council on Mining and Metals, the International Tax and Investment Center, and the International Petroleum Industry Environmental Conservation Association.

A feature of the research collaboration within the *Sourcebook* consortium is that a partner may bid for work that fills an identified knowledge gap. Such work may be specially commissioned for inclusion in the online version

of the *Sourcebook*. Works carried out to date by *Sourcebook* partners are referenced in this narrative and are available in full on the *Sourcebook* website. These are accompanied by *Sourcebook* briefs, which summarize the objectives, contents, and conclusions of each of these specially commissioned works.

Reaching out

In reaching out to its target audience, the *Sourcebook* complements a number of valuable, related initiatives directed at improved governance of the EI sectors.¹⁷

Overarching principles have been produced in recent years by various expert bodies, from the Africa Mining Vision and the EITI to the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development and the Natural Resources Charter. A selection of these initiatives is listed in the readings at the end of the chapter, and comprehensive mapping of many of these initiatives has been included in the online version of the *Sourcebook*.

These principles for the most part center on good governance and achieving a positive, sustainable developmental impact and a reduction in poverty through careful attention to the management of the EI sectors. Success in implementing them depends on a range of what may be considered technical inputs or practices, primarily legal and economic, covering the EI sector value chain, and success will necessarily be constrained by political economy considerations, which will vary from state to state. These goals and these paths are the subject matter of the *Sourcebook*.

1.6 CONCLUSIONS

The principal justification for EI lies in its power to convert natural capital into other assets that can rapidly accelerate the shift away from poverty in many of the world's developing countries. To be effective, however, this transformation needs to take place within a transparent framework of sound institutions established to ensure that EI development puts more into societies than it takes out.

The rapidly growing number of states that rely on oil, gas, and mining for much of their revenue has created an urgent need for practical knowledge that draws on the most recent research and experience. Some of this research and experience challenges established knowledge in the five EI Value Chain areas identified as crucial by the *Sourcebook* project. However, many techniques, instruments, and policies have been tried and tested over the years and remain of value to nascent and established resource-rich states.

The *Sourcebook* relies upon capture of the existing knowledge frontier in five key areas across several disciplines; it seeks to equip its users to better respond to the issues that challenge EI sector management and development. Through its online and printed versions, the *Sourcebook* can contribute to unlocking the opportunities offered by EI and so transform policy interventions for the better.

The *Sourcebook's* premise is that no two resource-rich countries can or should manage their resources in the same way, leaving each country with important choices about the type of regime that suits its unique combination of circumstances, including its institutional structure and level of social and economic development. For decision makers and their advisers, for parliamentarians charged with oversight of these decisions, and for others such as civil society groups, the *Sourcebook* is a guide to good practice in the management of upstream oil, gas, and mining sectors, across the entire EI Value Chain, from the award of rights to the expenditure of resource revenues.

NOTES

1. "Resource-rich" countries make up one-third of the International Monetary Fund's (IMF) members; they are dependent on extractive industry revenues for their future prosperity (IMF 2012a, 6). The IMF has distinguished four groups of these countries: 29 resource-rich developing countries; 12 prospective natural-resource-exporting, low- or lower-middle-income countries (defined according to a World Bank classification); 14 upper-middle-income, resource-rich economies; and 8 high-income, resource-rich countries (IMF 2012b, 47–49). In earlier research, it identified over 35 developing states as "petroleum rich" and 20 states as "mineral rich based on the following criteria: (1) an average five-year share of petroleum or mineral fiscal revenues in total fiscal revenues of at least 25 percent or (2) an average share of petroleum or mineral export proceeds of at least 25 percent. In most cases the observed shares are well in excess of 25 percent" (IMF 2007, app. I).

2. For example, the Africa Progress Panel notes, "Far from being hostage to a noncurable resource curse, this generation of political leaders has an opportunity to harness resource wealth for a transformation in human development" (APP 2013, 8). Even for a high-income, resource-rich, diversified economy, such as the United States, the economic benefits of large-scale development of unconventional oil and gas resources have been spectacular.

3. Throughout the *Sourcebook*, "mining" excludes petroleum products and natural gas, although these are also minerals and are "mined." This is a conventional definition, which includes coal and uranium and which the *Sourcebook* follows.

4. The McKinsey Global Institute (2013), defines resource-driven countries as those economies where the oil, gas, and mineral sectors play a dominant role, using three criteria: (1) resources account for more than 20 percent of exports, (2) resources generate more than 20 percent of fiscal revenue, or (3) resource rents are more than 10 percent of economic output.

5. The literature on this subject is vast, with the term being used by a large number of writers. It is discussed further in chapter 2 of the *Sourcebook*. One of the earliest examinations of the thesis is in Richard Auty's (1993) *Sustaining Development in Mineral Economics: The Resource Curse Thesis*.

6. Here "resource-rich developing countries" means the low- and middle-income countries with exhaustible natural resources (such as oil, gas, and minerals) that comprise at least 20 percent of total exports or 20 percent of natural resource revenues (IMF 2012b, 6).

7. There are many sources of evidence for this. For example, an IMF (2012b, 6) paper states, "A natural resource 'curse' is neither universal nor inevitable; growth may depend heavily on other factors, such as policies and the quality of institutions." See also APP 2013.

8. The IMF (2012b, 47) listed among "prospective natural resource-exporting developing countries" the following: Afghanistan, Central African Republic, Ghana, Guatemala, Kyrgyz Republic, Lao People's Democratic Republic, Madagascar, Mozambique, São Tomé and Príncipe, Sierra Leone, Tanzania, and Togo.

9. The robust debate about future resource management in Norway, widely recognized as one of the world's best managed resource-rich economies, is illustrative of the continued dynamic that these issues foster.

10. Environmental assessment is present not only at the project proposal stage. It is typically applied to policy choices and to regional planning, to assess the cumulative impacts of numerous projects within the same catchment area.

11. These include Norwegian Agency for Development Cooperation, AusAid, Canadian International Development Assistance, Commonwealth Secretariat, U.K. Department for International Development, and African Center for Economic Transformation.

12. Recommendations for environmental and social impact assessment, for example, will make little sense if they are submitted to governments with no capacity to implement them.

13. As a recent study notes, "The credibility, quality, transparency, and accountability of policy-making processes, public institutions, the legal and regulatory climate, and sector governance are major determinants of how successfully countries can channel their resource wealth into sustainable development" (Barma et al. 2012).

14. In some versions of the value chain the emphasis is on the decision to extract and getting a good deal as the first links in the chain or award of contracts and licenses. This version takes explicit account of the need for a legal framework without which no investor will have security of tenure and will therefore be unable, in most cases, to secure financing to commence extraction in the event of a commercial discovery. The need to have such a legal structure in place may be assumed by the notion of award of contracts and licenses, but this underplays the influence of EI laws and model contracts at the predisccovery stage in attracting investment into the host country. In this respect, the *Sourcebook* follows the work of Mehlum, Moene, and Torvik (2006), who use a measure of institutional quality that takes into account the rule of law, bureaucratic quality, government corruption, a risk of expropriation, and government repudiation of contracts (all common to political risk analysis) and conclude that the main reason for diverging country experiences of EI resource development is differences in the quality of institutions. There are no direct measures of democracy or accountability used in this analysis.

15. A recent research tool in this area is the World Bank's Mining Governance Assessment (MGA) tool, designed to facilitate understanding of the convergence of governance, competitiveness, growth, and investment issues related to the mining sector in developing countries. It was launched at the Cape Town Indaba on February 9, 2015.

16. UNDP and World Bank Institute, Governance of Extractive Industries (GOXI) website, www.goxi.org.

17. See Other Resources at the end of this chapter.

REFERENCES

- Alba, Eleodoro Mayorga. 2009. *Extractive Industries Value Chain*. Extractive Industries for Development Series 3. Washington, DC: World Bank.
- APP (Africa Progress Panel). 2013. *Equity for Extractives: Stewarding Africa's Natural Resources for All—Africa Progress Report 2013*. Geneva: APP.
- Auty, Richard. 1993. *Sustaining Development in Mineral Economics: The Resource Curse Thesis*. London: Routledge.
- Barma, Naazneen H., Kai Kaiser, Tuan Minh Le, and Lorena Vinuela. 2012. *Rents to Riches? The Political Economy of Natural Resource-Led Development*. Washington, DC: World Bank.
- BMZ and GIZ (Federal Ministry for Economic Cooperation and Development, Germany). 2011. *On the Use of Results Chains in Natural Resource Governance: Basic Concepts and Exemplary Applications to the Extractive*

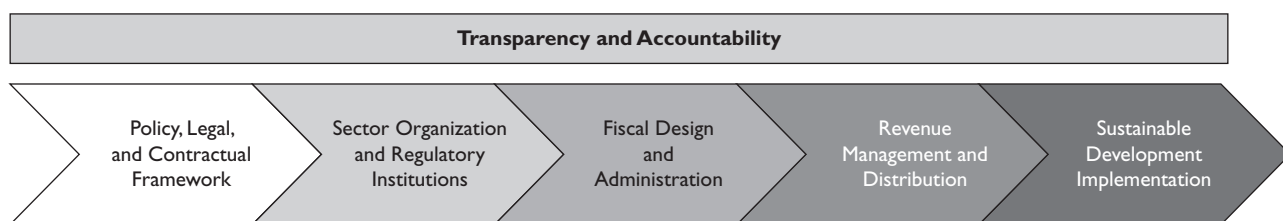
- Industries*. Bonn: GIZ. <http://www.ipa-cologne.de/reports/bennett-leutner-roesch-2011-results-chains-eng.pdf>.
- Daniel, Philip. 2012. "Fiscal Regimes for Extractive Industries: Design and Assessment." Paper presented at the International Monetary Fund "Natural Resource Charter Workshop," International Monetary Fund, Washington, DC, December 6.
- Dietsche, E., S. Dodd, D. Haglund, M. Henstridge, M. Jakobsen, E. Sindou, and C. Slaven. 2013. *Extractive Industries, Development and the Role for Donors*. Oxford, UK: Oxford Policy Management. http://www.opml.co.uk/sites/default/files/OPM_DFID%20topic%20guide_web.pdf.
- Gelb, Alan, and Ginger Turner. 2009. "Confronting the Resource Curse: Lessons of Experience for African Oil Producers." In *Globalisation and Economic Success: Policy Lessons for Developing Countries*, edited by B. Desker, J. Herbst, and G. Mills, 36–75. Johannesburg: Brenthurst Foundation.
- IMF (International Monetary Fund). 2007. *Guide on Resource Revenue Transparency*. Washington, DC: IMF. www.imf.org/external/np/pp/2007/eng/051507g.pdf.
- . 2012a. *Fiscal Regimes for Extractive Industries: Design and Implementation*. Washington, DC: IMF.
- . 2012b. "Macroeconomic Policy Frameworks for Resource-Rich Developing Countries." Background Paper 1, IMF, Washington, DC.
- McKinsey Global Institute. 2013. *Reverse the Curse: Maximizing the Potential of Resource-Driven Economies*. New York: McKinsey & Company.
- Mehlum, Halvor, Karl Moene, and Ragnar Torvik. 2006. "Institutions and the Resource Curse." *Economic Journal* 116: 1–20.

OTHER RESOURCES

- Extractives Resources Hub. www.extractiveshub.org.
- Extractive Industries Transparency Initiative website. <https://eiti.org>.
- International Council on Mining and Metals website. <http://www.icmm.com/>.
- Natural Resource Governance Institute website. <http://www.resourcegovernance.org>.
- United Nations Economic Commission for Africa, *Africa Mining Vision*. <http://www.africaminingvision.org/>.

CHAPTER 2

Extractives: Opportunities and Challenges for Development



2.1 INTRODUCTION

The strategic character and macroeconomic significance of the extractive industries (EIs) is not in doubt. They concern economically crucial natural resources—oil, gas, and minerals—located underground or beneath water and capable of being extracted and marketed by human endeavor. Their extensive applications in the modern, globalized economy are well known. Looking ahead, minerals from hard-rock mining will provide critically important materials for more sustainable economies of the future. The same cannot be said of oil and coal, even if a pragmatic approach suggests we may have no choice but to continue their development.

Chapter 2 reviews some of the dominant thinking about the opportunities and challenges of resource-led development and explains in detail the approach of the *Oil, Gas, and Mining: A Sourcebook for Understanding the Extractive Industries*. It charts the emergence of the “development model,” which sees positive outcomes from EI activity if certain conditions are fulfilled. It also provides a summary

of the main themes in a very extensive and rich body of literature, in ways that might benefit those unfamiliar with it or who are unable to access much of it.¹ It has no pretensions to being more than an introduction.

Current thinking on the interaction between natural resource policy and development policy is still evolving in the light of research and lessons from practice. The end of the long boom from around 2003 to 2012–13 has triggered rethinking and fresh analysis. Further insights and policy recommendations can be expected. Changing perspectives on mining over the past 15 years have significantly shifted the focus from large-scale, capital-intensive mining operations to the mining sector as a whole, including artisanal and small-scale mining, in assessments of sustainable futures. Other examples of changing perspectives include diverse efforts at integration of extractive industry investments into local communities and the regional economy. These efforts include, for example, the design of local benefit policies on procurement and “resources-for-infrastructure” deals championed by

investors from various countries, including, notably, China. (See the Angola model, discussed under “9.3 Challenge 1: Leveraging EI Investments for Development” in chapter 9).

For the various governmental and nongovernmental bodies now seeking to influence or shape their domestic extractive industries, familiarity with the themes in this body of research can be useful. They inform—sometimes only implicitly—virtually all of the contemporary discussion on policies for resource-led development. In effect, they set the parameters within which the initial strategic decision is made whether or not to engage in development through extraction. They also inform the design and choice of specific operational techniques and instruments, such as decisions on the kind and scope of rights allocated to investors, the way in which they are awarded, and the appropriate schemes for sharing benefits among public and private parties. Their impact on our understanding of good practice has influenced the approach taken by the *Sourcebook*.

2.2 THE OPPORTUNITIES ARISING FROM RESOURCE ABUNDANCE

Wealth on the scale experienced in some resource-rich states, both absolute and relative, can generate significant positive development outcomes. Even for states with modest abundance or prospects for petroleum or mineral deposits, the outcomes from resource development could be transformative. The potential to attract significant investment also exists. In the first decade of the 21st century, investments in mining were estimated at about US\$80 billion, with much of this destined for iron ore and copper. Investments in hydrocarbons exploration and development by the largest 70 international oil companies increased from US\$315 billion in 2007 to US\$480 billion in 2011 (Ernst & Young 2012).

It is scale more than anything else that is the key to the flow of revenues in the EI sector. For lower-income countries, revenues resulting directly from the exploitation of resource wealth have the potential to exceed official aid flows by a very wide margin. In principle, such revenues could unlock the constraints of foreign exchange, savings, and public finance and support a broad range of social and physical infrastructure priorities common to developing states. These can include initiatives in the health, education, transport, and telecoms sectors. Increased, well-designed public expenditure of resource revenues can promote both local employment and local ownership in economic activities, contributing not only to economic diversification, growth, and well-being but also to social and political stability. More and more countries face this prospect.

Figure 1.1 (chapter 1) depicts natural resources receipts in 57 countries: oil, gas, and mining revenues made a significant contribution to the public finances of a growing number of countries from 2000 onward. In a study of 36 petroleum-rich countries, the portion of government revenues drawn from oil and gas operations ranged from 10 percent to 97 percent, with the average at 50 percent overall (Boadway and Keen 2010). A separate listing of 10 mining-rich countries showed that mining’s share of total government revenue ranged between 1 percent and 44 percent, averaging 11 percent overall. Of the 35 countries most dependent upon mining, all but Australia and the Republic of Korea can be classified as developing countries, and of the top 70, no fewer than 63 are low-income countries that could leverage their development prospects through mining (ICMM 2015).

The literature on resource development notes the many states that have already benefitted from the development of their petroleum and mineral resources. As Alan Gelb (2010) comments, “Developing countries as a whole have been remarkably successful in diversifying their economies and their export structures.” In the 1960s, he writes, about 80 percent of developing country exports were primary commodities; 50 years later, almost 80 percent were industrial products. Some have become major industrial powers; others have diversified within resource-based sectors (fresh produce, fish, and tourism, for example). For developing countries that are dependent on the export of minerals, however, it has proved harder to break free from dependence on their dominant resource. Indeed, the number of countries heavily dependent on minerals for fiscal revenue and exports appears to be increasing (Gelb, Kaiser, and Vinuela 2012). Even so, in terms of economic development based on the extractive sector, there are undeniable success stories, including selected states in the Middle East and North Africa, Colombia and Peru in South America, and Malaysia in Southeast Asia. In the mining sector, Chile, Botswana, Brazil, Ghana, and South Africa are much-cited examples of states that have used their resource wealth beneficially. In both India and China, the rapid pace of economic growth in recent years is largely attributable to their access to large amounts of inexpensive energy through coal mining (which nonetheless internalizes environmental externalities). In later chapters, the *Sourcebook* will elaborate on some of these examples of positive development.

Within this group, there are important differences in the development and diversification options open to countries in particular regions, a fact that has generated significant comment. Export states of oil, gas, and other minerals can differ in many respects, such as population, labor force and skills,

location, levels of income, reserves, and the potential for other employment. This has a major impact on development and diversification policies. The oil-rich and labor-importing countries of the Persian Gulf have different priorities and challenges from oil-rich and labor-abundant countries in Sub-Saharan Africa. For low- or middle-income countries with substantial populations, large development needs, and a dominant resource sector, the entire approach to benefiting from resource development is different still. In their cases, a policy of short- to medium-term industrialization is unlikely to be a driving force. Moreover, the shortage of capital in such countries encourages them to draw on resource revenues for domestic investment; in turn they will need strategies for “investing in investing,” or building an institutional capacity to make good investments (Collier 2011, 127–29).

Nonetheless, there is an increasing appreciation among established and prospective resource-rich countries, civil society and donors that EI sector development can generate benefits to the economy beyond the direct contribution of revenues, through its links to other sectors. It can act as a catalyst for job creation, poverty reduction, and the establishment of forward and backward linkages (Liebenthal, Michelitsch, and Tarazona 2005, 1). The former can entail support for local or national small and medium-sized enterprises in building a role in the investors’ supply chains and developing nonresource dependent clusters of industrial activity. Backward linkages entail measures to process the resources or to use the resources to build local industry. Although the idea that governments should intervene to support broad-based economic growth is not new, the extent and type of intervention has evolved into policies designed to establish these linkages.

Benefits for the host country

The guiding idea is that in the long run a diversified economy can do better than one locked into resource exports. Three kinds of initiatives for harnessing a growing EI sector to reach development goals follow.

LOCAL BENEFIT POLICIES. These are now seen as one way to create favorable linkages and build economic capital at the national and subnational levels (Tordo et al. 2013; World Bank 2015; Esteves, Coyne, and Moreno 2013). Large EI companies with millions of dollars of annual procurement can provide a significant business opportunity to the local economy if they are prepared or encouraged to include local small and medium-size companies in their supply chain. In many respects, the EI sector is a small contributor

to employment creation, but through indirect and induced employment in the supply chain and through the provision of support services, a specialized labor force may be built. It presents a window of opportunity, but attention to be paid to its long-term sustainability (for example, when facilities close down).

RESOURCES FOR INFRASTRUCTURE. Infrastructure presents a viable opportunity when countries seek multiplier effects in the local economy from EI development. Its expansion can open up opportunities in other industries, including agricultural exports and tourism. Yet gaps in infrastructure are one of the main bottlenecks to growth in developing countries. By leveraging investments and developing new initiatives, EI projects can create or expand critical infrastructure and unlock regional development potential.² This can include improvements in power, roads, rail, ports, and information and communication grids. In practical terms, financing is a key issue. In Africa, this has been a particularly acute problem. Some new investors have been willing to finance infrastructure (mostly hydropower projects and railways) in return for rights to natural resource exploitation and contracts in “resource for infrastructure” transactions and for diplomatic ties with the host government. Some of the major transactions have been government-to-government ones between the China Export-Import Bank and countries in Africa, such as the Democratic Republic of Congo, that are unable to provide adequate financial guarantees to back their loan commitments. The thrust of such transactions is that the country’s resources act as collateral to expand production, to rationalize transport, and to make exports more efficient through the grant of finance.

RESOURCE CORRIDORS. The effect of investment opportunities on infrastructure can be both long term and regional, creating multistate zones and so-called resource corridors. The idea behind this spatial development initiative is to counter the enclave (small-scale, local, geographically limited) impact that is typical of hydrocarbons and mining projects by using large, commercial oil, gas, and mineral investments (and their need for infrastructure and goods and services) to anchor opportunities for broader economic growth and diversification within the immediately impacted communities. The policy goal is a viable and diversified economic space, which would not occur through market forces alone.³ Meeting the goal requires two key elements: the establishment of a viable financial framework based on the expected increase of government revenues as a result of EI activity, and capacity building among government, private sector, and civil society to develop and implement

development plans. This approach would be inclusive of the impacted communities.

For an ambitious government, EI sector activities can be leveraged to generate economic development that may be wider and longer lasting than the EI sector activities themselves. This includes beneficial impacts that may well be regional as well as national in character. In combination, they provide an important justification for supporting the EI sector in spite of the challenges that this presents to many governments (discussed in section 2.3).

Local benefits are considered at greater length in chapter 9 of the *Sourcebook*. We also note the shifts in thinking about mining, particularly the sector known as artisanal and small-scale mining (ASM), that have taken place in recent years. These create the potential to open opportunities for the inclusion of this sector in overall plans for the development of the mining sector in resource-rich countries (see box 2.1).

Grounds for optimism about the likely success of these linkages to development policy are provided by the following considerations:

The contribution of investors

Resources-for-infrastructure transactions underline an important trend over the past decade: the growing participation of private and other corporate investors in promoting integrated sustainable development at local regional levels, locating their transformative investments in a development context. An early lead in this was taken by Chinese companies in Africa (see discussion in chapter 9). However,

industry associations in the oil, gas, and mining sectors remain active in developing guidelines, toolkits, and manuals for and with their members to raise the level of best practice in their operations, especially in terms of their social and environmental impacts.

A failure to do so is increasingly perceived by investors as creating a risk to their “social license to operate.” To counter this, they will typically seek to harness the synergies between public and private investment to ensure that EI projects in poor regions contribute to optimizing the development potential of local, national, and regional communities affected by these transformative projects. This requires industry and government to engage in avoidance, mitigation, and amelioration of environmental and social damage. At the very least, community consultations must occur.⁴ Oil, gas, and mining companies could also demonstrate good corporate citizenship through policies of local sourcing. The *Sourcebook* includes examples of their willingness to engage with host governments in maximizing social benefits from EI activities.

Discovery and development

Recent research has documented the frequency and scale of new discoveries of hydrocarbons and minerals and the role of enhanced development in expanding known resource reserves and supplementing them with, for example, shale gas and oil (Gelb, Kaiser, and Vinuela 2012). Further, as a result of technological changes, the market value of known natural resources can change by making them easier to extract or by increasing the amounts that may be

Box 2.1 Changing Perspectives: Reframing the ASM Debate

Artisanal and small-scale mining (ASM) has undergone reframing by the international community over the past few decades (see chapter 9). This affects the understanding of what ASM is, how it is organized, and what type of activity it undertakes. The new framing has had significant impacts on approaches to resolving challenges that face this subsector, leading to a variety of different approaches. For example, if one considers ASM a poverty-alleviation strategy, then approaches typically focus on it as a development opportunity, a practice in need of a policing exercise, or one requiring ways to transition practitioners out of mining and into economic alternatives. By contrast, if ASM is considered a viable economic

activity, then the focus of the agenda becomes increasing productivity through technology, access to finance, and better organizational representation. Policy choices may cover a range of these perspectives depending on the national ASM demographic. The first question to ask is whether the people wish to remain as miners or to leave for opportunities elsewhere. New research suggests that many miners now consider such mining a profession (Hilson 2010; Hayes and Perks 2011). This has implications for the design of policy.

The challenge of the ASM sector becomes a question of how one sees ASM in the first place: as an opportunity or a problem.

discovered. Calculating a resource horizon for extractive industries can therefore be a challenge, as the horizon often recedes into the future (Daniel et al. 2013). Many geological parts of Africa are also seriously undermapped, suggesting that a great deal of resources remain to be developed.

2.3 THE CHALLENGES

Many observers have noted that, all too frequently, development outcomes in the EI sector are less potent and less beneficial than expected.⁵ Indeed, the outcomes can become highly damaging to the resource-rich state. Resource-rich developing states typically underperform economically relative to non-resource-rich peers. They score badly against critical human development indicators, experience environmental degradation, and see more than their fair share of social and political instability and violent conflict. Taken together, factors such as these have led some to describe the outcomes as the “resource curse” or the “paradox of plenty” (Auty 1993; Karl 1999).⁶ This linkage of oil, gas, and mining development with negative outcomes has become common currency among policy makers, academics, civil society members, and the media.⁷ Probably due to the very large rents in the oil sector, it fares particularly unfavorably in such negative outcomes as violent conflict and corruption.⁸ Research into these negative—or at least disappointing—outcomes has generated a rich and diverse literature of case studies and theoretical perspectives for analysis of the challenges that undoubtedly arise in the extractive industries (Humphreys, Sachs, and Stiglitz 2007; Hogan and Sturzenegger 2010). However, a body of opinion has emerged countering the idea that negative outcomes are inevitable.⁹ It seeks to identify the features of EI development that may lead to those negative outcomes, with a view to facilitating interventions in policy that may mitigate their effects.¹⁰ The most commonly observed negative features are reviewed briefly in the following material.

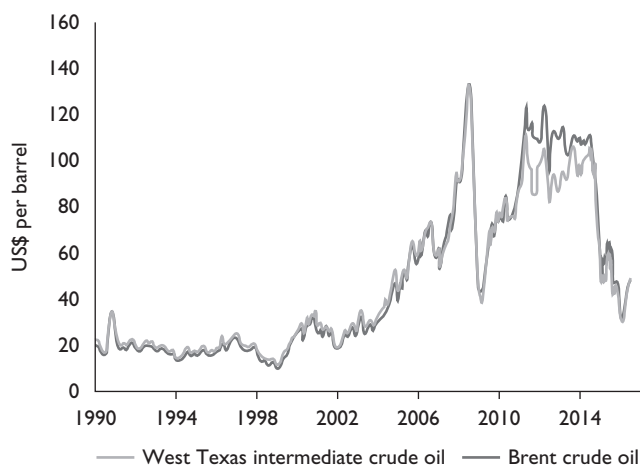
Technical factors

The three technical or nonpolitical factors most commonly identified as contributing to the resource curse are (1) revenue volatility, (2) the so-called Dutch Disease, and (3) resource exhaustion.

REVENUE VOLATILITY. The volatility of petroleum and mineral prices and hence a large proportion of revenues is well documented, but arguably the challenges facing resource-rich economies of managing the long-term uncertainty of commodity prices have been underestimated. For some

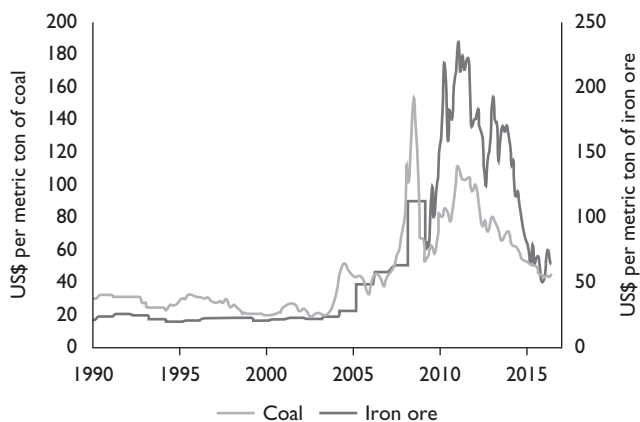
researchers, this has been identified as “one of the most damaging aspects of resource dependence” (van der Ploeg and Venables 2011, 18). Over the past 15 years, the price of oil has increased fivefold, fallen 50 percent, and then doubled again (see figure 2.1), only to trend downward and then drop by almost 50 percent in the second half of 2014. Over a longer period, the average annual change in oil prices has been close to 30 percent (Lipsky 2009). Mineral prices have shown similar volatility (see figure 2.2). Between early 2011 and early 2015, iron ore prices had fallen by 70 percent, coal by 54 percent, and copper by 40 percent (Sachs and Maennling 2015). This will translate into more volatile budgetary revenues for exporters of these resources. Indeed, revenues are on average at least 60 percent more volatile for

Figure 2.1 Price of Oil, 1990–2015



Source: World Bank.

Figure 2.2 Price of Coal and Iron Ore, 1990–2015



Source: Index Mundi (www.indexmundi.com).

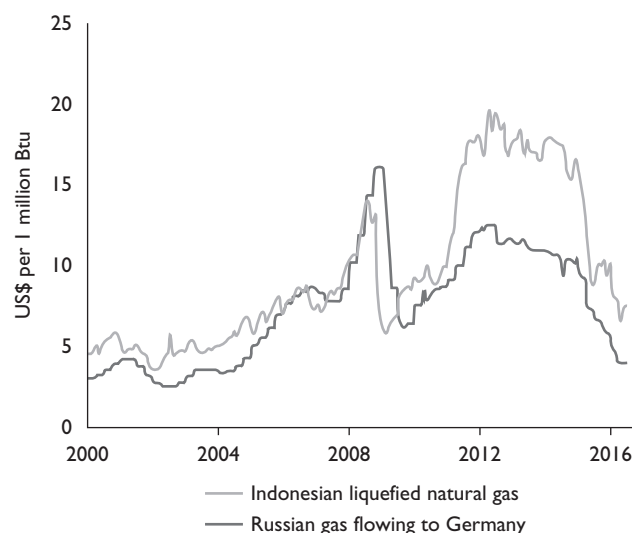
resource-rich countries, and spending volatility has been even greater, according to an IMF (2012, 12) study.

Natural gas prices are based on markets that have a regional character in contrast to crude oil, rooted in the difficulties and cost of moving it across long distances. As one observer has noted, “[There is] no particular reason why different regional markets for natural gas need to move in step with one another—and they frequently do not—but natural gas shares many of the same demand drivers as oil, and indeed other commodities, and over time, tends to experience similar price cycles” (IMF and World Bank [2017], illustrated by figure 2.3).

Volatility on this scale makes macroeconomic management difficult under the best of circumstances. Among the consequences are budget deficits and increased borrowing; painful fiscal adjustments and the need for systems to manage them, lower capital investment and delayed or cancelled projects, lower rent generation and pressures for fiscal incentives to maintain investment, and exchange rate fluctuation.¹¹ The challenge of volatility is compounded by the fact that the scale and direction of price changes are unknown, or at least very uncertain. As an IMF source has noted, “Booms and busts can involve prices moving by as much as 40–80 percent for as long as a decade” (IMF 2015b, 2). Price forecasts in the resource sectors have also been notoriously inaccurate (see figure 2.4). As a leading petroleum expert noted, “What is remarkable

about the 2014 price rout is not that it happened, but that it seemed largely unexpected by market commentators and financial institutions” (Skinner 2015, 1). In this broad historical context, we can safely assume that disruptive boom-bust expenditure cycles are a likely risk in the extractives sector.

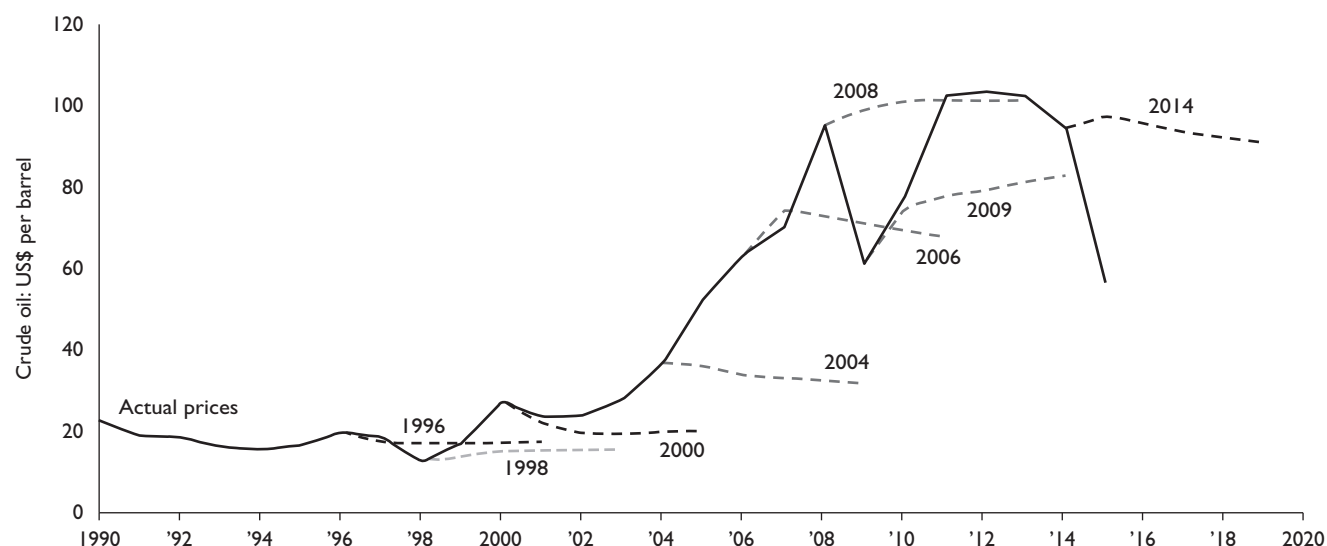
Figure 2.3 Natural Gas Prices, 2000–2016



Source: IMF and World Bank 2017.

Note: Btu = British thermal unit.

Figure 2.4 A Poor Record of Forecasting Oil Prices



Source: Adapted from IMF 2015a, 3, figure 1.3.

Note: The figure depicts IMF estimates and market projections. The estimate for 2015 is based on actual data for part of the year and future contracts. The solid line represents actual crude oil average prices for the year. The dashed lines depict market projections for prices (futures contracts).

While price volatility is the most common source of resource revenue volatility, volatility may also result from the discovery and exploitation of major new and unexpected resource deposits.

DUTCH DISEASE. This phenomenon involves significant appreciation of a resource-rich state's real exchange rate.¹² This appreciation puts upward pressure on domestic prices, is attributable to a sudden and major inflow of foreign exchange associated with resource exports. As a result, preexisting nonresource exports and import-competing industries lose their competitiveness, and domestic labor and capital shift to the resource and nontradable sectors, which diminishes the host state's economic diversity. This shift often comes with adverse consequences on employment because shrinking sectors such as agriculture and manufacturing are labor-intensive and the expanding resource sectors typically are not. In addition to restraining economic diversification, Dutch Disease also increases a state's vulnerability to shocks stemming from the resource sector. These shocks frequently precipitate social and political unrest, particularly between resource-producing and non-resource-producing regions within countries. This underscores the importance of policy responses to exchange rate appreciation.

RESOURCE EXHAUSTION. Oil, gas, and mineral resources are by their nature exhaustible, and by implication so are the exports on which the countries depend. This requires policy makers to plan in advance for resource decline and eventual exhaustion, identifying a *resource horizon*.¹³ It requires recognition on their part that EI-generated revenues are the transformation of assets in the ground into other assets. As one authority on mining commented, "Once such resources have been extracted their physical form is profoundly altered and they can never be replaced in the same state" (Crowson 2009). However, planning for the decline and eventual end to resource exploitation and associated revenues is a difficult task that is rarely executed in resource-rich states. A failure to plan, however, is likely to result in a need for wrenching and destabilizing economic adjustments. Of the three technical factors, exhaustibility is often seen as unique to EI, because the resources are nonrenewable.¹⁴

Political factors

In addition to the technical factors that contribute to negative outcomes from resource development, political factors play a role. These have proven even more difficult for policy makers to address. As a leading development economist

noted, "Although the initial explanation for the resource curse, Dutch Disease, was purely economic, it has gradually become evident that the key issues are political" (Collier 2010, 1105).

A common thread in much of the recent literature is the central role of government behavior: for example, in collecting, managing, and distributing revenues.¹⁵ At the same time, there is an element of critique: "Governments have not always been the best stewards of these resources, increasing the clamor for better governance and social accountability for natural resource use" (Canuto 2012, xi). To operationalize this critique and encourage improvements, efforts have been made to measure the quality of governance in the oil, gas, and mining sectors of many countries. One example is the Resource Governance Index produced by the Natural Resource Governance Institute.¹⁶ Taking a sample of 58 countries that collectively produce 85 percent of the world's petroleum, 90 percent of its diamonds, and 80 percent of its copper, it is a diagnostic tool to help identify good practices and governance shortcomings. An initial finding is that more than half of the top performers are middle-income countries: Brazil, Chile, Colombia, Mexico, Peru, and Trinidad and Tobago. This suggests that being a wealthy country is by no means a precondition for good governance.

Underlying this concern with governance is an awareness of a dynamic that links EI activities to the formation or exacerbation of institutional weakness.¹⁷ When a state's primary revenue stream is coming from natural resource rents, tax revenue from other economic sectors becomes less important.¹⁸ There are likely to be few linkages with the rest of a resource-producing state's economy due to the capital-intensive nature of the EI sector industries, and the fact that, in many cases, the industry is dominated by foreign entities. Dependency on the EI sector for revenue can weaken a state's taxation system, which in turn may undermine the accountability of its rulers.¹⁹ Resource-rich states can substitute tax revenues with resource revenue, distorting the relationship between taxation and representation.

This "independence" of resource revenues from the general population can make it easier for elites in some states to manipulate those revenues for personal or political gain at the expense of the public good.²⁰ Furthermore, the complexity and opacity that is characteristic of many resource sector operations tends to obscure waste and abuse. The sheer scale of resource revenues, whether measured in absolute terms or in terms of the margins they generate, has also proved a lightning rod for graft and corruption (Le Billon 2011, 2).²¹ In fragile states where property rights are not

strongly rooted, the prospect of large resource revenue flows can trigger destructive rent-seeking competition.

Such considerations can erode accountability not only in the resource sectors, but also in society and the economy as a whole (Le Billon 2011, 3). When scored against almost any indicator of good governance, country comparisons usually find developing states with a high dependence on resources for their development in the bottom third of any list.²² However, it is sometimes argued that failures to properly manage resource wealth are the consequence of preexisting governance problems. This merits some consideration. On the one hand, there appears to be ample evidence to support the claim that causality runs from resource wealth to weakened governance (Le Billon 2011, 3, n. 11). On the other hand, evidence suggests that the strength of this link is influenced by a state's political and institutional context (Le Billon 2011, 10). If it was institutionally weak *before* the resources were developed, it will tend to become weaker. The key point here, however, is not that institutional quality can be impaired by the impact of resource wealth but that little of this effect is attributable to natural resource endowments *per se*.

Global norms and standards can play an important role in strengthening accountability in the extractive industries and their development impacts at a country and project level. The ways in which key stakeholders have sought to strengthen sector governance norms and standards are considered in chapter 8 of the *Sourcebook*. Among the many examples, note the promotion of transparency in resource revenue management by the International Monetary Fund (IMF 2007, app. I). These multilateral and donor-led initiatives attempt to promote inclusive and equitable outcomes, taking into account distinct producer and investor country concerns, and to reduce the potentially substantial costs of nontransparent practices. The trend is now to explore specific requirements for contract transparency and the assessment of economic, social, and environmental impacts.

Other challenges facing policy makers

GUARANTEES OF LONG-TERM STABILITY. What guarantees of fiscal, legal, and regulatory regime stability should a government provide to a foreign entity investing in that state's resource sector? What kind of limitations to its freedom to make changes at a later date can, or should, a government agree? Such guarantees will usually be sought by foreign investors at the initial stage of contract negotiations when resource-rich states are normally eager to agree to terms that will induce an investment commitment. They tend to

be offered by states with an eye to similar efforts by neighboring states to attract capital investment. However, these stability provisions often come under strain at later stages of the investment if a significant geological or commercial success is realized. This phenomenon has been characterized differently by commentators from various disciplines: by economists as "time inconsistency," by lawyers as "stability of contract," and by political scientists as "the credibility of intertemporal commitments."²³ These issues are discussed in detail in chapter 4 of the *Sourcebook*.

DEFINING A FAIR SHARE. How is a government to ensure that a fair share of economic rent goes to the resource owner (the public citizens of the host state vis-à-vis private investors) without undermining the investor's confidence in undertaking the risk?²⁴ This is comprehensively discussed in chapter 6 of the *Sourcebook*. In practice, many factors affect how economic benefits are split, including considerations such as the maturity of the EI sector in a state, the amount of real and perceived political risk, and the types of commodity involved. The growing impact of measures to promote transparency is relevant here.

DESIGNING A COMPETITIVE LEGAL FRAMEWORK. In view of the global competition for capital, how does a government design a legal and regulatory regime that can be competitive with those in similarly situated resource-producing states elsewhere? There is an international dimension to the design of legal and regulatory frameworks in resource-rich states. On the one hand, they should be designed in a manner that fosters gradual and sustainable growth at home, including diversification into non-EI sectors (World Bank 2006). On the other hand, they need to attract investors who shop around on the international market for places to locate their investments. This challenge is comprehensively discussed in chapter 4 of the *Sourcebook*, while aspects of international taxation are discussed in chapter 6.

ENERGY CONSERVATION AND ENVIRONMENTAL PROTECTION. How is a government to improve the efficiency of operations and reduce emissions and other impacts on the environment by means of well-defined policies and appropriate guidelines? This and other issues relevant to sustainability, such as maximizing positives from extractives development and avoiding negatives, are discussed in chapter 9 of the *Sourcebook*. Even in cases where EI sector development has made positive economic contributions in resource-rich states—such as in Guyana and the Philippines—environmental costs have been high and have not been well managed and mitigated.

Nowadays, good practice in petroleum and mineral development argues strongly in favor of mechanisms that minimize negative environmental and social impacts. However, the way in which this is done involves a critical appraisal of the institutional structure, because that is where the problems often commence.

2.4 UNDERSTANDING THE CHALLENGES: CHANGING PERSPECTIVES

Research into the benefits and costs of extractive resource development has been voluminous and has gone through a number of phases over the years, influenced by real country experiences, such as the sudden wealth acquired by Middle East oil states in the 1970s and early 1980s.²⁵ The principal indicators used by researchers have been growth, conflict, and democracy. Initial work by development economists in the early 1960s was broadly optimistic about the benefits, arguing that natural resource abundance would enable developing countries to make the transition from underdevelopment to an industrial take-off. A decade later the trend had begun to swing sharply against this view, influenced by the Dutch Disease phenomenon. Natural resource wealth became associated with slower growth, greater inequalities, and impoverishment in rural areas, as well as bad institutions and increased risk of civil conflict in the literature of the 1990s.²⁶

Some of the assumptions on which the resource curse literature is based have not stood up well. The influential thesis by Sachs and Warner (2001) that there is a robust inverse relationship between growth and resource riches was qualified by Hausmann and Rigobon (2003), who point out that oil-rich economies performed well economically in the 1980s when oil was doing well, contrary to what one would expect from the Dutch Disease thesis. Lederman and Maloney (2007) have argued, drawing on case studies, that resource wealth combined with appropriate policies and institutions can contribute significantly to long-term growth. Alexeev and Conrad (2009) argue that the resource curse with respect to oil is elusive, and this conclusion applies to the alleged impact on institutions. They argue that econometrics used in previous studies contained flaws.²⁷ More recent work has become markedly more positive, probably because it adopts a longer historical time series on natural resources than earlier research did. It focuses on isolating the within-country relationship between natural resource revenues and economic growth or democracy, and finally it employs measures of resource abundance *per se*, instead of economic dependence upon

natural resource wealth. Attention has also shifted to other important issues, not least the capacity of institutions in host countries to manage EI activity. As van der Ploeg and Poelheke write, “Natural resources can be a blessing for countries with the institutional means to spend the proceeds wisely (van der Ploeg and Poelheke 2009, 19).”

Political economy

The linkage of economics to politics has provoked a growing interest in political economy among development specialists. The line of thought is that a focus on extractive resources as the source of problems is mistaken; instead, the problems are better understood as arising from institutions or from the interaction between institutions and resources.²⁸ In some countries a narrow concentration of political power has been identified as an important variable in conditioning the potential for negative development outcomes. Hence, a political economy form of analysis would direct attention to the particular way in which institutions distribute or concentrate power and examine the implications for possible effects of resources on economic growth, corruption, conflict, and other variables. This approach is thought to capture “the interplay between politics and valuable natural assets,” which is responsible for negative effects: “politics can affect the exploitation of natural assets, and natural assets can affect politics” (Collier 2010, 1106).²⁹ It has led economists to focus on the particular challenges that companies face in striking credible deals in weak institutional settings.³⁰ This focus has resulted in a number of innovative implications for contract design.³¹ Barma et al. (2012) build on the results of several existing studies to identify two dimensions: political inclusiveness and intertemporal credibility. The first is needed if countries are to spend rents in a broadly developmental way. The second allows countries to contract efficiently with EI companies and manage intertemporal volatility. A typology using these two dimensions leads to principles for enhancing the development orientation of the EI sector.

Assessments of political systems and their effects have often been skeptical. Among them is the conclusion of Collier (2010, 1106) that “the political systems best suited to harnessing natural assets are those least likely to develop once natural assets have become important in the economy.” Even democracy proves insufficient: if there are no effective checks and balances on power, competition for natural resource rents can make democracies malfunction.³² The management of resource wealth contrasts with normal taxation: it does not invite public scrutiny and

accountability and encourages the emergence of patronage politics (Collier 2008). An alternative view emphasizes choices that governments can make, taking context into account: “A natural resource boom can have effects that go in different directions, and which effects dominate may depend on existing institutions, structural and economic factors, and other variables” (Dunning 2008). Some research has attempted to rank countries according to particular forms of political system, rather in the way that some think-tanks have done so with respect to political risk, albeit with the difference that the audience for the former kind of research is not primarily one of corporate investors.³³

For those institutions engaged in the provision of development assistance, the political economic approach has proved attractive. A World Bank senior official has stated, “A consensus is emerging that policies will be effective in leveraging natural-resource-led development only when they are compatible with the level of institutional quality and the political economy context of the country in question.” They have generally endorsed the conclusion of political economy scholars that “it is futile to try to change economic institutions without considering the underlying political forces through which they emerged and are sustained.”³⁴ Yet those are the very institutions that need to be targeted if the negative effects of resource development are to be avoided. As several of the IMF’s leading advisers have noted, “The effectiveness of public investments depends upon institutional factors, such as the capacity to select, implement, and evaluate projects” (Daniel et al. 2013, 21). Without a thorough, critical analysis of the political economy of those institutions, specific interventions by development institutions may well fail. An example of political economy analysis in use by a development institution is provided by the Organisation for Economic Co-operation and Development in relation to fragile states. Its general view was that state-building should be the central objective of assistance and that the best way to achieve it is by focusing on state legitimacy and state-society relations. In a study of Kenya, using political economy analysis of this type, three dimensions of state legitimacy were identified: how the state functions, what the state does, and what the citizens believe is legitimate (Sundet and Moen 2009). The results were offered to the Norwegian Agency for Development Cooperation (NORAD) as a series of recommendations for its current and proposed interventions.

Another strand in research on the resource curse addresses measures of resource dependence and resource abundance. States in the former group have been viewed as more vulnerable to the negative effects of natural resource development.

Yet some research has suggested that once resource abundance (proxied as a measure of natural resource wealth) rather than resource dependence (the average national income share of natural resource exports over a defined period) is used, the effect of natural resources on growth performance is positive and thus the resource curse disappears (van der Ploeg and Poelhekke 2009, 8). Brock Smith (2015) has argued that most of the empirical literature on the resource curse suffers from two significant identification flaws: as a commonly used measure, “resource wealth” is better understood as “resource dependence,” and the use of cross-sectional data. His conclusions about the impacts of major natural resource discoveries on GDP per capita levels persisting in the long term are positive. This kind of research is significant in the light of twenty-first century trends in global demand for natural resources, which have encouraged new discoveries of hydrocarbons and minerals and intensified extraction of existing deposits in the frontier areas of the developing world (albeit less so since 2013–14). The east coast of Africa has provided a vivid illustration of this push for fresh discoveries and the potential for wider impacts on the region. The share of global rents derived from petroleum in Sub-Saharan Africa increased sixfold from 2000 to 2008, with oil rents representing more than two-thirds of the total (Barma et al. 2012, 11). East Asia Pacific’s share grew from 9 to 17 percent of the total during the same period. This underlines the growing number of states that are becoming resource dependent, and the need for access to guidance on policy design to counter factors that can lead to negative outcomes. As this review shows, the risk of such outcomes is more likely to be present among poor countries, less diversified than others and with fewer institutional resources to cope with the impacts of resource development.

Further change?

The end of a long boom period in mining and hydrocarbons activities from about 2014 has triggered further reflections on the resource curse theme. Just as a consensus appeared to have emerged that this seductive but counterintuitive idea had too many flaws to be useful, it appears that many resource-rich countries have reached the end of this boom with little to show for it and with the prospect of years of hard times ahead. Why is development for them proving to be so hard (Venables 2016)? Has the resource curse idea touched on some connection between extractives and development that merits further research?³⁵ It is too early to say what the new round of inquiry into this theme will yield,

but the reflections triggered by the downturn are already breathing new life into this as a topic for research.

2.5 APPLYING NEW INSIGHTS

The aforementioned perspectives on extractive resource development offer insights into the design of good practice solutions in the five areas identified as key in the EI Value Chain. They also offer a dilemma.

On the positive side, the emphasis on the risks of weak institutional quality and the value of political economy analysis is accompanied by a sense of great potential in natural-resource-led development. Good institutions, good laws, and regulatory systems could catalyze a broader-based development for prospective and current resource-rich economies. This is in alignment with the aspirations of a growing number of countries and has been emphasized by leading civil society groups, international organizations, and industry associations. The Africa Mining Vision, for example, has a goal of creating a “knowledge-driven African mining sector that catalyzes and contributes to the broad-based growth and development of, and if fully integrated into, a single African market” (AUC, AfDB, and UNECA 2011, 8). However, more than ever before, the kind of reform that is implied is much more of a collaborative, coordinated, and consensus-driven one among the government agencies and levels and the various players in resource development in a country. There are cross-border and international dimensions that further underline the collaborative scope and nature of any resource-led development in the current setting. In this process of change, knowledge will play a crucial role in understanding the issues and in persuading parties to agree to particular solutions.

The dilemma is this. A limitation on much of the research discussed in the preceding section follows from the macro-level at which it operates. Its relevance to education is beyond doubt, but how such insights can be translated into applications is less clear and more challenging. Even the most concrete form of political economy analysis will remain a step away from the world in which governments make decisions. Any government will be faced with very practical challenges. It will already have decided that the balance of opportunities and challenges is favorable. Whether its own structure can be described as “patrimonial” or “hegemonic” will probably be of little interest to it. It will not be able to escape such questions as the following: What kind of rights should it offer the eager investors knocking at its doors? What balance of rights and obligations in a contractual relationship is appropriate to its unique circumstances?

The learning curve may also be steep. Governments will usually find it hard to resist the overtures of foreign investors seeking contracts for EI activities. Faced with a mountain of legal provisions and economic data that is typical of EI contracts and business models, their need for the capacity to interpret, analyze, and negotiate becomes acute. Moreover, some grasp of longer-term challenges such as revenue volatility and resource exhaustion (and how to meet them) is required. All too often, limited capacity on the government side results in a deal that offers visible short-term benefits but low credibility in the long term, reflecting inadequate negotiating skills and a poor understanding of how to evaluate a fair deal in a specific setting.

For nongovernmental bodies and individuals, the questions will also have urgency. How do we understand and interpret the contracts that our government is negotiating or has negotiated with foreign investors? Are they fair in relation to good international practice? Does the proposed new law contain all the provisions a good hydrocarbons or mining law should contain? Such questions concern long-standing and much used contractual instruments in the extractives industries. Without a thorough understanding of the established body of knowledge, policy decisions will be impoverished and accountability will be reduced, making negative outcomes probable. The need to provide assistance in this area has been recognized by a number of civil society groups and policy institutes in recent years; manuals of accessible analysis of oil and mining contracts are one of the early results (OpenOil 2012; RWI et al. 2013).³⁶

The response of the *Sourcebook* is to treat in detail the principles, measures, and techniques that could allow for a better management of oil, gas, and mineral resources in the five key areas of the EI Value Chain. This knowledge, critically presented and analyzed, can be described as *good practice*: the welfare-promoting policies, institutions, and governance that international experience demonstrates are likely to deliver effective technical solutions to the challenges of EI development. It avoids the notion of *best practice*, because ultimately governments know what is best for them. Whenever possible, the tone is pragmatic or technocratic, presenting options that have worked in various settings.

However, good practice has to reflect the latest research and policy interventions. In addition, good practice in oil, gas, and mining development always must fit a particular and usually predetermined context. The approach to good practice has to be supplemented by an appreciation of the importance of a specific legal and cultural setting. Much has been written about the combination of circumstances that

has contributed to the success of hydrocarbon development in Norway, and the difficulties of exporting a Norwegian model to other resource-rich countries (Thurber, Hults, and Heller 2010; Al-Kasim 2006). What we may call the political economy of a resource-producing state will play a major role in the way any good practices are implemented and will condition the state's capacity to exploit its natural resource endowment (Socavol 2010). Local variations, innovations, and peculiarities in institutional arrangements will shape policy on resource development and in turn be shaped by them. They need to be taken into account before good practice solutions are likely to work. For this reason, the *Sourcebook* includes a number of country case studies and examples.

As a number of organizations have already understood, the application of research needs to recognize the importance of new media in reaching out to a potentially vast new constituency that seeks knowledge of the EI sector. The *Sourcebook* in its primary electronic form reaches out to those in need. As a tool it can contribute to a major collaborative process in which lessons can be learned from the past (and sometimes the present) so that history does not repeat itself.

2.6 CONCLUSIONS

The discovery and development of hydrocarbons and other minerals offers the prospect of considerable economic and social benefits to countries, but achieving them requires an appreciation of the pitfalls into which a number of states have spectacularly fallen. Recent research confirms that there is nothing inevitable about a resource curse, that resources themselves are not to blame for negative outcomes, and that rent flows do not automatically undermine accountability in societies or institutions, particularly if the latter were robust at the outset. Indeed, in Botswana's case, resource taxes provided the revenues that allowed the country to recruit, train, and retain a high-quality civil service (Gelb 2014, 4). This positive view is supported by some empirical trends: natural resource exporters have recently been growing faster than their non-resource-rich counterparts. In the first decade of the 21st century, gross domestic product (GDP) per capita and real GDP growth have been higher in the former group, due largely to the combination of the commodity price boom in the first decade of the 21st century and new discoveries, particularly in Sub-Saharan Africa (IMF 2012). Institutions have also been improving in this region at a faster rate than their counterparts, which may go some way to explaining the robust growth.

Rents from minerals and petroleum can create wealth for a state, but the extent to which the wealth contributes to broad-based development outcomes—rather than being captured by the political elite or other vested interests—depends on a combination of political, cultural, legal, and institutional factors. Wealth can be captured through bribes for licenses or mineral rights, and through the diversion of funds from national resource companies and national accounts. Good governance can help prevent the illicit capture of wealth by putting in place a modern legal, regulatory, and contractual framework in line with international good practice, and it entails states enacting their own anti-corruption laws.

The technical reasons for negative outcomes are now reasonably well understood, and there is a growing understanding of the appropriate remedies that policy makers must take in order to address them. Remedies include (1) policies to smooth the expenditure of volatile revenues, (2) introduction of resource funds for savings and stabilization, (3) improvements in macroeconomic planning, and (4) forecasting and expenditure policies that improve the framework for investment and promotion of economic diversification (see chapter 6 and chapter 9 of the *Sourcebook*).

The political reasons for negative outcomes are also well understood and have attracted diverse comments. The cooperation of governments in international initiatives has been sought, as is discussed in chapter 8 of the *Sourcebook*. The cooperation of foreign investors has also been sought, as is evident in chapter 8 and chapter 4. Above all, there is a general awareness of the potential contribution of education to EI operations and development in the countries concerned.

The sociopolitical context of a country can have an impact on matters that may, at first sight, be thought of in purely technocratic terms, such as the choice of contract between government and foreign investor, the award of rights, the approach to revenue sharing, and the design of a national oil company. These are examined in chapter 4 and chapter 9. However, it is important to stress that such issues are often the setting for conflicts between a country's interest groups, including communities and elites and their place in the society that is being or is about to be transformed by the development of resource wealth. Controversy over the content of a proposed petroleum law, for example, is often rooted in country-specific factors.

Recent empirical work in political economy finds little or no negative relationship between natural resources and economic growth or democracy, but it strongly supports (implicitly at least) programs of transparency and long-term

stability in the policy and contract environment. This should not give rise to naïve optimism about extractive resource development. One long-standing observer has cautioned: “The problem is not the resources themselves. For countries that can manage, the curse is a myth. But this is not the case for poor, low-capacity countries—for them the curse can be real” (Gelb 2014, 11).

NOTES

1. The online version of the *Sourcebook* (www.eisourcebook.org) provides links to many more studies on these matters than can be provided in this version.

2. Initiatives undertaken to foster infrastructure development include the African Union Commission and United Nations Commission for Africa joint initiative, Exploiting Natural Resources for Financing Infrastructure Development; the Organisation for Economic Co-operation and Development’s Perspectives on Global Development; and the “Guiding Principles” issued by the World Bank, which touch on the subject of mine-related infrastructure. A contribution has also been made by the International Finance Corporation and Public-Private Infrastructure Advisory Facility: *Fostering the Development of Greenfield Mining-Related Transport Infrastructure through Project Financing* (IFC 2013).

3. This subject is considered at length in a *Sourcebook* paper, “Resources Corridors: Experiences, Economics and Engagement: A Typology of Sub-Saharan African Corridors” (Mtegha et al. 2012). It considers in depth the cases of resource corridors in Mozambique, Tanzania, and the Democratic Republic of Congo.

4. An example is the dialogue involving the World Gold Council, the World Bank, and civil society partners, the conference “Gold for Development: Investing in Mining Indaba, 2012” (World Gold Council and World Bank 2012). The focus was on the contribution of large-scale gold mining to economic and social development, with case studies from Tanzania, Peru, and Ghana. The International Council on Mining and Metals (ICMM) has produced a number of reports summarizing its activities in this respect, such as the *Minerals and Metals Management 2020 Report* (ICCM 2012).

5. For example, the IMF has claimed that many resource-rich developing countries have failed to realize the full development potential of their natural resources. In a number of them, “economic growth has been disappointing” (IMF 2012). “Many resource-rich countries disappoint in their performance on economic and human development indicators” (IMF 2010, 4). As a result, the IMF has increased its technical support to governments to develop an improved in-house resource management capability on fiscal matters,

making 85 missions from 2006 to 2012, and planning dozens more (Smith 2012, 3).

6. The critical country attribute for purposes of the discussion that follows is resource dependency rather than absolute levels of resource wealth. Recent research suggests that states with high absolute resource endowments do tend to grow faster than those without. However, the same research finds a significant correlation between resource dependency and underperformance (Brunnschweiler and Bulte 2006).

7. It provides a driver for civil society assistance, evident in, for example, *Copper Bottomed? Bolstering the Aynak Contract: Afghanistan’s First Major Mining Deal* (Global Witness 2012a); and *Donor Engagement in Uganda’s Oil and Gas Sector: An Agenda for Action* (Global Witness 2010).

8. For example, in the academic literature see van der Ploeg 2016; Ross 1999; Bannon and Collier 2003; McPherson and MacSearraigh 2007; and Berman et al. 2014. For NGO views, the following reports from Global Witness are not atypical of the tone: *Curse or Cure? How Oil Can Boost or Break Liberia’s Post-War Recovery* (2011); and *Rigged? The Scramble for Africa’s Oil, Gas, and Minerals* (2012b). This has provoked various ripostes, such as Luong and Weinthal (2010), *Oil Is Not a Curse: Ownership Structure and Institutions in Soviet Successor States*.

9. The high point in support for the negative view is probably an influential article by Sachs and Warner (2001), “Natural Resources and Economic Development: The Curse of Natural Resources.” The more recent approach (against the inevitability of the resource curse) is evident in IMF (2010, 6), “Macroeconomic Policy Frameworks for Resource-Rich Developing Countries,” which notes, “A natural resource ‘curse’ is neither universal nor inevitable; growth may depend heavily on other factors, such as policies and the quality of institutions.” The latter is also represented by Lederman and Maloney (2007), *Natural Resources: Neither Curse nor Destiny*, which through a series of case studies argues that resource wealth, if coupled with appropriate institutional and policy choices, can be a significant advantage in achieving long-term economic growth.

10. An example of an industry initiative that has this goal is the ICMM Resource Endowment Initiative in mining. It developed an analytical framework and focused on governance processes, incorporating underlying factors and rules of the game that affected social and environmental interactions and outcomes. The result was a practical toolkit to assess local, regional, and national socioeconomic impacts of mining. It also addressed the ways in which mining operations affect governance structures, institutions, and policy changes at different levels of government. Find more on the initiative at <http://www.icmm.com/page/84152/our-work/projects/articles/resource-endowment-initiative>.

11. The list is potentially longer. See, for example, NRG 2015.
12. Dutch Disease is the name attached to the adverse macroeconomic effects first experienced in the Netherlands following the discovery and exploitation of major natural gas reserves. Following the adoption of appropriate policy responses, considerable social benefits accrued to the Netherlands as a result of its gas discoveries and their subsequent development.
13. This issue affects not only the EI sector. Shifts in international competitiveness can lead once-dominant industries to meet a natural end due to some structural change in the economy. Examples of this are evident in the developed world's manufacturing and automobile production industries, where shifts in economic conditions can bring certain sectors to a sudden end. One advantage that the EI sector has over other economic sectors is the clarity about its ultimate closure. This known inevitability should help place this planning issue firmly on the government agenda. Moreover, there are very few examples of countries that have actually exhausted their oil, gas, or mineral resources: the island state of Nauru being a spectacular exception. It is easier to identify states that have experienced major damage from environmental mismanagement, deforestation in Easter Island for example. At the project level, however, the future exhaustibility of the resource can be a major concern, and at the policy-making level it can encourage fiscal discipline.
14. The recyclability of some natural resource materials should not be forgotten, however.
15. For example, a comprehensive study by the IMF concluded, "The evidence suggests that the quality of institutions matters for fiscal outcomes... (and that) priority should be given to enhancing PFM (public financial management) systems where appropriate" (Ossowski et al. 2007). In addition, "A consensus is emerging that policies will be effective in leveraging natural resource-led development only when they are compatible with the level of institutional quality and the political economy context of the country in question" (Canuto 2012, x).
16. Available at <http://www.resourcegovernance.org/resource-governance-index/report>. The indicators used to evaluate resource governance are institutional and legal setting, reporting practices, safeguards and quality controls, and enabling environment. The index assigns a numerical score to each country and divides them into four performance ranges: satisfactory (71–100), partial (51–70), weak (41–50), and failing (0–40). The 2013 index revealed "a striking governance deficit in natural resource management worldwide," with only 11 countries earning an overall score above 70, and the "vast majority of countries" exhibiting "serious shortcomings in resource governance." The bulk of these countries meet the IMF's classification as "resource rich."
17. Mehlum, Moene, and Torvik (2006) use a measure of institutional quality that takes into account the rule of law, bureaucratic quality, government corruption, a risk of expropriation, and government repudiation of contracts and conclude that the main reason for diverging experiences is differences in the quality of institutions. Natural resource abundance will lower incomes in economies if weak institutions push scarce resources into unproductive activities by encouraging rent-seeking behavior. The link has also been explored by Auty (2001) and Gelb (1988). These institutions are usually characterized by at least a limited capacity and poorly developed policies.
18. See the section on "Technical Factors" in this chapter.
19. A recent World Bank note states, "With the exception of a few developed [and developing] countries, the governance record of most oil exporters is at best mixed. . . . [Most of the] common problems that confront countries with new oil discoveries include rent-seeking behavior and corruption, political patronage, lower entrepreneurship and capacity for investment, and increased authoritarianism and civil conflict" (Dessus 2011).
20. "Over dependence on oil exports is strongly associated with weak public institutions that generally lack the capacity to handle the challenges of petroleum-led development" (Karl 1997, 25).
21. McPherson and MacSearraigh (2007) emphasize the role of this factor in the hydrocarbons sector.
22. An example of the problems in this area is lagging skill accumulation and heightened inequality. Since oil and gas production is highly capital and technologically intensive, it creates few jobs (perhaps 1 to 2 percent skilled) for the population, and some of the skilled labor may have to seek job opportunities abroad. Mass unemployment and inequality may undermine the country's economic progress (Karl 2005, 24).
23. For example, Daniel and Sunley (2010, 405) note, "Fiscal stability clauses are generally justified by . . . a lack of credibility on behalf of the host country to abstain from changing the fiscal rules . . . once the investment is sunk (the 'time inconsistency' problem)." Cameron (2010) examines how contract stability operates and is supported by the web of bilateral investment treaties. Barma et al. (2012, 11) note that the credibility of intertemporal commitment is "the degree to which policy stability and bargains over time can be enforced and deviations from such agreements are subject to sanction."
24. "Economic rent is the difference between the price that is actually paid and the price that would have to be paid in order for the good or service to be produced. . . . Anyone who is in the position to receive economic rents is fortunate indeed, because these 'rents' are unrelated to effort" (Stiglitz 1996, 298–9).

25. An accessible overview of the literature is provided by the BMZ and GIZ (2011) study, *Curse or Blessing—Development or Misery*. Useful overviews of the academic literature include Frankel (2010); Rosser (2006); Ross (1999); and van der Ploeg (2011).

26. Resource dependence has been shown to be one of the most important causes of civil wars. See the essays in Bannon and Collier (2003). Ross (2006, 267) noted, “The likelihood of civil wars in countries that produce oil, gas, and diamonds rose sharply from the early 1970s to the late 1990s. So did the number of conflicts in which insurgents raised funds by selling contraband resources.”

27. For a more recent critical view, see Smith (2015).

28. However, case studies revealed the importance of institutions in managing resource rents many years ago. The insight is not new, but a wide acceptance of its significance is. For an early example, see Gelb (1988, 223) on Indonesia: “A more accurate statement therefore is that Indonesia’s good performance during the oil booms reflected the institutions developed earlier to nurse the economy back to health, the approach to policy set in the Suharto Government’s formative years and the *unusual degree of continuity*.” Similar ground was covered but at a more abstract level by Auty and Gelb’s “Political Economy of Resource Abundant States” in Auty (2001). The primacy of institutions has been asserted and supported more recently by several leading economists, for example: Arezki, van der Ploeg, and Toscani (2016), “Shifting Frontiers in Global Resource Wealth: The Role of Policies and Institutions.” Cust and Harding (2014) have argued that institutions strongly influence where investors drill for oil and gas.

29. A systematic application of a political economy perspective is evident in the World Bank study *Rents to Riches? The Political Economy of Natural Resource-Led Development* (Barma et al. 2012). It incorporates more than a dozen case studies and examines, in detail, how political economy can be applied to resource dependence.

30. See Hogan and Sturzenegger (2010), which considers the issue of seemingly perpetual contractual renegotiations driven by commodity price instability and how these pressures could be contained within a more stable commercial framework.

31. Much of the literature has focused on the information, finance, and capability asymmetries between developing state governments and transnational extractives companies. Remedies therefore focus on how to ensure that developing country governments use good practice solutions to secure a better deal. See Humphreys, Sachs, and Stiglitz (2007).

32. Collier (2010, 1113) notes that in failing states incumbents can win elections by means of technologies that are excluded in a conventional election because they are illegitimate: for example, vote-buying, voter intimidation, and ballot fraud.

33. See Barma et al. (2012, 69, figs. 2.6 and 2.7). Compare the Fraser Institute’s surveys of mining and petroleum, respectively, <https://www.fraserinstitute.org/categories/mining> and <https://www.fraserinstitute.org/studies/global-petroleum-survey-2015>.

34. See Barma et al. (2012, 39), noting in particular the work of Acemoglu and Robinson (2010).

35. For example, Stevens, Lahn, and Kooroshy (2015, 3) note, “While it is not inevitable, the resource curse is alive and active.”

36. With respect to negotiations of mining contracts, two contributions are notable: BGR, CCSI, and Kienzler’s (2015) *Natural Resource Contracts as a Tool for Managing the Mining Sector*; and Nkot’s (2015), “Fifty Pieces of Advice to an Official Who Is Engaged in the Negotiation of Mining Contracts.”

REFERENCES

- Acemoglu, D., and J. A. Robinson. 2010. “The Role of Institutions in Growth and Development.” In *Leadership and Growth*, edited by D. Brady and M. Spence, 135–64. Washington DC: Commission on Growth and Development and World Bank.
- Al-Kasim, F. 2006. *Managing Petroleum Resources: The ‘Norwegian Model’ in a Broad Perspective*. Oxford, UK: Oxford Institute of Energy Studies.
- Alexeev, Michael, and Robert Conrad. 2009. “The Elusive Curse of Oil.” *Review of Economics and Statistics* 91 (3): 586–98.
- Arezki, R., F. van der Ploeg, and F. Toscani. 2016. “Shifting Frontiers in Global Resource Wealth: The Role of Policies and Institutions.” OxCarre Research Paper 180, Oxford, UK, OxCarre. <http://www.oxcarre.ox.ac.uk/images/stories/papers/ResearchPapers/oxcarrerp2016180.pdf>.
- AUC, AfDB, and UNECA (African Union Commission, African Development Bank, and United Nations Economic Commission for Africa). 2011. “Draft Action Plan for Implementing the AMV.” http://www.africaminingvision.org/amv_resources/AMV/AMV_Action_Plan_dec-2011.pdf.
- Auty, Richard. 1993. *Sustaining Development in Mineral Economics: The Resource Curse Thesis*. London: Routledge.
- , ed. 2001. *Resource Abundance and Economic Development*. New York: Oxford University Press.
- Bannon, I., and P. Collier, eds. 2003. *Natural Resources and Violent Conflict: Options and Actions*. Washington DC: World Bank.
- Barma, Naazneen H., Kai Kaiser, Tuan Minh Le, and Lorena Vinuela. 2012. *Rents to Riches? The Political Economy of*

- Natural Resource-Led Development*. Washington, DC: World Bank.
- Berman, N., M. Couttenier, D. Rohner, and M. Thoenig. 2014. "This Mine is Mine! How Minerals Fuel Conflicts in Africa." OxCarre Research Paper 141, Oxford, UK, OxCarre. <http://www.oxcarre.ox.ac.uk/images/stories/papers/ResearchPapers/oxcarrerp2014141.pdf>.
- BGR (Bundesanstalt fuer Geowissenschaften und Rohstoffe/Federal Institute for Geosciences and Natural Resources), CCSI (Columbia Centre for Sustainable Investment), and David Kienzler. 2015. *Natural Resource Contracts as a Tool for Managing the Mining Sector*. 2015. Hannover, Germany: BGR.
- BMZ and GIZ (Federal Ministry for Economic Cooperation and Development, Germany). 2011. *Curse or Blessing—Development or Misery: Scrambling to the Bottom or Scrambling to the Top; Natural Resources, Economic Growth and Conflict, A literature Review*. Bonn: GIZ. http://api.ning.com/files/gGXcxprhp3XY3Xw-D4u7UOdyhJxreZjbB2wwokx2SzFzvWtkCWyzMhFVFfr6XrD5Czk2qYVyaN7XVOVHB8*gfAmSyjNYzFPI/SWPGIZresourcegovernancestudy2011.pdf.
- Boadway, R., and M. Keen. 2010. "Theoretical Perspectives on Resource Tax Design." In *The Taxation of Petroleum and Minerals: Principles, Problems and Practice*, edited by P. Daniel, M. Keen, and C. McPherson (London: Routledge).
- Brunnschweiler, C., and E. Bulte. 2006. "The Resource Curse Revisited and Revised: A Tale of Paradoxes and Red Herrings." ETH Working Paper 06/61, Zurich, ETH.
- Cameron, P. D. 2010. *International Energy Investment Law: The Pursuit of Stability*. Oxford, UK: Oxford University Press.
- Canuto, Otaviano. 2012. Foreword to Barma, Naazneen H., Kai Kaiser, Tuan Minh Le, and Lorena Vinuela, *Rents to Riches? The Political Economy of Natural Resource-Led Development*. Washington, DC: World Bank.
- Collier, Paul. 2008. *The Bottom Billion*. Oxford, UK: Oxford University Press.
- . 2010. "The Political Economy of Natural Resources." *Social Research* 77 (4): 1105–1132.
- . 2011. *The Plundered Planet: Why We Must—And How We Can—Manage Nature for Global Prosperity*. Oxford, UK: Oxford University Press.
- Crowson, P. 2009. "Unit 1: Mineral Resources Policy and Economics." Centre for Energy, Petroleum and Mineral Law Policy course, *An Introduction to Mining, Mineral Reserves and Resources*. University of Dundee, Scotland.
- Cust, J., and T. Harding. 2014. "Institutions and the Location of Oil Exploration." OxCarre Research Paper 127, Oxford, UK, OxCarre. <http://www.oxcarre.ox.ac.uk/images/stories/papers/ResearchPapers/oxcarrerp2013127.pdf>
- Daniel, P., S. Gupta, T. Mattina, and A. Segura-Ubiergo. 2013. "Extracting Resource Revenue." *Finance and Development* (September): 19–22.
- Daniel, P., and E. M. Sunley. 2010. "Contractual Assurances of Fiscal Stability." In *The Taxation of Petroleum and Minerals: Principles, Problems and Practice*, edited by Philip Daniel, Michael Keen, and Charles McPherson, 405–424. Abingdon, UK: Routledge.
- Dessus, Sébastien C. 2011. "The Challenges and Opportunities of Ghana's Offshore Oil Discovery." Africa Trade Policy Notes 14, World Bank, Washington, DC. <http://siteresources.worldbank.org/INTAFRREGTOPTRADE/Resources/14GhanaOilpolicynoteREVISED.pdf>.
- Dunning, Thad. 2008. "The Political Economy of the Resource Paradox: An Overview." Unpublished manuscript. Washington DC: World Bank.
- Ernst & Young. 2012. *Global Oil and Gas Reserves Study*. London: Ernst & Young. [http://www.ey.com/Publication/vwLUAssets/Global_oil_and_gas_reserves_study/\\$FILE/Global_oil_and_gas_reserves_study.pdf](http://www.ey.com/Publication/vwLUAssets/Global_oil_and_gas_reserves_study/$FILE/Global_oil_and_gas_reserves_study.pdf).
- Esteves, A. M., B. Coyne, and A. Moreno. 2013. *Enhancing the Sub-National Benefits of the Oil, Gas, and Mining Sectors*. New York: Revenue Watch Institute.
- Frankel, J. 2010. "The Natural Resource Curse: A Survey." Faculty Research Working Paper Series RWP10-005. Cambridge, MA: Kennedy School of Government, Harvard University.
- Gelb, A. 1988. *Oil Windfalls*. New York: Oxford University Press.
- . 2010. "Economic Diversification in Resource Rich Countries." Drawn from a lecture at the seminar Confronting Old and New Challenges, organized by the Central Bank of Algeria and the IMF Institute in Algiers, November 4–5. <http://www.imf.org/external/np/seminars/eng/2010/afrfin/pdf/Gelb2.pdf>.
- . 2014. "Should Canada Worry about a Resource Curse?" University of Calgary School of Public Policy SPP Research Papers, University of Calgary.
- Gelb, A., K. Kaiser, and L. Vinuela. 2012. "How Much Does Natural Resource Extraction Really Diminish National Wealth? The Implications of Discovery." Center for Global Development Working (CGD) Paper 290, CGD, Washington, DC. <http://www.cgdev.org/publication/how-much-does-natural-resource-extraction-really-diminish-national-wealth-implications>.
- Global Witness. 2010. *Donor Engagement in Uganda's Oil and Gas Sector: An Agenda for Action*. London: Global Witness.

- . 2011. *Curse or Cure? How Oil Can Boost or Break Liberia's Post-War Recovery*. London: Global Witness.
- . 2012a. *Copper Bottomed? Bolstering the Aynak Contract: Afghanistan's First Major Mining Deal*. London: Global Witness.
- . 2012b. *Rigged? The Scramble for Africa's Oil, Gas, and Minerals*. London: Global Witness.
- Hausmann and Rigobon. 2003. "An Alternative Interpretation of the 'Resource Curse': Theory and Policy Implications." NBER Working Paper 9424, National Bureau of Economic Research, Cambridge, MA. <http://www.nber.org/papers/w9424>.
- Hayes, K. and R. Perks. 2011. "Women in the Artisanal and Small-Scale Mining Sector of the Democratic Republic of the Congo." In *High-Value Natural Resources and Post-Conflict Peacebuilding*, ed. Päivi Lujala and Siri Johnson Sirleaf. London: Earthscan. <http://genderandsecurity.org/projects-resources/research/women-artisanal-and-small-scale-mining-sector-democratic-republic-congo>.
- Hilson, Gavin. 2010. "'Once a Miner, Always a Miner': Poverty and Livelihood Diversification in Akwatia, Ghana." *Journal of Rural Studies* 26 (3): 296–307. https://www.researchgate.net/publication/223995987_'Once_a_Miner_Always_a_Miner'_Poverty_and_Livelihood_Diversification_in_Akwatia_Ghana.
- Hogan, W., and F. Sturzenegger, eds. 2010. *The Natural Resources Trap*. Cambridge, MA: MIT Press.
- Humphreys, M., J. D. Sachs, and J. E. Stiglitz, eds. 2007. *Escaping the Resource Curse*. New York: Columbia University Press.
- ICCM (International Council on Mining and Metals). 2012. *Minerals and Metals Management 2020 Report*. London: ICCM.
- . 2015. *The Role of Mining in National Economies*. 2d ed. London: ICCM. <http://www.euromines.org/news/new-icmm-report-role-mining-national-economies>.
- IFC (International Finance Corporation). 2013. *Fostering the Development of Greenfield Mining-Related Transport Infrastructure through Project Financing*. Washington, DC: Public-Private Infrastructure Advisory Facility and IFC. <http://www.ifc.org/wps/wcm/connect/c019bf004f4c6ebfbd99ff032730e94e/Mine+Infra+Report+Final+Copy.pdf?MOD=AJPERES>.
- IMF (International Monetary Fund). 2007. *Guide on Resource Revenue Transparency*. Washington, DC: IMF. www.imf.org/external/np/pp/2007/eng/051507g.pdf.
- . 2010. *Managing Natural Resource Wealth*. Topical Trust Fund Program Document. Washington, DC: IMF.
- . 2012. "Macroeconomic Policy Frameworks for Resource-Rich Developing Countries." Background Paper 1, IMF, Washington, DC.
- . 2015a. "Background Notes." *Fiscal Monitor*, October. Washington, DC: IMF. <http://www.imf.org/external/pubs/ft/fm/2015/02/pdf/fm1502.pdf>.
- . 2015b. "The Commodities Roller Coaster." *Fiscal Monitor*, October. Washington, DC: IMF. <http://www.imf.org/external/pubs/ft/fm/2015/02/pdf/fm1502.pdf>.
- IMF (International Monetary Fund), and World Bank. 2017. "Managing Commodity Lifecycles, Petroleum." In Extractives Hub (www.extractiveshub.org).
- Karl, T. 1997. *The Paradox of Plenty: Oil Booms and Petro-States*. Berkeley: University of California Press.
- . 1999. "The Perils of Petroleum: Reflections on the Paradox of Plenty," in "Fueling the 21st Century: The New Political Economy of Energy." Special edition of *Journal of International Affairs* 53, no. 1.
- . 2005. "Understanding the Resource Curse." In *Covering Oil: A Reporter's Guide to Energy and Development*, edited by S. Tsalik and A. Schiffrin, 22–29. New York: Open Society Institute.
- Le Billon, P. 2011. "Extractive Sectors and Illicit Financial Flows: What Role for Revenue Governance Initiatives?" *U4 Issue* 13. <http://www.cmi.no/publications/4248-extractive-sectors-and-illicit-financial-flows>.
- Lederman, D., and W. F. Maloney, eds. 2007. *Natural Resources: Neither Curse nor Destiny*. Washington, DC, and Palo Alto, CA: World Bank and Stanford University Press.
- Liebethal, A., R. Michelitsch, and E. Tarazona. 2005. *Extractive Industries and Sustainable Development: An Evaluation of the World Bank Group Experience*. Washington, DC: World Bank.
- Lipsky, J. 2009. "Economic Shifts and Oil Price Volatility." Remarks at the Fourth OPEC International Seminar, Vienna, March 18. <http://www.imf.org/external/np/speeches/2009/031809.htm>.
- Luong, P. J., and E. Weinthal. 2010. *Oil Is Not a Curse: Ownership Structure and Institutions in Soviet Successor States*. New York: Cambridge University Press.
- McPherson, C., and S. MacSearraigh. 2007. "Corruption in the Petroleum Sector." In *The Many Faces of Corruption: Tracking Vulnerability at the Sector Level*, edited by J. E. Campos and S. Pradhan. Washington, DC: World Bank.
- Mehlum, Halvor, Karl Moene, and Ragnar Torvik. 2006. "Institutions and the Resource Curse," *Economic Journal* 116: 1–20.
- Mtegha, Hudson, Paseka Leeuw, Sodhie Naicker, and Mapadi Molepo. 2012. "Resources Corridors: Experiences, Economics and Engagement: A Typology of Sub-Saharan African Corridors." School of Mining Engineering and Centre for Sustainability in Mining and Industry, University of the

- Witwatersrand, Johannesburg. <http://www.eisourcebook.org/cms/files/EISB%20Resources%20Corridors.pdf>.
- Nkot, Fabien. 2015. "Fifty Pieces of Advice to an Official Who Is Engaged in the Negotiation of Mining Contracts: A Handbook." Perth, Australia: International Mining for Development Centre. <http://im4dc.org/wp-content/uploads/2013/07/Negotiation-Handbook.pdf>.
- NRGI (Natural Resource Governance Institute). 2015. "Ten Consequences of Low Commodity Prices for Resource-Rich Countries." New York: NRGi.
- OpenOil. 2012. *Oil Contracts: How to Read and Understand Them*. Berlin: OpenOil. <http://openoil.net/understanding-oil-contracts/>.
- Ossowski, R., M. Vilafuerte, P. Medas, and T. Thomas. 2007. *The Role of Fiscal Institutions in Managing the Oil Revenue Boom*. Washington, DC: IMF. <http://www.webmeets.com/files/papers/LACEA-LAMES/2007/806/The%20Role%20of%20Fiscal%20Institutions%20in%20Managing%20the%20Oil%20Revenue%20Boom.pdf>.
- Ross, M. 1999. "The Political Economy of the Resource Curse." *World Politics* 51 (2): 297–322.
- . 2006. "A Closer Look at Oil, Diamonds, and Civil War." *Annual Review of Political Science* 9: 265–300.
- Rosser, A. 2006. "The Political Economy of the Resource Curse: A Literature Survey." Institute of Development Studies Working Paper 268, University of Sussex, UK.
- RWI (Revenue Watch Institute), VCC (Vale Columbia Center), ISLP (International Senior Lawyers Project), and OpenOil. 2013. *Mining Contracts: How to Read and Understand Them*. New York: RWI and VCC. <https://eiti.org/files/mining-contracts-how-to-read-and-understand-them.pdf>.
- Sachs, D., and A. M. Warner. 2001. "Natural Resources and Economic Development: The Curse of Natural Resources." *European Economic Review* 45 (4–6): 827–38.
- Sachs, Lisa, and Nicholas Maennling. 2015. "Resource Resilience: How to Break the Commodities Cycle," *World Politics Review* (May 26). <http://ccsi.columbia.edu/files/2015/11/World-Politics-Review-Resource-Resilience-How-to-Break-the-Commodities-Cycle-May-26-2015.pdf>.
- Skinner, Robert. 2015. "A Comparative Anatomy of Oil Price Routs: A Review of Four Price Routs between 1985 and 2014." School of Public Policy Research Paper, University of Calgary, Alberta, Canada.
- Smith, Brock. 2015. "The Resource Curse Exorcised: Evidence from a Panel of Countries." OxCarre Research Paper 165, Oxford, UK, OxCarre. <http://www.oxcarre.ox.ac.uk/images/stories/papers/ResearchPapers/oxcarrerp2015165.pdf>.
- Smith, James L. 2012. "Issues in Extractive Resource Taxation: A Review of Research Methods and Models." IMF Working Paper WP/12/287, International Monetary Fund, Washington, DC.
- Socavol, B. 2010. "The Political Economy of Oil and Gas in Southeast Asia: Heading towards the Natural Resource Curse?" *Pacific Review* 23 (2): 225–259.
- Stevens, P., G. Lahn, and J. Kooroshy. 2015. "The Resource Curse Revisited." Research Paper, London, Chatham House.
- Stiglitz, J. 1996. *Principles of Micro-Economics*. New York: W.W. Norton.
- Sundet, G., and E. Moen. 2009. *Political Economy Analysis of Kenya*. Oslo: Norwegian Agency for Development Cooperation.
- Thurber, M., D. Hults, and P. R. P. Heller. 2010. *The Limits of Institutional Design in Oil Sector Governance: Exporting the Norwegian Model*. Stanford, CA: Stanford University Program on Energy and Sustainable Development.
- Tordo, Silvana, Michael Warner, Osmel E. Manzano, and Yahya Anouti. 2013. *Local Content in the Oil and Gas Sector*. A World Bank study. Washington DC: World Bank. <http://documents.worldbank.org/curated/en/2013/01/17997330/local-content-oil-gas-sector>.
- van der Ploeg, F. 2011. "Natural Resources: Curse or Blessing?" *Journal of Economic Literature* 49 (2): 366–420.
- . 2016. "The Political Economy of Dynamic Resource Wars." OxCarre Research Paper 97, Oxford, UK, OxCarre. <http://www.oxcarre.ox.ac.uk/images/stories/papers/ResearchPapers/oxcarrerp201297.pdf>.
- van der Ploeg, F., and S. Poelhekke. 2009. "The Volatility Curse and Financial Development: Revisiting the Paradox of Plenty." OxCarre Paper 24, Oxford, UK, OxCarre. <http://www.oxcarre.ox.ac.uk/images/stories/papers/ResearchPapers/oxcarrerp200924.pdf>.
- van der Ploeg, F., and A. J. Venables. 2011. "Natural Resource Wealth: The Challenge of Managing a Windfall." OxCarre Research Paper 75, Oxford, UK, OxCarre. <http://www.oxcarre.ox.ac.uk/images/stories/papers/ResearchPapers/oxcarrerp201175.pdf>.
- Venables, A. J. 2016. "Using Natural Resources for Development: Why Has It Proven So Difficult?" *Journal of Economic Perspectives* 30 (1): 161–84.
- World Bank. 2006. *Angola—Memorando Económico do País: Petróleo, Crecimiento Alargado e Equidade*. Washington, DC: World Bank. <http://documents.worldbank.org/curated/en/2006/10/7258355/angola-oil-broad-based-growth-equity-country-economic-memorandum-angola-memorando-economico-pais-petroleo-crecimiento-alargado-e-equidade>.
- . 2015. *A Practical Guide to Increasing Mining Local Procurement in West Africa*. Washington, DC: World Bank.

<http://documents.worldbank.org/curated/en/2015/02/23980553/practical-guide-increasing-mining-local-procurement-west-africa>.

World Gold Council and World Bank. 2012. Video panel discussion from the conference “Gold for Development: Investing in Mining Indaba, 2012,” Cape Town, South Africa, March 22. <https://www.gold.org/research/gold-development-mining-indaba-2012-video>.

OTHER RESOURCES

There are many ways that governments can capitalize on the opportunities and address the challenges discussed in this chapter. These readings provide diverse views and responses. Those works marked with an asterisk (*) are available on the *Sourcebook* website.

Auty, R. 2004. *Resource Abundance and Economic Development*. Oxford, UK: Oxford University Press.

Collier, P. 2010. *The Plundered Planet: How to Reconcile Prosperity with Nature*. London: Allen Lane.

Collier, P., and I. Bannon. 2003. *Natural Resources and Violent Conflict: Options and Actions*. Washington, DC: World Bank.

Gelb, A., and Associates. 1988. *Oil Windfalls: Blessing or Curse?* Washington, DC: World Bank.

Hogan, W., and F. Sturzenegger. 2010. *The Natural Resources Trap*. Cambridge, MA: MIT Press.

Sachs, J., and A. Warner. 1995. “Natural Resource Abundance and Economic Growth.” Discussion Paper 517. Cambridge, MA: Harvard Institute of Economic Research.

Tsalik, S., ed. 2005. *Covering Oil: A Reporter’s Guide to Energy and Development*. New York: Open Society Institute. https://www.opensocietyfoundations.org/sites/default/files/osicoveringoil_20050803.pdf.

Several websites contain publications, briefings, and other materials relevant to chapter 2 of the *Sourcebook*:

Columbia Center on Sustainable Investment. <http://ccsi.columbia.edu/>.

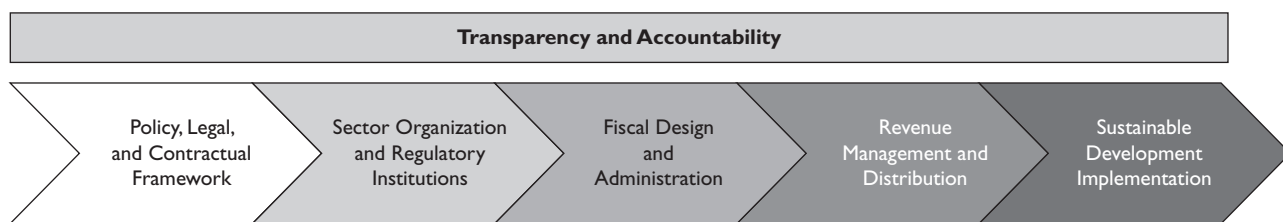
Natural Resource Charter. <http://resourcegovernance.org/approach/natural-resource-charter>.

Oxford Centre for the Analysis of Resource Rich Economies. <http://www.oxcarre.ox.ac.uk/index.php/Research-Papers/research-papers1.html>.

Oxford Centre for the Study of African Economies. <http://www.csae.ox.ac.uk/research/>.

CHAPTER 3

The Extractive Industries



3.1 INTRODUCTION

Investment in the extractive industry (EI) sectors (oil, gas, and mining) presents challenges to policy makers. They arise at the policy design and legal framework stage and are evident in subsequent stages—the management and allocation of revenues and, ultimately, the sustainable development of these resources. Some, perhaps many of these features are common to all three sectors, such as the extraction of resources from under the ground or the seabed,¹ their exhaustibility, or their exposure to a high degree of price volatility. Others are unique to each sector. For example, oil and gas development are alike at the upstream stage (exploration and production), but natural gas takes on distinct characteristics in its transportation and distribution phases. From a commercial point of view, oil is riskier to find than the mineral deposits typically sought by mining companies, but once oil is found in commercial quantities, the risk is reduced relative to the commercial risk of producing minerals from mining. (Note, however, that this does not apply to environmental risk.) Gas is different again, with its risk

profile requiring a complex, expensive infrastructure and a detailed contractual regime to support development. Effective management in the public interest requires recognition of both the common and the unique features of EI in the design of policies and institutions.

Chapter 3 examines the fundamental characteristics of EI sector investment, from a perspective that gives priority to public policy making and the design of appropriate institutional arrangements in the public sector. It identifies the common features and the key differences among EI sectors and in their investment dynamics. It focuses on the relationships that governments have or seek to have with investors in the EI sector rather than on how governments themselves can respond to the challenges and opportunities of natural-resource-led development (the subject of chapter 2). Some features of the investor-state relationship are relatively constant over time, while others are more dynamic, such as the structure of the industry. It has experienced significant change and become more complex in recent years, due in part to companies from emerging markets making

strategic investments aimed at securing future supplies of energy and minerals.

There are many aspects of this investor-state dynamism that present challenges to policy advisers and decision makers in resource-rich states. For example:

What kind of company or pattern of companies is best suited to achieve a country's policy on extractives and development generally?

The choice is wide. Alongside long-established companies from the Organisation of Economic Co-operation and Development (OECD) countries, there are state-owned enterprises from Malaysia, the Middle East, and the Republic of Korea and new players from Brazil, China, India, and the Russian Federation, all making significant impacts. Significant diversity in industry ownership and financing structures has emerged from the resulting South-South pattern of investment; the use of resource-for-infrastructure deals is one example of the latter. Moreover, the growing number of so-called junior or mid-cap companies as investors means that a focus by policy makers and their advisers on the “super-major” companies that long dominated the EI sector is now inappropriate. This diversity is also evident in the destinations of investment, the points along the exploration-to-extraction continuum and across energy and other mineral commodities (Barma, Kaiser, Le, and Vinuela 2012). A further element of complexity in investor-state relations is the international character of investment in the EI sectors. More than ever, there are opportunities for investors to structure their operations, on- and offshore, to take advantage of this context. As a result, national tax and regulatory authorities face challenges in regime design, monitoring, and enforcement.

3.2 COMMON FEATURES OF THE INDUSTRIES

Long, risky, and costly exploration and development

Each of the EI sectors is characterized by long, risky, costly, and very capital-intensive development.² For oil and gas, there is additionally a high cost at the exploration stage, with dry wells and resulting losses being common. A state that wishes to go it alone in the EI sector needs significant financial resources and an economy with sufficient diversity to allay concerns about EI sector investment risk (Boadway and Keen 2010). States that, more typically, choose to attract and rely on international investment, need to have in place a legal, contractual, and fiscal regime that investors can understand and trust. These states must also have a political track record that provides investors with reasonable assurances against

adverse changes when a major discovery is made and/or exploitation is under way (see chapter 4).

Conditions and assumptions that exist at the beginning of a project—at the time when laws are drafted and contracts awarded—are almost certain to change over the course of the project investment. Initial decisions are usually made when there is great uncertainty about the sector's potential, based on what is known about the geology at the time of exploration. There is also uncertainty about the future economics, markets, risks, and politics that will affect the project. The incentive for a state to revisit the terms of the initial bargain struck is increased by the shift in bargaining power that occurs in the event of a commercial discovery and a substantial investment by the foreign investor.

Sophisticated management and specialized technology

A second common feature is the dependence of the EI sectors on sophisticated management and specialized technology.³ This dependence affects the development of host-state institutional capacity. States developing their EI sector must have sufficient institutional capacity to adequately oversee sector operations and for adopting the competitive licensing, contractual, and fiscal regimes required to attract needed skills and technology (see chapter 5).

The challenge here lies in finding ways of enabling a transfer of expertise and sourcing of business to local firms in order to ensure a long-term benefit to the domestic economy.

Asymmetric access to information

Partly due to the complex management skills and technology that characterize the EI sectors, governments are at an informational disadvantage vis-à-vis international investors and operators (Stiglitz 1989; Nutavoot 2004). The government is likely to be informed about its future fiscal intentions, but the private investor undertaking exploration and development will probably be better informed about technical and commercial aspects of a project. This has important implications for the design of license or contract award procedures, fiscal design, and fiscal administration as well as the engagement of outside technical assistance. It can also be the root of subsequent dissatisfaction by a government about the terms negotiated with investors by its predecessor(s) and trigger demands for a review of those terms.

With increasing sources of competition in the EI sector, and the role of national resource companies, this is less of a

problem than it once was. Access to information *remains a challenge, however, for many governments in resource-rich economies and is compounded by a tendency of some of them to be overly secretive about such information once it has been obtained.*

Price volatility

A fourth feature common to both the petroleum and mining sectors is the volatility of prices, costs, and rents. The extreme volatility of prices not only poses macroeconomic management challenges but also raises issues about the design of fiscal terms. A fundamental policy issue with which governments must constantly grapple is the question of how the burden of the risk of price and revenue volatility should be divided between the investor and the government.

Volatile commodity prices can also have dramatic impacts on a country's exchange rate, with the effect of driving up the value of the currency if commodity prices are rising and pushing it lower when they fall. This will be worsened by capital inflows and outflows.

The volatility or variability of costs receives much less attention, but deserves more. EI costs vary widely across time and across projects, creating significant issues for both the design of fiscal regimes and their administration. When costs soar for investors, as can happen in both the mining and hydrocarbon sectors, tensions with governments are likely to result from the necessary remedial actions. Rents (discussed in the following subsection) are also volatile as a result of dramatic fluctuations in price. (See figure 2.1 on oil prices in chapter 2.)

The challenge lies less in the wide variability of prices than in the difficulty in predicting them. Most forecasts about pricing turn out to be wrong (IMF 2012, 10). The consequences can be severe. Besides the impacts of variation on the size of resource rents (which creates difficulties for planning), long-term price trends can make it economically unfeasible for investors to extract reserves, even if technology has improved. This can leave assets stranded.

Substantial rents

Both the petroleum and mining sectors are capable of generating very substantial economic rents. By *rent* is meant the revenues in excess of all costs of production, including those of discovery and development, as well as the normal return to capital. The cost of extraction can be significantly less than the price that the resource can obtain on the market,

not least when there is an important oligopolistic element in world markets, as is the case with oil.

These rents can be a very attractive tax base for governments on both efficiency and equity grounds (IMF 2012, 10). Securing rent for the state requires care in the design of the fiscal regime, to avoid disincentivizing investors and because rent revenues can be highly volatile. To illustrate, the average profit measured in percentage of revenues among EI companies was between 25 and 30 percent in 2006. This compares with less than 20 percent for the pharmaceutical industry and with a mere 5 percent for the EI sector in 2002 (Ericsson 2012, 1). However, while rents in mining can occasionally be high, this is only at the peak of cycles (as in 2006). For large parts of the oil industry these rents are structural. There is nothing in mining that equates to the US\$8 per barrel production costs of Saudi Arabia and the Islamic Republic of Iran.

The challenge for some states is in the volumes of resource wealth, which will strain the capacity of the existing state system, aggravate capacity problems, and create tensions in its relations with investors.

Adverse environmental and social impacts

The EI sectors can have major adverse environmental and social impacts. In the past, these issues have not always been well recognized or addressed by governments, but good practice has improved greatly since the end of the 20th century. Avoiding or mitigating these impacts depends on appropriate legislation or regulation, enforcement capacity, and fiscal regimes that incentivize good behavior by the investor, while recognizing the costs involved and the need to internalize those costs.

As more and more EI companies sign on to international environmental and social standards or implement their own, the challenge for many governments is to ensure that local communities, indigenous peoples, and other affected citizens are able to participate in decisions relating to the exploitation of the resource and benefit from the development of the resource.

Resource exhaustion

By their nature, oil, gas, and mining resources are nonrenewable.⁴ They will eventually be exhausted. This distinguishes these industries from most, perhaps all others and presents policy makers with a number of important issues, ranging from decisions on optimal rates of exploration, development, and exploitation (through fiscal regime design) to appropriate frameworks for macroeconomic

planning. It can encourage fiscal discipline and long-term planning about how much of the resource wealth to consume and how much to save or invest.⁵

The challenge for governments is to take the finiteness of presently identified resources into account in their domestic planning and in their dealings with foreign investors, rather than to prepare for some kind of unlikely “resource apocalypse” when exhaustion occurs.

Prominent political profile

Long viewed as strategic because of their pervasive influence on the economy and the scale of the revenues they generate, the petroleum and mining sectors have always attracted political attention. In certain circumstances, this attention can frustrate, or at least increase the difficulty of introducing, good sector management practices (van der Ploeg and Venables 2009).

Transparency may present challenges to both governments and investors but helps diminish the risk of rumor and speculation among citizens about resource wealth management.

Enclave status

The production of minerals and hydrocarbons is often done in economic areas that are small in scale and geographically limited, with relatively few linkages to the rest of the economy. For offshore petroleum (both oil and gas), the remoteness from centers of population is even more evident.

There is generally agreement now that the challenge for governments and investors is to ensure that such investments are designed or shaped to trigger wider developmental impacts.

Lack of location mobility

In contrast to many other economic sectors, the extractives industries have few choices about locations. They have to locate where the resource is, increasing the prospects for conflict.

This feature underlines the importance of community and local engagement if a project is to enjoy a sustainable relationship in the long term.

Innovation

Both hydrocarbons and mining industries are characterized by a high degree of innovation. In the former, for example, the introduction of hydraulic fracturing, or “fracking,” on a commercial scale has made their extraction more similar

to conventional mining. By contrast, most innovation in mining comes in the form of low-key incremental improvements in existing processes. Disruptive technologies are uncommon. The development of solvent-extraction electro-winning in copper production stands out as an exception. It has increased processing efficiency significantly, and, as a result, production has continued to increase in spite of a decline in the quality of grades of ore mined. Mining does however show a trend toward becoming higher tech: in Western Australia iron ore mines make extensive use of driverless trucks, and more and more underground mining is being carried out remotely.

The greatest challenge to governments lies in the unexpected implications of innovation for policy design. For example, unconventional oil and gas discoveries on a large scale in the United States have implications for coal use in Asia and for the prospects for new gas discoveries in East Africa.

3.3 KEY DIFFERENCES OF THE INDUSTRIES

Differences within the extractives sectors

It is a mistake to assume too much homogeneity within each of the main extractives sectors. Within the hydrocarbons sector, there are significant differences between oil and natural gas and between conventional and unconventional hydrocarbons. Within mining, diversity is significant. In the small-volume, high-value category there are gemstones, gold, and the platinum group of metals. In the high-volume, low-value category are the industrial minerals such as coal, iron ore, copper, nickel, tin, bauxite, and soda ash, for example. There are also construction materials such as sands, gravels, granite, and dimension stone. Part II of the *Sourcebook* makes every effort to note these distinctions and explain their significance. The many differences ensure that very few one-size-fits-all prescriptions or options are feasible.

Differences of degree

Some of the differences among the EI sectors are matters of degree rather than of quality. For example, all of the EI sectors will leave environmental and social footprints, but some will be larger than others. Historically, the mining sector has been the most contentious in this regard, because its operations are entirely land based, often involve moving large masses of land, and affect local communities living or working in the area, sometimes over very long periods. However, there are exceptions, with environmental degradation from oil spills in sensitive

ecosystems being a prime example. Spills include those in the Niger Delta, Prince William Sound in Alaska (the Exxon Valdez tanker spill), and the Gulf of Mexico (the Deepwater Horizon disaster). Such events may suddenly and radically change perceptions about the environmental footprint of EI projects. Similarly, all EI sectors generate rents, but rents in the natural gas and mining sectors are generally more modest than those obtained in the oil sector. These differences, even where they are only matters of degree, are often reflected in legislation or fiscal regimes.⁶

Exploration

At the exploration stage of EI sector development, there are two areas where differences are identifiable: (1) procedures for contract award and (2) security of tenure. Mining exploration often takes place in a context of extremely limited prior geological knowledge or data. There are very many minerals and they can occur pretty much anywhere. By contrast, oil is confined to sedimentary basins and so is more geographically confined. The information necessary to assess the commercial potential of an area for mining is acquired incrementally, at relatively low cost, over an extended period. This appears to have led to the practice of awarding contracts on a first-come, first-served basis (that is, noncompetitive), and to the separation of exploration and exploitation rights. However, recent trends in the mining sector indicate that the practice of integrating exploration and exploitation rights (as is common in the oil and gas industry) is emerging, and, increasingly, mining exploration is unlikely to take place if an investor does not have reasonable confidence that a developmental right is ensured.

In the petroleum sector, where more attention is paid to the compilation of preaward geological information and where the data required to form a preliminary opinion on commercial potential can be more quickly compiled, licenses are typically awarded by negotiated bid or auction (Reece 1978). Further, in contrast to the historical practice in the mining sector, the award of exploration rights in oil and gas seamlessly guarantees rights to develop and produce in the event of commercial discovery. This is usually attributed to the fact that definitive demonstration of commercial potential in petroleum requires substantial investment outlays in the drilling of risky and expensive exploration wells, which often result in failure. These are generally considered risks and expenditures that would not be undertaken without security of tenure (Barnett and Ossowski 2002, 8–9).

However, the appraisal stage in petroleum is characterized by fewer risks than mining. For mineral deposits, there is a wide range of uncertainties about the ability to mine and process a deposit and market a suitable product, requiring further work. Once petroleum has been identified in commercial quantities, any further appraisal is mostly limited to achieving optimal recovery (Land 2007, 257).

Degree of market integration

The absence of competitive global or even regional markets makes it difficult to commercialize natural gas. This has led to contract and fiscal provisions specific to the natural gas sector. The absence of markets has meant that natural gas deals have to integrate vertically all phases of commercialization from the point of extraction to the point of final consumption, often across international boundaries and with various investor groups. This is challenging for regulation, pricing for fiscal purposes, and the design of fiscal terms. By contrast, even though oil companies are often vertically integrated from exploration to selling retail products at the gas pump, the difficulties raised by vertical integration do not usually occur in the oil sector, because it is characterized by broad competitive markets at each segment in the value chain. Minerals are more like oil in this respect. While some mineral producers are vertically integrated from mine to refinery, there are large and liquid markets in intermediate products such as copper and zinc concentrates, bauxite and alumina, and above all, iron ore.

Variety of operations

The wide variety of operations in the mining industry, from the very small to the very large, has implications for the design of an applicable legal framework. Mining laws and regulations usually specify great detail regarding procedures and institutional structure, roles, and mandates, because they have to apply across a diverse sector. In the oil sector, there is also a considerable diversity of operations, but less so than in mining. For example, processing constitutes an important and complex part of the mining production process, increasing the exposure to production performance risks. External inputs, support infrastructure, and labor are all present to a greater degree in mining than in petroleum, increasing the risks of costs caused by interruption. This may explain why petroleum sector laws and regulations tend to be less intricate but are usually followed by a detailed contractual approach to rule making.

Nonetheless, the frequent use of model contracts suggests a similar need for standardization in the oil and gas sector. The recent publication of a model contract for mining development shows that this approach is also applicable to mining (IBA 2011).

Institutional differences

Among the various institutional differences among the EI sectors, three deserve mention because of their visibility. First, the use of national resource companies (NRCs) has been significantly less successful to date in mining than in oil and gas. A push for NRCs in mining and nationalization programs in the 1970s resulted in a reversal a decade later, but a similar reversal did not take place in the oil industry. Gas companies have usually included a significant state element in transportation and distribution and sometimes in exploration and production. The effect of state involvement is therefore a contrasting feature between the mining sector and the oil and gas sectors. A study on state ownership concludes that poor performance in mining “is not a corollary of state ownership. . . . The success of a state-owned mining company is determined by the governance framework/structure, assets, and capital base” (RMG 2011, 33).

A second difference is that, with respect to revenue collection, a national taxation authority will usually tend to have a greater influence than the Ministry of Finance in the mining sector.

Third, the commercial structures in the sectors will differ. In petroleum projects, unincorporated joint ventures (JVs) are common, for tax or financing reasons, such as risk

spreading or possibly reasons connected with technology. Capital is provided separately by the parties to the JV and the benefits are shared among them. Tax authorities have an interest in understanding these arrangements (see chapter 5), not least to monitor costs. By contrast, in mining, such JVs are much less common and are set up after discovery and appraisal of a deposit to facilitate commercial development. Often, major companies tend to take majority ownership stakes in locally incorporated vehicles.

Artisanal mining

A significant feature of the mining industry is the prevalence of large numbers of artisanal miners. This is a common feature of many developing countries in Africa, Asia, and Latin America. The diversity of artisanal and small-scale mining (ASM) should not be underestimated. The category embraces any mining that is conducted with little machinery and by miners who possess few if any legal rights. Such mining is often the only means of survival for the miners and their dependents, thus having a close correlation with poverty. It is notorious for its negative environmental impacts, lack of safety, and social impacts. Previously, the dominant policy approach was to criminalize ASM activities, but increasingly they are seen as important in the overall development of a country’s mining sector. This has no counterpart in the petroleum sector.

The influence of these special characteristics of EI policies and practices will become apparent in the chapters in Part II on the EI Value Chain. The key differences between the two main EI sectors and specifics of each are summarized in boxes 3.1, 3.2, and 3.3.

Box 3.1 Key Differences between the Petroleum and Mining Sectors

1. The overriding significance of exploration in investment in the petroleum sector contrasts with mining (linked to searching for oil in large sedimentary basins deep underground and related costs). In mining, systematic drilling follows a slower, deductive process of surveying and surface sampling over a relatively smaller area.
2. The scale of rents is often much higher in oil than in mining. This is linked to a different structure of risk and reward, with oil having more of both.
3. Procedures for contract award and security of tenure differ (see chapter 4).
4. Legal frameworks: detailed legislation is favored in mining while similar detail is typically found only in model contracts in the oil and gas sectors.
5. State-owned companies have been much less prominent in the mining sector than in the hydrocarbons sector.
6. The petroleum sector often uses a production-sharing contract, which is nonexistent in the mining sector.

Box 3.1 Key Differences between the Petroleum and Mining Sectors (continued)

7. The prevalence of artisanal miners distinguishes mining from petroleum and presents important policy issues.
8. Taxation in mining tends to favor royalty and profits taxes, while in the petroleum sector the widespread use of production-sharing presents a more complex picture, with a wider range of taxation rates being common, too.
9. A different balance of capital and operating costs in the oil industry makes costs higher at the front end (to establish production facilities and pipelines); mining has high capital costs but needs more people during production, ongoing equipment investment, and continuous management of local environmental impacts.
10. Mining is more fragmented and geographically spread than oil; it has numerous products in different forms instead of a few relatively homogeneous products.

Box 3.2 Features Specific to the Oil and Gas Sectors

1. National resource companies remain popular in most oil- and gas-producing countries, more so than in the mining sector.
2. Usually, distinct laws will be made for oil and gas activities and for the mining of other minerals. Inevitably, this difference in choice of legal design appears to suggest the existence of underlying differences between the two sets of extractive industries.
3. In the oil and gas sector, a framework approach to legislation is often preferred, with a higher degree of reliance on a related model or standard contract for exploration and exploitation than in mining.
4. Three types of agreement govern the relationship between a host government and investors in upstream oil and gas activities: the concession or license, the production-sharing agreement, and the risk service agreement. Only the first is commonly found in mining.
5. Most oil and gas agreements require the contractor to purchase a proportion of its needed goods and services in the host country from local suppliers to promote linkages to the local economy. Similarly, they require a hiring preference for nationals of the host country and the use of training programs to transfer skills and create employment.
6. Stabilization clauses are commonly used in oil and gas agreements.
7. Natural gas discovery and development is commonly treated differently from oil in the basic agreement, with a longer period being given to the appraisal of a gas discovery and fiscal provisions being designed to reflect its different profitability.
8. Contract provisions may require priority allocation of gas to the domestic market and/or set conditions for the authorization of export sales.
9. Gas contracts contain detailed valuation clauses setting out how wellhead prices are to be determined.
10. In award procedures, it is a desirable and increasingly common practice to prequalify applicants for awards.
11. Where significant geological data are available and investor interest is high, a competitive auction is generally considered the best option for awarding contracts.
12. In the award of oil and gas rights, it is the work program that generally has the most influence in decision making, usually combined with a financial variable, such as a bonus, royalty, or profit/production share.

Box 3.3 Features Specific to the Mining Sector

1. Access to land is the starting point for the mineral exploration and mining process.
2. Ownership of subsoil resources needs to be legally specified.
3. The state specifies mineral rights, generally either exploration or mining licenses, in exchange for license holders undertaking exploration or development work.
4. Most exploration licenses for minerals contain the presumption that a company finding anything will have the right of first refusal on its development.
5. For mining, unlike for oil or gas, established practice includes the offering of exploration on a first-come, first-served basis, due to a lack of both geological information and investor interest.
6. However, there is now generally more data available and hence greater interest in obtaining exploration licenses.
7. While first-come, first-served will continue to be appropriate for areas that are largely unexplored, good practice is for a government to offer licenses on a competitive bidding basis in situations where geological data are available and where there are strong indications of multiple and competing interest.
8. Mining agreements should not:
 - Include fiscal terms preferential to particular investors, most-favored-company provisions, or provisions for their own extension to cover new areas
 - Provide license holders with long-term exploration rights (such as right lasting last longer than a decade)
 - Allow investor “land-banking”—there should be an obligation to conduct substantive work
 - Tie up land far larger than the area to be mined during the expected life of the mine
9. Companies should not be made subject to unreasonable “use it or lose it” provisions, since they need to be able to time their investments with regard to the price cycle, not just the government’s fiscal needs.
10. Large numbers of artisanal miners are common in the mining sector of several developing countries. They are notably present in mining for gold and precious stones. Good practice lies in formalization and legalization of certain types of artisanal and small-scale mining.

3.4 EI SECTOR DYNAMICS

Most accounts of the EI sector emphasize the wide diversity of their structures, noting size and ownership patterns and changing trends in them.⁷ These features continue to evolve. Research in recent years has explored the important role that national oil companies (NOCs) now play in the international oil and gas industry (Tordo, Tracy, and Arfaa 2011; Victor, Hults, and Thurber 2012; Marcel 2005).⁸ Similarly, there has been research into the role of new players in the global mining industry and into junior companies and their effectiveness, particularly at the exploration stage, where they are assumed to have an advantage and where they are increasingly in evidence, especially in Sub-Saharan Africa (Humphreys 2015).⁹ Some research has been driven by the awareness among policy advisers that such companies regularly employ the panoply of international taxation rules to maximize their advantage, presenting a challenge to governments in states with poorly developed fiscal regimes.¹⁰

While there is plenty of evidence of the differences between mining and hydrocarbons, the dynamic factor

should be noted here as elsewhere. Trends in both sectors seem to be encouraging some convergence. In box 3.4 there is a summary of five developments that have, in the view of one commentator, the effect of encouraging convergence.

As circumstances change, many investors are accustomed to selling an interest, merging, or making other acquisitions in their pursuit of value. Their decisions will usually be made within a framework of corporate operations that goes well beyond those of a single country, and justified to stakeholders who in the vast majority of cases are unlikely to reside in the country hosting the investment. These and other ways in which EI industries respond to exploration, development, and production in their international operations may be too little understood in host countries, with resulting negative effects on the design of public policies.

Buying and selling assets

The typical ways that internationally operating companies obtain access to new reserves need to be understood. Exploration activity is only one way for companies to gain access.

Box 3.4 Convergence of Mining and Hydrocarbons?

- Mining companies go to increasingly remote places to develop mines, requiring ports, power stations, and railway lines, so the upfront costs of getting established are rising, in line with oil.
- Mining companies are having larger impacts on the local economy. Examples are mining projects in Guinea and in Mongolia, increasing the size of local GDP hugely.
- Technology advances in oil and gas are making them closer to mining in the way they operate (shale bringing oil and gas on-land and with greater geographical dispersion).
- The recovery process from shale and tar sands resembles mining in economics and technologies more than the traditional extraction from deep underground wells; margins look more like mining due to higher cost.
- There is increasing similarity in the political challenges they face, especially in the impact of resource developments. Policy makers see similarities, too (as in discussions about Extractive Industries Transparency Initiative—see chapter 8).

Source: Humphreys 2014.

Companies in the EI sector routinely buy and sell their interests through mergers and acquisitions (M&As), usually on a friendly rather than a hostile basis. In the hydrocarbons sector, it is common for the buyers to be cash-rich NOCs from countries with insufficient domestic resource bases, such as China and India. Near the peak of the last commodity cycle, in 2011, the disclosed value of exploration and production M&A activity increased by almost 70 percent to reach US\$317 billion (Ernst & Young 2011).¹¹ Cash-rich NOCs from China and Korea played an important part in that activity. By contrast, in 2015 comparable M&A activity in hydrocarbons had fallen to US\$71 billion once the giant merger between Royal Dutch Shell Group and BG is removed from the equation (Ernst & Young 2016, 6); it is US\$153 billion when this transaction is included. Chinese and Asian NOCs were scarcely visible, with total NOC transactions declining to US\$6.1 billion in 2015 from almost US\$122 billion in 2012. The strong correlation between M&A and the commodity price environment means that with the substantial price fall, M&A activity has been in

decline for several years (as, for example, equity valuations fall and demands grow for returns of capital to shareholders). In a downward cycle, companies face limits on their M&A aspirations by uncertainty about the prospect of a commodity price recovery and (or alternatively) constraints on their balance sheets. Further, cross-border (as distinct from domestic) M&A has become increasingly challenged by the need for regulatory approvals to meet competition concerns by governments and even by what may be called cultural differences.

For an international oil company (IOC), this kind of sale to an NOC (or other) buyer can be a way to raise funds for new projects. It can also be a way to generate a return from selling an asset that has been created by identifying commercially viable reserves. Its market value is derived from its future production potential. As the project matures, the share value increases, and a sale follows. This kind of IOC has a different business model from that of the better-known integrated oil and gas companies. (Exxon Mobil and Shell are examples of such companies.) Instead of producing oil from a successful exploration and generating a stream of cash to return to shareholders as dividend payments, it sells the asset at an early stage. In this way it avoids the complexity of bringing a large find into production, which requires significant upfront investment and often requires a JV structure to finance the development. Other IOCs may choose to produce discovered reserves themselves and may acquire other projects in order to gain access to the reserves they contain, thereby increasing the volume of reserves under their control (with or without having discovered them).

A similar trend is evident in the mining sector, where the level of spending on M&As tends historically to be greater than that on exploration and development. However, here too there has been a reaction to the M&A transactions carried out in the years when commodity prices were high, with a severe decline in the volume and value of M&A transactions amid large impairment charges or write-downs of asset values that have followed these early deals. Separately, regulatory hurdles are a challenge for cross-border mining transactions, with governments reluctant to allow a transfer of ownership of resources to foreign companies, and a growing concern about loss of tax revenue that may follow from their approval.

When M&A occurs, such activity reflects a transfer of ownership of the present stock of mines and associated processing facilities. Inevitably, its value is significantly higher than the value of annual additions to that stock, which derives from exploration and development. Just as in the

hydrocarbons sector, junior companies will expect to gain their rewards by selling any discoveries to larger mining companies for exploitation.

It should already be clear that the business models of companies in EI activities are far from uniform and need to be understood by governments and their advisers in designing policies for this sector. There are in the EI sector companies that can be classified as large integrated IOCs, junior or “independent” IOCs, and NOCs, which can operate internationally, regionally, or simply nationally. The company that is likely to sell its asset in the event of an exploration success is also usually one with a higher than average appetite for risk, and that can have advantages to governments looking for a first-mover to generate interest in their territory.

Policy effects

Policy needs to take into account the real differences among types of companies and the M&A dynamic arising from the maturity of prospects from exploration to extraction. It also needs to account for a shift that commonly occurs from junior to more major producers. This is particularly evident in the petroleum sector, where the investment returns on successful projects tend to be higher and payback periods tend to be shorter than in mining. Decisions need to be made about the kind of companies that a government wishes to see as investors within its borders. Many years ago, the Norwegian government policy was organized around a preference for the larger, integrated companies in its emerging hydrocarbons sector, while its North Sea neighbor, the United Kingdom, favored the entry of a diverse range of companies into offshore exploration. These decisions affect policy at the beginning of the value chain (the award of rights) but also have impacts at later stages, with M&A activity being prevalent throughout. This is to some extent the lifeblood of a healthy industry, but it is a flow that governments should keep a close eye on. In particular, governments should ensure that the environmental conditions associated with the license to operate are carried over to the new company.

South-south investment

A significant change in recent years has been the growing role of EI companies from the emerging economies, especially in low-income countries. In this group, Brazil’s, China’s, and India’s national or private companies have made the most notable impacts on the international EI scene.

Russia also provides a home to new corporate players, even though it is not located in the South. Companies from other countries such as Malaysia and Thailand (hydrocarbons), Peru (silver), South Africa (platinum), and Botswana (diamonds) have made significant impacts on global EI markets in recent years. Countries in this group are taking a much larger share of global spending on exploration in the mining sector, amounting to 60 percent, according to one study (Humphreys 2009, 2).

Much of the literature on the development implications of EI has focused upon the impacts of foreign direct investment from OECD or other developed countries, or North-South flows. However, the rise of players from emerging economies, and the so-called BRICs (Brazil, Russia, India, and China) in particular, raises questions about how South-South flows will affect established patterns. It is still too early to answer. As David Humphreys (2009, 21) notes in a study of such companies in the mining sector:

[I]nvestors from these countries sometimes bring a rather different set of perspectives to their overseas investments, emphasizing, on the one hand, raw material security of supply considerations along with the commercial prospects of a mining project and, on the other hand, the benefits of such investments taking place within the context of a broader government-to-government financial and cooperation agreement.

Oil and gas dynamics

Large, integrated companies operate internationally at all stages of the petroleum cycle: exploration, production, transportation, refining, and marketing. These are usually known as the IOCs, are privately owned for the most part, and are based in the United States and Europe. The six companies commonly attributed to this group are BP, ExxonMobil, Shell, Chevron, ConocoPhillips, and Total. Sometimes called “super-majors,” these companies account for about two-thirds of the world’s exploration and production investments, with the balance being made by NOCs. They are especially prominent in deepwater exploration and development and liquefied natural gas (LNG) projects; their size and resources allow them to manage and finance such projects more easily than other companies and to face the risks that these projects entail.

National oil companies are common among resource-rich states, with around 90 percent of the world’s oil and gas reserves and 75 percent of the production under their control. The largest is Saudi Aramco (Saudi Arabia).

Some of these NOCs have become increasingly active beyond their home base, competing with the IOCs for access to new or existing petroleum reserves. Examples of companies that have ventured outside their national territory are China's CNOOC, CPNC, and Sinopec; India's ONGC; Brazil's Petrobras; Russia's Gazprom; and Malaysia's Petronas. NOCs are also used by their home states as vehicles to secure much-needed energy resources for domestic industries' needs.

Junior companies, sometimes called *independents*, do not have the high overhead costs of the IOCs. Their size can vary considerably, with the smaller ones typically hoping to significantly profit from the sale of promising prospects, sometimes to other, larger independent companies. They are usually prepared to accept high risks at the exploration stage, both in terms of the hydrocarbons they target and in terms of the countries in which they explore. For this reason, they often dominate in initial exploration, especially in frontier settings. They tend to respond quickly to current demand and change their exploration focus rapidly. For the most part, they operate with funds raised from individual investors and equity finance, often in provincial stock markets such as those in Canada and Australia, making their expenditure highly volatile.

Oil service companies are usually confined to the provision of services and supplies to the operating companies that manage exploration and production on behalf of their consortium partners. Drilling wells and oilfield management are frequently outsourced by operators to specialized service providers. The larger service companies, like Halliburton or Schlumberger, are capable of becoming involved in preexploration, exploration, and production, but they may choose not to pit themselves competitively against their oil company clients and therefore refrain from such activities.

Within the industry, three business stages are commonly distinguished: (1) *upstream*, meaning the exploration, development, and production activities; (2) *midstream*, meaning the storage, trading, and transportation of crude oil and natural gas; and (3) *downstream*, meaning refining and marketing. Some companies, such as ExxonMobil, Shell, and BP, perform activities in each of these segments. However, many of the thousands of firms in the oil and gas industry are specialists or niche players; further, some carry out different activities within one or more of the above segments. In the EI Value Chain that is used in the *Sourcebook*, the upstream activities fall within the first and fifth chevrons, while some of the activities in the midstream and downstream segments are treated in the second chevron,

"sector organization." The market for crude oil is shaped by many players: refiners, speculators, commodities exchanges, shipping companies, IOCs, NOCs, independent companies and the Organization of the Petroleum Exporting Countries (OPEC). For the most part, the *Sourcebook* focuses on the upstream activities.

Natural gas is commonly found in association with oil. The techniques for discovery are the same. Hence, the larger oil companies are often also among the largest producers of natural gas. Some companies have started out, however, as gas companies and moved into oil: Encana (Canada), ENI (Italy), BG (UK), and ELF (France) are examples. Gas is very much like oil in the upstream segment and very different from it in midstream. However, important and distinct characteristics of gas differ from those of oil in the upstream segment: gas processing and natural gas liquefaction. In the midstream segment, transporting natural gas is more complex and much more challenging than transporting crude oil, albeit with fewer environmental risks. Constructing and operating pipelines to bring natural gas from remote locations to markets raises complex issues of cross-border regulation (see chapters 5 and 6). However, transportation of gas has become significantly easier over the past decade with the expansion of the LNG industry, dominated by the largest IOCs. It offers significant opportunities to countries along the coast of Africa and the Aceh province of Indonesia, where large gas deposits have been found far from the main consumer markets. This, of course, comes with infrastructure implications for emerging gas producers, which the *Sourcebook* takes note of (see chapters 5, 6, and 9).

Mining dynamics

Large, international, multiproduct mining companies are relatively few in number. Typical examples would now include Anglo American, BHP Billiton, Rio Tinto, Vedanta, and Glencore. They are involved in every stage of the industry value chain and typically have an interest in several types of minerals. The rationale behind this diversification of activity and products in the minerals sector is to spread the risk of activities and achieve a higher average rate of return than would be achieved with a single product such as gold, coal, or iron ore. When one commodity is down in price another should be up—that is the assumption. Looking at the largest companies more closely, many are much less diversified than at first appears. If one focuses on the larger companies, six have more than 50 percent of their work in iron ore, four are copper producers, and three are gold producers (Ericsson 2012, 8). The dependence on iron ore is

mostly a product of timing; 2011 was the peak of the iron ore price cycle. For the most part, then, they are dependent on one metal for more than 50 percent of their production. These companies tend to be diligent in their approach to environmental and social performance standards and social investments. They commonly adhere to international standards and reporting requirements, through, for example, the International Council on Mining and Metal's Sustainable Development Principles, and the International Finance Corporation's performance standards.

National resource companies are fewer in number and much less influential in mining than their counterparts in hydrocarbons. Even so, Burnett and Bret put their number at around 80, varying according to size, commodity focus, geographic reach, and degree of independence from the State (Burnett and Bret 2016, 11, 16). Typically, they focus on a limited number of minerals and sell them on the international market. Early efforts at state ownership and control included significant failures in Africa, such as the nationalization of copper mines in Zambia, and in the state companies established in centrally planned economies, largely in Eastern Europe and parts of Asia where, for a long time, it was associated with a heavy industry development model. The Zambian effort was part of a wave of nationalizations of foreign mining companies in developing countries in the late 1960s and early 1970s. During the 1960s there were 32 expropriations of foreign mining companies; between 1970 and 1976 the number reached 48 (UNCTAD 2007, 108). Governments retreated from state control in the 1990s, but the practice remains high in many metals, partly due to the growth of state-controlled mining in China. Some Chinese companies are becoming quite prominent outside China: Chinalco, MMG, China Molybdenum, and CNMC, for example. In the diamond industry there are examples of successful state holdings in Botswana and Namibia, both of which have formed joint venture companies with De Beers (RMG 2011, 10). An example in copper is Codelco, the Chilean producer. In iron ore there is the Indian mining company National Mineral Development Corporation. Some of the large "national" mining champions, such as Vale in Brazil or Norilsk Nickel in Russia, also enjoy a close relationship to government. In Vale's case, the Brazilian government holds a golden share, which could be used to block a foreign takeover.

Junior mining companies are typically medium- or small-sized companies focused on exploration activities in one country or region or a specific mineral or group of minerals. They may be owned by domestic entrepreneurs or international firms, sometimes backed by venture capital or private equity.¹² There are about 1,700 such companies

(Burnett and Bret 2016) and they make up the majority of mining companies in business today. Indeed, many mineral-rich countries have a group of such companies of differing sizes, sometimes each operating in only one mine. Examples, can be found in Chile, Mexico, and Peru. They will usually have local ownership and staffing. Such companies can accept higher risk than the larger ones, both in terms of the type of mineral target sought and the countries in which they explore. They also "tend to seek the products that are presently fashionable, and they can and do change their exploration focus quickly" (Crowson 2008, 118). For companies that focus solely on exploration, they are likely to recoup their capital not by developing the reserves themselves (by which stage their interests are likely to be diluted significantly), but by selling most, if not all, of their discoveries to larger companies with the technical, financial, and marketing skills and access to the capital markets. Sometimes the larger companies provide the junior ones with the capital to support operations and an assurance of a market for their discoveries if successful. At the peak of the cycle, in 2006–8, junior mining companies accounted for over 50 percent of total mineral exploration, and the majors 30 percent. Ten years later, those proportions had reversed. Juniors are volatile because they generally depend on equity markets for their funding, and so are susceptible to cycles. The principal markets for risk capital for juniors are largely limited to Australia, Canada, and London.

Small-scale miners and artisanal workers play a key role in mining, and this has no parallel in the hydrocarbons sector. Their work may take on a corporate character, with workers employed to mine, but this is generally on a very small scale. The subsector is the equivalent of subsistence agriculture and is labor intensive, employing on a conservative estimate as many as 30 million people around the world. They always operate informally and sometimes also illegally.¹³ These companies and workers usually account for minor shares of global mining production. They tend to concentrate on high unit-value products, such as gold and gemstones, and are widely found in developing countries. Health and safety conditions among such miners are often poor; these operations tend to employ women and children, and they often cause significant environmental damage. The benefits to a host country of such mining are unlikely to be reflected in any tax returns, and mining codes and tax systems are usually not responsive to this kind of activity. This sector is on the increase, with impacts on the sensitive or protected ecosystems and biodiversity and encroachment on World Heritage Sites. (Large-scale mining also can have such impacts.) It is relatively insulated from the rise and fall of commodity prices

(in contrast to large-scale mining operations) because the economic returns will remain—even in a downturn—significantly higher than similar artisanal activities, such as fisheries and agriculture. A rush of activity can have sudden, dramatic impacts: in Madagascar, gemstone rushes have attracted as many as 100,000 miners congregated in limited areas, with slash-and-burn agriculture used in support of the ASM communities.

In the 1970s and 1980s, a number of very large oil companies such as Exxon and Shell moved into the mining sector to create genuinely EI companies. They assumed that the prospects for long-term growth within the oil industry were being challenged by the spread of state ownership and NOCs and had the cash available from high oil prices to fund programs of diversification. Mining and petroleum were, they thought, so similar in their characteristics and basic requirements that it would be possible to operate profitably across both sectors. This proved to be an economically unsuccessful series of experiments, underlining differences in the respective businesses, and they were soon brought to an end. More recently, mining companies have been buying into oil (Humphreys 2014).

Unconventional oil and gas dynamics

The leading companies in the development of shale gas and oil include super-majors like Shell, Total, and ExxonMobil; large IOCs like Anadarko, Pioneer, Encana, Talisman, and BHP Billiton; and smaller independent companies that specialize in shale gas (Cuadrilla in the United Kingdom is an example). Most of these operate in the United States and Canada, because markets for unconventional oil and gas outside of North America are still in their infancy.

3.5 CONCLUSIONS

Investment in the EI sectors (oil, gas, and mining) has features that present challenges to policy makers. There are significant differences between oil and gas, on the one hand, and mining, on the other, and indeed in the mining sector itself, although points of convergence have been noted. Both sectors are capable of playing a major role in a government's plans for resource-led development.

Effective management in the public interest requires recognition of both the common and the unique features of EIs in the design of sector policies and institutions. However, it will also involve strategic decisions about the kind of company or pattern of companies that is best suited to achieving the kind of overall policy goal held by a host

country. More challenging still, it involves a recognition that periodically these industries have to transform themselves to become more profitable at lower price levels, making attraction of investment into any region or country a harder task.

Some features of this investor-state relationship are relatively constant over time, while others are quite dynamic, such as industry structure, which has shown significant changes and greater complexity in recent years, not least due to companies from emerging markets making strategic investments aimed at securing future supplies of energy and minerals.

NOTES

1. In this sense, the “extractives” industries by definition stand in contrast to the renewable energy industries, which typically rely on natural resources located above the surface (wind and solar power, for example).

2. For large mining projects, this distinction will be less apparent.

3. This clearly does not include artisanal and small-scale mining, but it is an integral part of EI generally.

4. Note, however, that metals can be recycled to reduce the demand for virgin sites.

5. However, “the importance of the finiteness of petroleum and mineral deposits to long-term economic performance and commodity price developments is questionable” (IMF 2012, 12). Proven oil reserves, for example, have continued to rise in spite of increasing consumption levels.

6. For a comprehensive comparison of oil and gas fiscal regimes, see Ernst and Young (2013).

7. For ownership patterns, see, for example, UNCTAD 2012 and Crowson 2008. For trends see Ernst & Young 2013 and Humphreys 2012.

8. Contrast their more tentative role in the mining sector (RMG 2011).

9. Restructuring during the commodities boom years (2003–12) was caused largely by China's industrialization during that period.

10. See for example, several of the contributions to Keen, McPherson, and Daniel 2010.

11. The previous year's figures for M&A can be found in Fennema 2010.

12. The medium and junior companies are sometimes separated into two categories.

13. This includes a significant number of child laborers. In 2011, Human Rights Watch estimated that the number of child laborers in artisanal gold mining in a single African country, Mali, numbered between 20,000 and 40,000, with many of them starting work as young as six years old.

REFERENCES

- Barma, Naazneen H., Kai Kaiser, Tuan Minh Le, and Lorena Vinuela. 2012. *Rents to Riches? The Political Economy of Natural Resource-Led Development*. Washington, DC: World Bank.
- Barnett, S., and R. Ossowski. 2002. "Operational Aspects of Fiscal Policy in Oil Producing Countries," International Monetary Fund (IMF) Working Paper WP/02/177, Washington, DC.
- Boadway, R., and M. Keen. 2010. "Theoretical Perspectives on Resource Tax Design." In *The Taxation of Petroleum and Minerals: Principles, Problems and Practice*, edited by P. Daniel, M. Keen, and C. McPherson. London: Routledge.
- Burnett, H., and L.-A. Bret. 2016. *Arbitration of International Mining Disputes: Law and Practice*. Oxford: Oxford University Press.
- Crowson, P. 2008. *Mining Unearthed*. London: Aspermont UK.
- Ericsson, M. 2012. "Mining Industry Corporate Actors Analysis." Polinares Working Paper 16, Center for Eastern Studies, Warsaw. <http://www.eisourcebook.org/cms/Mining%20industry%20corporate%20actors%20analysis.pdf>.
- Ernst & Young. 2011. *Oil & Gas M&A in 2011*. London: Ernst & Young. <https://webforms.ey.com/GL/en/Newsroom/News-releases/Oil-and-Gas-M-and-A-in-2011-volume-up--values-down>.
- . 2013. *Global Oil and Gas Tax Guide 2013*. London: Ernst & Young. [http://www.ey.com/Publication/vwLUAssets/EY-2015-Global-oil-and-gas-tax-guide/\\$FILE/EY-2015-Global-oil-and-gas-tax-guide.pdf](http://www.ey.com/Publication/vwLUAssets/EY-2015-Global-oil-and-gas-tax-guide/$FILE/EY-2015-Global-oil-and-gas-tax-guide.pdf).
- . 2016. *Global Oil and Gas Transactions Review 2015*. London: Ernst & Young. [http://www.ey.com/Publication/vwLUAssets/EY-global-oil-and-gas-transactions-review-2015/\\$FILE/EY-global-oil-and-gas-transactions-review-2015.pdf](http://www.ey.com/Publication/vwLUAssets/EY-global-oil-and-gas-transactions-review-2015/$FILE/EY-global-oil-and-gas-transactions-review-2015.pdf).
- Fennema, Julian. 2010. "Industry Overview." In *Cairn Energy PLC Annual Report 2010*. Edinburgh, UK: Cairn Energy. http://www.cairnenergy.com/files/reports/annual/ar2010/2010_annual_report.pdf.
- Human Rights Watch. 2011. *A Poisonous Mix: Child Labor, Mercury, and Artisanal Gold Mining in Mali*. New York: Human Rights Watch.
- Humphreys, D. 2009. *Emerging Players in Global Mining*. Washington, DC: World Bank.
- . 2012. *Transatlantic Mining Corporations in the Age of Resource Nationalism*. Washington, DC: Transatlantic Academy.
- . 2014. "Do Oil and Mining Mix?" *Mining Journal*, November 28, 22.
- . 2015. *The Remaking of the Mining Industry*. London: Palgrave Macmillan.
- IBA (International Bar Association). 2011. "Model Mine Development Agreement 1.0." London: IBA. <http://www.eisourcebook.org/cms/Dec%202012/Model%20Mine%20Development%20Agreement.pdf>.
- IMF (International Monetary Fund). 2012. "Macroeconomic Policy Frameworks for Resource-Rich Developing Countries." Background Paper 1, IMF, Washington, DC.
- Keen, M., C. McPherson, and P. Daniel, eds. 2010. *The Taxation of Petroleum and Minerals: Principles, Problems and Practice*. London: Routledge.
- Land, B. C. 2007. "The Similarities and Differences between Mining and Petroleum Investment: A Comparison of Investment Characteristics, Company Decisions and Host Government Regulation." *OGE* 5 (2). <http://www.citeulike.org/user/marisois/article/10809497>.
- Marcel, V. 2005. *Oil Titans: National Oil Companies in the Middle East*. Washington, DC: Brookings Institution Press.
- Nutavoot, P. 2004. "Partnerships in Oil and Gas Production-Sharing Contracts." *International Journal of Public Sector Management* 17 (5): 431–42.
- Reece, D. 1978. "Competitive Bidding for Offshore Petroleum Leases." *Bell Journal of Economics* 9 (2): 369–84.
- RMG (Raw Materials Group). 2011. *Overview of State Ownership in the Global Minerals: Long-Term Trends and Future Industry*. Washington, DC: World Bank.
- Stiglitz, J. 1989. "Principal and Agent." In *The New Palgrave: Allocation, Information, and Markets*, edited by J. Eatwell, M. Milgate, and P. Newman. New York: W. W. Norton.
- Tordo, S., B. S. Tracy, and N. Arfaa. 2011. "National Oil Companies and Value Creation." World Bank Working Paper 218, Washington, DC.
- UNCTAD (United Nations Conference on Trade and Development). 2007. *World Investment Report*. New York and Geneva: United Nations.
- . 2012. *Virtual Institute Teaching Material on "The Economics of Commodities Production and Trade: Oil, Gas, and Economic Development"*. New York and Geneva: United Nations.
- van der Ploeg, F., and A. Venables. 2009. "Harnessing Windfall Revenues: Optimal Policies for Resource-Rich Developing Economies." Paper presented at the Conference on Public Sector Economics, Munich, Germany, April 24–29. http://www.cesifo-group.de/portal/page/portal/CFP_CONF/CFP_CONF_2009/Conf-pse09-vanderPloeg/Conf-pse09-papers/pse09_van%20der%20Ploeg.pdf.
- Victor, D. G., D. R. Hults, and M. Thurber. 2012. *Oil and Governance: State-Owned Enterprises and the World Energy Supply*. Cambridge, UK: Cambridge University Press.

OTHER RESOURCES

Summaries of the following references are available online at the *Sourcebook* website:

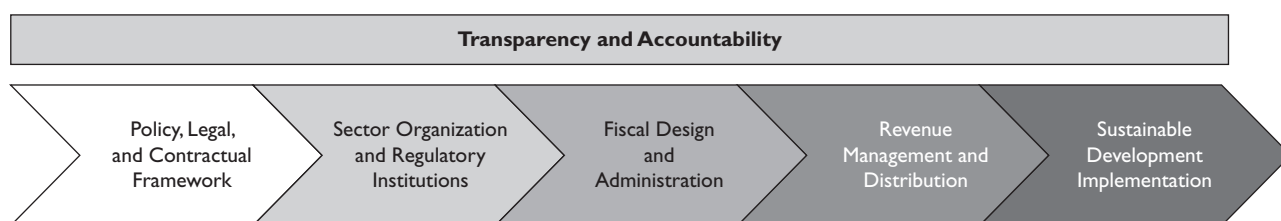
World Bank. 2006. *Mining Royalties: A Global Study of Their Impact on Investors, Government and Civil Society*.

A World Bank Study. Washington, DC: World Bank, chapter 2.

Mansell, R. L., J. Winter, M. Krzepkowski, and M. C. Moore. 2012. *Size, Role and Performance in the Oil and Gas Sector*. Calgary, Canada: University of Calgary School of Public Policy.

PART II

The Value Chain Approach to Extractives



INTRODUCTION TO PART II

Two key ideas were advanced in Part I of the *Sourcebook*. First, just as more governments face decisions as custodians of extractive resources, specialist knowledge about all aspects of the extractive industries (EIs) value chain has grown and become more readily accessible. This wealth of knowledge creates a challenge for states and other stakeholders who must use it in particular settings. The abundance and diversity of knowledge leaves ample room for interpretation of what constitutes “good international practice.” It can be difficult to know how the knowledge may best operate as a source of standards or quality benchmarks for policy decisions on legal and regulatory frameworks, sector organization, fiscal design, and revenue management.

The second idea is that, for many and perhaps most governments, responsibility for public policy decisions has become more sensitive than ever before, for three reasons. First, there is greater scrutiny of executive actions by legislatures, civil society, and individual citizens keen to ensure that decisions to promote resource-led development bring

benefits to the ultimate owners, the country’s people. Second, there is a high level of awareness of negative outcomes that can result from extractives development at a macrolevel (the resource curse) and also of the failures that can result from some of the instruments and techniques used in development: contract provisions, methods of awarding rights, or the design and operation of resource funds, for example. Given that extractives are nonrenewable resources, wrong policy decisions about their use can be particularly damaging to a country. Third, as the links between extractives and development policy have become established, expectations of potentially wide economic and social benefits have grown. This creates new minimum requirements for sustainable public policies in the EI sector and new sources of strain and instability in relations between governments and foreign investors.

Part II of the *Sourcebook* focuses on areas of EI development where decisions involving policy choices are typically required and need to be justified by governments to their citizens. Through a critical review of the many country and regional case studies, elaborations of general principles,

published models, and recent research, it presents an updated version of internationally accepted “good practice” knowledge on four of the five key topics encapsulated by the EI Value Chain. The topics or problem complexes addressed in Part II are (1) the policy, legal, and contractual framework (chapter 4); sector organization and regulatory institutions (chapter 5); fiscal design and administration (chapter 6); and revenue management and distribution (chapter 7). The fifth topic—sustainable development implementation—is examined in Part III.

The interests of two broad kinds of state have shaped the *Sourcebook’s* analysis of the body of knowledge: (1) new or aspiring extractives producers and (2) existing producers engaged in or planning reforms of their oil, gas, or mining sectors. In each case, the state will have a keen interest in current international good practice in the EI Value Chain. The *Sourcebook’s* operating assumption is that the host state has decided to invite participants from the domestic or international sector to develop resources on its behalf and under its supervision, perhaps with a state company involved, rather than to develop the resources entirely by itself. For the new and aspiring producing countries the benefits of using nonstate parties to develop resources are likely to be many. For the second category, the invitation is likely to be of a need for specialized, high-tech equipment and skills not available in the state sector or for high levels

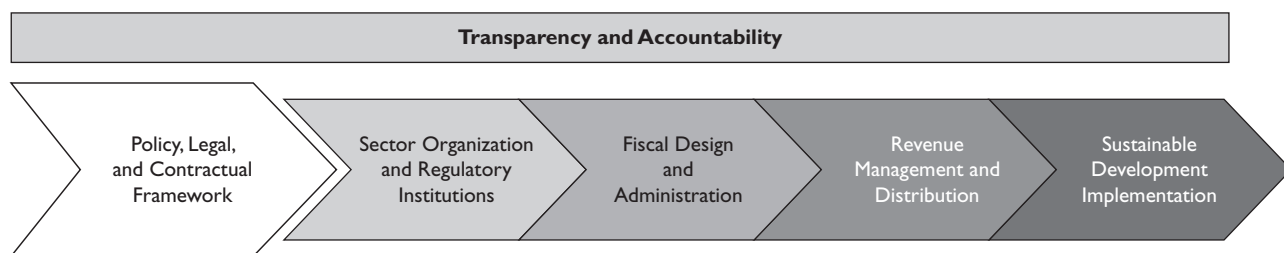
of capital investment, or both. For this cooperation to be successful, it is necessary for both parties to make credible commitments intended to last over time. The establishment of a sound and enforceable legal and contractual framework is of fundamental importance in this process. This priority is reflected in the first two chapters of Part II.

Any modern approach to good practice is influenced by the three challenges to effective decision making identified in Part I: (1) the need to contextualize and adapt lessons from the body of specialist knowledge (good practice has to “fit”), the need to counter institutional weaknesses (good practice has to be capacity sensitive), and the need for the maximum transparency and accountability in governance arrangements (good practice has to be credible). Taken together, these challenges have contributed to a rethinking of good practice knowledge, rebalancing it so that it is much less reliant on investor-driven definitions than in the past.

Understanding good practice in this way, informed by twenty-first century development needs, should make the knowledge presented and analyzed in Part II practical for officials in various levels of government and stakeholders responsible for the scrutiny of public policy. In our view, *responsibility* in the EI sector should be understood in the widest sense, because extractive resources are ultimately owned in virtually all parts of the world by the people, not by governments.

CHAPTER 4

Policy, Legal, and Contractual Framework



4.1 KNOWLEDGE CORE

A government has to establish principles and instruments for building and operating a framework for investment decisions before making decisions. These constitute a *policy, legal, and contractual framework*. The framework bundles together issues of EI sector policy, legislation, contracts, award of contracts and licenses, and regulation of activities. Many of the principles and instruments of such frameworks are already used widely around the globe, but the way they are implemented varies greatly from one country to another and over time, as insights and lessons are generated from experience. Most of them carry a unique imprint from political bargaining in a particular country. With this in mind, every attempt to design or reform a framework has to consciously anticipate and prepare to resist destructive rent-seeking competition among interest groups.¹

Much research and experience has already yielded insights into the policy priorities that a host state would

typically expect resource-led development to achieve. Abundant discussion has taken place about the pros and cons of elements to consider when designing the best and most effective arrangements, whether legislative, contractual, or institutional. Together with a government's decisions on EI sector organization and fiscal design (chapters 5 and 6), its decisions on the framework will shape and constrain EI sector investments and operations, ensuring (ideally) that they proceed in an orderly fashion and in ways that protect the public interest.

The *Sourcebook's* focus on the legal and policy framework is sharp because it is done in relative isolation from the wider international context in order to capture its essential features. The elements of interaction with that wider and very important context are considered in section 4.11.

Differences between the oil, gas, and mining sectors need to be noted. At times they are very significant.

4.2 GETTING STARTED: FACTS OF EI LIFE

The world of legal and contractual relationships in the EIs is shaped by two basic facts:

1. Every country, prospective or actual producer, vests ownership of oil, gas, and mining resources—when in the subsoil—in the state, with very few exceptions, such as the United States.
2. Development of oil, gas, and mining resources requires translation of this legal fact into a series of coherent policy choices, contract forms, and fiscal instruments in a distinct structure or framework.

Ownership

The first fact is always a given. Most countries vest the ownership of subsoil resources in the state on behalf of the people, either in their constitution or in a distinct sector-specific law: a petroleum law or a minerals law.² This declaration affects all aspects of the extractives regime and makes its operation explicitly a matter of public policy, and one that the courts may be empowered to interpret. An example of this is the wide-ranging statement of ownership that is included in the constitution of Ghana. Its scope is wide enough to grasp all the important areas where minerals may be found, including offshore waters as well as on, and under, land:

Every mineral in its natural state in, under or upon any land in Ghana, rivers, streams, water courses throughout Ghana, the exclusive economic zone and any area covered by the territorial sea or continental shelf is the property of the Republic of Ghana and shall be vested in the President on behalf of, and in trust for the people of Ghana.³

Where a special law is concerned, the declaration of ownership might take a different approach. Two examples are:

1. Mineral resources belong to the [Chinese] State. The rights of State ownership in mineral resources are exercised by the State Council. State ownership of mineral resources, either near the earth's surface or underground, shall not change with the alteration of ownership or right to the use of the land which the mineral resources are attached to.⁴
2. Title to, and control over, Petroleum in the Territory of Somalia are public property and are vested in Somalia, in trust for its people.⁵

An exception to the default rule of state ownership of natural resources is the complex mix of private and public ownership arrangements used in the United States. A significant proportion of lands are in private ownership, and the owners are also the owners of the subsoil resources. They are entitled to negotiate leases with companies to develop mineral resources. Recent discoveries and development of shale gas and oil have been made overwhelmingly in lands owned by private persons.⁶ Alongside this, there are extensive federal lands and offshore waters where public ownership is the norm.

International law provides support for a close linkage between state sovereignty and natural resources. The first expression of this in modern times was the 1958 Convention on the Continental Shelf, made as new technology was becoming available to explore for offshore hydrocarbons and eventually other minerals. The idea of a “permanent” state sovereignty over natural resources was comprehensively elaborated in United Nations (UN) Resolution 1803 in 1962 (see box 4.1).⁷ This had its roots in a postcolonial world, where hydrocarbons and other mineral resources had initially been developed by foreign investors on terms highly unfavorable to the host states. The idea of sovereign ownership remains of fundamental importance (Schrijver 1997). It is nonetheless qualified by a greater appreciation of the need for any central state to respect the interests of local communities, particularly in areas affected by EI activities; the rights of indigenous peoples who may have claims to sovereignty over natural resources on their lands; and the obligations of states to their neighbors in relation to transboundary environmental accidents. The latter requires the “polluting” state to notify and cooperate with neighboring states to mitigate any damage.

International law has also been active in addressing a feature of state sovereignty over natural resources that assumed importance after UN Resolution 1803: the delimitation of territory, particularly offshore and inland waters, for hydrocarbons but also deep-sea ocean spaces for mining (see box 4.3). The value of such space has vastly increased with the development of technology to explore for oil, gas, and other minerals in ever-deeper waters. In a number of cases, the inability of states to resolve differences arising from boundaries has led them to refer the disputes to international courts and tribunals for independent resolution. Many other disputes remain unresolved and are potential sources of tension and conflict.⁸

Finally, we note the ownership issues that arise from the fragmentation or breakup of states, as one part of a state

Box 4.1 Sovereignty over Natural Resources

The doctrine of Permanent Sovereignty over Natural Resources was set out in the UN General Assembly Resolution 1803 (XVII) in 1962. Approved by capital-exporting and capital-importing states alike, it states in article 1, “The right of peoples and nations to permanent sovereignty over their natural wealth and resources must be exercised in the interest of their national development and of the well-being of the people of the State concerned.” The resolution is nonbinding but represents good practice.

Resolution 1803 itself was developed at a time when discussions about the New International Economic Order were robust and postcolonial development issues framed the debates. This period came to an abrupt end with the 1986 world oil price crisis. This crisis followed two oil price shocks in the 1970s, but unlike the sharp escalations in prices in 1973 and 1979, the 1986 crisis led to a dramatic fall in the price of oil, not unlike the price fall in 2015.

An important provision in Resolution 1803 can be found in article 3, which expressly recognizes the sanctity of the contract between the foreign investor and the

state by stating that in cases “where authorization [of the investment of foreign capital in the natural resources of the host State] is granted, the capital imported and the earnings on that capital shall be governed by the terms thereof, by the national legislation in force, and by international law. . . . The profits derived must be shared in the proportion freely agreed on, in each case, between the investors and the recipient State.”

However, Resolution 1803 does not empower the state to make unilateral changes to its laws in order to negate the terms of a contract. Article 8 of Resolution 1803 is clear on this point: “Foreign investment agreements freely entered into by or between sovereign States shall be observed in good faith.”

The doctrine of state sovereignty and sovereign rights over energy resources also appears in article 18 of the 1994 Energy Charter Treaty. It has to be exercised in accordance with and subject to the rules of international law. This doctrine is also an integral component of more recent discussions on the rights of indigenous peoples to access and control natural resources on indigenous lands.

elects to separate itself. South Sudan is a recent example of this, and Timor-Leste is another. The emergence of new states from the end of the Soviet Union in the 1990s provides several other examples.

Development of a legal framework

The second basic fact of legal and contractual relationships in the EIs is the need for states to develop a framework for investment and development of the resources. Even where public ownership is clearly enshrined in the constitution or a special law, there needs to be supplementary guidance on how ownership translates into a regime for the award of rights, the terms on which the rights are held, and their duration, obligations, the form of contract, regulation of operations, institutional coordination, and the distribution of revenues among the country’s citizens. This crucial step opens a Pandora’s Box of multiple challenges and choices, with the final results—the framework of policy, law, and contract—being decided through political bargaining in the country concerned. Government officials will often be faced with a plethora of

options and advice and recommendations based in “best practice.”

An example of the flow in legal arrangements is found in Brazil. Article 176 of the constitution provides that “(1) mineral deposits, whether exploited or not . . . form property separate from the soil, for purposes of exploitation or use, and belong to the Union; and (2) unauthorized prospecting or exploitation is prohibited.” Article 177(1) authorizes state-owned or private companies to search for and exploit hydrocarbons. Law 9,478/97 provides a licensing regime for the hydrocarbons activities, supplemented in 2010 by a production-sharing agreement (PSA) regime for so-called presalt and strategic areas. As knowledge of the Brazilian offshore evolved, there was an elaboration of the regime for the allocation of rights.

Where ownership of the resource is a highly sensitive political issue, great care must be taken by governments in proposing or modifying the regime for resource development. The legacy of past choices will shape the policy context of the present. In such countries, a key question will be, What is to be the role of state enterprises in future exploration and production of the resource? Alternatively, what

is the future role for any existing state enterprises if they are currently involved in these activities? Are they to be instruments of government policy or should they become privatized, commercial entities?

The kind of contracts offered, their terms, and the method of their award are typically matters of robust (but not necessarily informed or systematic) public scrutiny. They have to be designed in a manner that ensures their long-term legitimacy. Much of the available advice about the elements of a framework also caution that *any* choice needs to be supplemented by on-site customization: that is, it needs to be adapted to local circumstances if it is to work. Moreover, there will be more or less sharp differences depending on whether the resources in question are oil, gas, or hard minerals. Usually, the legal frameworks will be separate to take into account the differences between oil and gas, on the one hand, and mining, on the other. In all of this, where does a government start?

4.3 EIGHT KEY CHALLENGES

Most attempts to develop a framework for EI policy, law, and award of rights will face at least some of *eight* key challenges.

1. *Knowledge of the resource.* However clear the legal character of ownership, it will usually be much less clear what the host state actually owns. The existence, size, and distribution of the resources and their potential for extraction are likely to be uncertain in most cases, leading to some guesswork in policy design, and for companies a hedging of the exploration risk. As knowledge grows, some of the initial assumptions may turn out to be way off the mark, leading to policy instability.
2. *Legacy issues.* It is rare for there to be no existing framework in place, or elements of one. Some transitional arrangements will need to be established for existing rights holders, including state companies, and overlaps and inconsistencies between laws need to be identified and removed. The challenge may differ in character between, for example, a framework for offshore hydrocarbons and on-land mining operations, which may date back a very long time; even so, there may be long-standing boundary issues to address with neighboring states.
3. *Sources of volatility.* The stability of the policy framework will be vulnerable to unknowns in addition to the

geological ones. These include the expected level and trend of future oil, gas, and minerals prices, affecting the price at which they will be sold; competition from other countries that supply oil, gas, or other minerals; and, for the investor, the risk that the country might experience a political realignment with impacts on a major EI development. Given these unknowns, the policy and legal framework must be flexible enough to allow for a managed development of the sector.

4. *International competition.* Some framework elements are influenced by the need to compete with neighboring states in attracting foreign investment. It is important to find out what the regional and even international going rate is that a government in similar circumstances might offer.
5. *Learning from practice abroad.* Knowledge of how other countries have fared with certain contract forms, fiscal regimes, and techniques can shed light on the prospective host country's efforts. Some form of comparative review should be considered normal practice. The increasing complexity of international taxation underlines the importance of knowledge exchange.
6. *Public expectations.* The management of expectations, especially among local communities, needs to be addressed while the framework is under development; if not, there is a risk of serious challenge or worse, undermining, at a later stage. In particular, expectations about the pace of future EI revenues may be exaggerated by civil society in a new EI country when exploration has just started.
7. *Mining and hydrocarbons.* Where both sectors exist, it is crucial to appreciate that there are important differences between them. In legal regimes these differences are evident in codes or basic laws, in contract forms and methods of award. Designing and operating a framework in one sector is unlikely to provide a model for the other.
8. *Gas.* Within the hydrocarbons sector there are major differences between oil and gas, especially evident after the initial phase of exploration. The policy and legal framework has to be adapted to take into account the very different forms of long-term contract and infrastructure that are required for natural gas development.

Any policy for the extractive sector has to be understood as a dynamic construct, not as a set of principles that unfold in a straight line. Rather, policy will take a zig-zag route in a country and policy makers will need to adapt and adjust

their approach as they learn from experience and respond to market developments. What worked in the past may fail in the future.

4.4 POLICY PRIORITIES

Experience suggests that to be effective, EI sector policies should be part of a strategic vision based on consultation with a broad base of stakeholders and should provide direction and clarity on key sector issues (Liebenthal, Michelitsch, and Tarazona 2005, 5). The way in which social, economic, and political objectives are combined in such a vision will inevitably be country specific. The vision may need to be revisited and critically reviewed. As the ministry of one of the most successful petroleum producers, Norway, has noted, “Governments must be willing to consider whether established principles and the prevailing policy framework create the right incentives for enhanced value creation, and possibly adapt policies to ensure that resources are not wasted” (NMPE 2002, 19).

Once there is reasonable certainty that resources exist, an element of that strategic vision should be the horizon for exhaustibility (Daniel et al. 2013, 19–22). If the resource horizon is likely to be short, the vision needs to assess how government expenditures can be sustained once resource revenues end. If it is projected as long, the main challenge is likely to be the management of revenue volatility, because experience tells us that the price of the resource will certainly fluctuate.

The resulting policy statements are often stand-alone documents, but they may also be found in summary form as preambles to sector legislation.⁹ There are important differences among oil, gas, and mining policies that also have to be taken into account.

It is perfectly possible for a government to postpone or to omit the design of a strategic vision and implementing law and to proceed to negotiate a large contract. Some do. One compelling reason why this may happen is the time it takes to adopt a special law. The risk of this contract-first approach is that such an individual contract—which in both mining and hydrocarbons can exert an overwhelming influence over the economy—will fail to address national plans and priorities once these emerge, and that it may be viewed by citizens as lacking legitimacy. This lack of a “social license to operate” may provoke tensions among the communities located in the immediate vicinity of the project and may well fuel demands from subsequent governments for renegotiations. Where several contracts have been awarded on this first-come, first-served basis, the result is

likely to be a patchwork of diverse contract terms that are hard to monitor, are of varying quality in terms of their benefits to the host government, and are located outside of the main legislative framework that the country eventually puts in place.

Oil, gas, and mining policies: contrasts

OIL. A key element of any oil policy is a decision on the kind of partnership envisaged between the host state and foreign oil companies. Its shape will depend on the level of knowledge about petroleum resources in the country. If little is known about their existence, a priority will be to ensure that foreign investors develop an interest and work to create a measure of competition. If resources have been found in significant quantities, the attraction of capital will usually be a much easier task, and the challenge will be to ensure that the terms of cooperation reflect the promise.

Estimates of the resource horizon will also play a role. A government with substantial reserves relative to the population may wish to extend the horizon far into the future. For example, in Norway’s case, “Control over the tempo of operations has been one of the more central and permanent objectives of Norwegian petroleum policy” (Al-Kasim 2006, 189). For governments with a shorter resource horizon, the priorities are likely to include maximization of production, including by enhanced recovery techniques; attraction of further investment, especially in smaller fields; and encouragement of sustainable spin-off impacts on local industry and its development on the international stage.

The international dimension of oil policy is greater than with gas or mining. Markets are international and capital flows are highly globalized. This means there is an impact on a government’s decisions from both pricing trends and the kind of signals to investors given by other states in comparable circumstances.

Transparency has increasingly become prominent in oil policy, as the 2012 National Petroleum Policy of Liberia shows: “The absence of transparency and accountability in the petroleum sector would not only result in lack of good governance, but would also affect the implementation of Liberia’s development agenda negatively.”¹⁰ The overlap between an oil policy and other policies, particularly environmental and social ones, has also become more important. Policies have to address the costs of decommissioning and of liability for pollution from various oil-related activities. The Liberian policy is emphatic: “The Government may not, by contract or otherwise, bargain away the right of

future governments to impose applicable health, safety or environmental regulations on licensees or contractors.”¹¹

GAS. In sharp contrast to oil, gas policy has to be comprehensive in scope, extending from wellhead to the burner tip, if development and production are to be encouraged (Le Leuch 2011). Once discovered, even in large quantities, commercial development of natural gas might not follow, especially in countries where there is insufficient domestic gas infrastructure and markets do not exist. The reasons may be rooted variously in the assessments of “sufficient” reserves; an inability to identify viable long-term gas markets, locally and/or abroad, if exports meet the national interest; or in difficulties in the development of construction projects for local processing and transmission facilities. Governments also need to prioritize among the different markets and uses of gas to obtain the highest possible added value for both the country and the investors. Both of these considerations (the potential for export projects and the types of domestic gas uses) will depend greatly on the estimated amount of available gas reserves in the country. A liquefied natural gas (LNG) project is likely to be considered only when significantly large reserves exist, while local gas-fired power plants need relatively small reserves.

These considerations need a policy that is forward-looking and one that permits adaptation to the respective gas resources potential and expected gas demand of the country.

In this context, typical policy objectives are to encourage gas exploitation and production under a fair fiscal regime and to actively promote domestic use of the produced gas. Demand for gas to generate electricity in favor of more polluting alternatives, such as coal, is a strong driver in gas development. Domestic gas commercialization also has enormous potential for resource-rich countries in terms of direct economic benefit, economic diversification, and local benefit through power generation and/or industrial consumption (Kellas 2010). A number of African countries, such as Mozambique and Ghana, have included this in their policy planning (see chapter 5 for discussion of gas master plans). This should lead to provisions in the relevant legislation that

- allow longer periods for appraisal and for production of gas discoveries than for oil;
- require mandatory joint development and exploitation of gas discoveries between several licensees when justified;

- define specific fiscal incentives for promoting gas activities and principles for gas pricing as well as specific provisions for unconventional gas; and
- state the priorities for gas uses, especially between viable domestic and export uses.

Errors in policy making would typically include

- treating gas in the same way as oil in the principal legislation without providing specific provisions for the encouragement of gas activities;
- adopting regulations that do not limit flaring of gas or do not impose gas reinjection when such reinjection would increase the oil and condensate recovery; and
- giving priority to exports of gas over domestic uses in highly populated countries with potentially limited gas reserves.

MINING. Policies for mining often include diverse principles covering (1) technical subjects such as the calculation of mineral reserves or conduct of exploration and exploitation; (2) higher level principles such as the need to put in place an efficient and effective cadastre system, land tenure, and stable and transparent financial codes and taxation regimes that are specific to mining; and (3) subjects in mining but not unique to it, such as the management of social and environmental risks and impacts, maximization of social and economic benefits from mining activities, and enhancement of development opportunities from mining. An example of a policy document that falls into the latter category is the *Broad-Based Socio-Economic Empowerment Charter for the South African Mining Industry*.¹² Similarly, in the 2013 Minerals Strategy of Sweden, one of the largest mineral producers in Europe strongly emphasizes the harmonious development of mining with the environment, cultural values, and other business activities. The 2014 Minerals and Mining Policy of Ghana expressly encourages “mining companies to develop a participatory and collaborative approach with local communities in decision making relating to mine planning, development and decommissioning.”¹³

Consistency between the mining policy and other related, existing policies is important to achieve. These will include fiscal and environmental policies and policies for other land use. Where policies on fiscal, environmental, or social matters do not exist, an overarching policy on mining could include mining-related fiscal, environmental protection, and social mitigation policies as well as provision for the interaction between mining and other land uses.

A multilateral initiative on mining and sustainable development, the Intergovernmental Forum, has produced a mining policy framework. It contains six themes, including postmining transition and artisanal and small-scale mining (ASM). The aim is to provide developing countries with a policy framework or model that incorporates “best practices required for good environmental, social and economic governance in the mining sector and the generation and equitable sharing of benefits in a manner that will contribute to sustainable development” (Masanja 2013).

Ten common issues in EI policy making

Some issues are commonly encountered in setting policy priorities. Ten of them are reviewed below.¹⁴ Each one of these issues is discussed in greater detail in this chapter and in chapter 5 or 6.

OWNERSHIP IN PRACTICE. The practical consequences of sovereign resource ownership depend in large part on the policies that a state adopts for the participation of EI sector companies, foreign and domestic. Nationalist sentiments and concerns for safeguarding sovereignty have made foreign private investor participation contentious in many resource-rich states (Mann 2002).

Policy statements relating to resource extraction usually start by recalling and reaffirming sovereign rights over the ownership and development of petroleum or mineral resources. Such statements typically call for the EI sectors to be developed in a manner consistent with the maximization of near-term benefits to, and long-term interests of, the state and its development priorities. Increasingly, they are accompanied by declarations about the manner in which income is to be distributed. In decentralized systems, revenue management is of particularly great importance, so much so that some petroleum laws promise a dedicated law on revenue management. Articles 4, 5, and 6 of the Somali Petroleum Law, for example, state the following:¹⁵

Petroleum income will be distributed between central federal government, the Regions and Districts of Somalia for the benefit of the whole country. [article 4]

The government will create a law to distribute shares of petroleum income to the federal central government, Regions and Districts of Somalia where the petroleum can be found, and that law will be approved by the Transitional Federal Parliament in due course. [article 5]

The central government shall establish plans for non-petroleum Regions and secure their shares of petroleum income to improve their development. [article 6]

In states that have federal systems of government—such as Australia, Canada, Iraq, or Nigeria—different approaches to the allocation of sovereign powers over petroleum activities and revenues have emerged. Here questions arise such as, What is to be the division of powers and responsibilities, first between the center and other political and administrative subdivisions, and second between ministries, departments, and agencies of the center and subdivisions, in respect of the major areas as they apply to extractive industry activities?

By way of response, some federal systems have chosen to devolve significant operational control to subgovernmental or private entities, while others have taken a more restrictive approach to the devolution of sovereignty authority over natural resources.

In a few states, the competent authority is not the national government but a subnational entity. In Argentina and Canada, provincial authorities award licenses and impose taxes on exploration and mining activities.¹⁶ At the national level, a key question for policy makers relates to the manner in which the legal and constitutional frameworks constrain the discretion of national authorities in the design or allocation of contracts or licenses and their subsequent operational control.

Another aspect of ownership may be the need to address existing or latent disputes with neighboring states on who owns what territory. This commonly affects both inland and offshore water spaces and may require intervention by international courts or tribunals for independent resolution of the state-state dispute. More often than not, this concerns offshore waters (see box 4.2).¹⁷ As the technology for carrying out EI operations has improved, such areas have become accessible for exploration and exploitation. The law has evolved considerably over the past few decades, in terms of treaty and case law. This applies not only to offshore hydrocarbons resources but also to minerals accessible through deep-sea mining (see box 4.3).

SECTOR ROLES AND RESPONSIBILITIES. The roles of the sector ministry, its agencies, and the national resource company (NRC), if there is one, are of the greatest importance. These institutions are typically mandated to implement and oversee sector strategy. Other critical entities include the ministries of finance (taxation) and environment (social and environmental protection) and the

Box 4.2 Licensing across Shifting International Borders

While award of rights to land areas can generally be made on the basis of certainty about boundaries between adjacent states, this is not always the case in maritime areas. Until the boundaries are clearly established under international law, investors will be unable to make substantial commitments. One way of addressing overlapping claims and providing a temporary solution so that hydrocarbons activity can commence and revenues shared is for states to agree on a Joint Development Zone (JDZ) or Area.

International law allows for states to take provisional arrangements of a practical nature to develop the mineral deposit in a defined area under dispute without foregoing their territorial sovereignty (UNCLOS, articles 74, 83). In practice, with a projected life of 30 to 50 years, a JDZ may prove more like a permanent solution in place of a delimited boundary. There are more than 20 around the world.

There are three ways to establish a JDZ. The first is to allow one state with expertise to manage the resources on behalf of both states with sharing based on a preagreed ratio (for example, the Bahrain–Saudi Arabia Agreement, 1958).

The second is for two states to joint venture and each state nominates its own contractor which enters into a

joint venture with the contractor of the other state (for example, the Japan–Republic of Korea JDZ). The third is the Joint Authority approach, where both states delegate power to a single body, which becomes responsible for overall supervision of activities including the award of rights in the JDZ (for example, the Nigeria–São Tomé and Príncipe JDZ and the Timor Sea JDZ). In Nigeria–São Tomé and Príncipe’s case, the first round of licensing was held in 2003 and by 2013 US\$400 million had been spent by contractors under five production-sharing contracts (PSCs) awarded in two rounds. Much of the government revenue has been in the form of signature bonuses and concession rentals. Revenues from Timor-Leste’s JDZ have proven to be considerable.

The former JDZ contains transparency provisions supplemented by the Abuja Joint Declaration on Transparency and Governance signed by Heads of State and Governments. The Authority is a member of the Extractive Industries Transparency Initiative. An environmental baseline study of the JDZ was undertaken in 2006 and all activities are regulated according to environmental guidelines applicable throughout the JDZ. Infrastructure/social projects have been carried out by Operators in communities in both countries and local content rules applied.

revenue collection authority. These non-sector-specific entities are often tasked with achieving optimal operational benefits among the various subgovernmental or sector-specific agencies. In practice, this is very difficult to achieve and an overlapping competence is often found among state entities, creating potential for confusion (see discussion in chapter 5).

NATIONAL RESOURCE COMPANIES. While not without controversy, NRCs remain popular in most petroleum-producing states and also in a growing number of mineral-producing states. Their governance and roles, which may include both commercial and noncommercial objectives, may be the subject of separate legislation, such as the Nigerian National Petroleum Corporation Law, or emerge from a merger of existing domestic companies, such as the one that led to the creation of Pertamina in Indonesia, or nationalization, as led to the creation of PDVSA in the República Bolivariana de Venezuela. Controversy tends to be sharpest in relation to the NRCs’ links to the host state,

where management and budgetary interference is common or when there are different views about the kinds of relationships that lead to optimal outcomes in a particular country context. Where a new NRC is envisaged, capacity building is inevitably an important issue. To date, NRCs have been more common in the petroleum sector than in mining (see chapter 5 and chapter 6).

PRIVATE SECTOR PARTICIPATION. Participation of the private sector is one of the most important issues to be addressed in any sector policy statement. Among resource-rich states, such participation is common, with notable exceptions being the petroleum sector in Mexico (public for 75 years until 2014) and a number of Middle Eastern states.¹⁸ For policy makers in many former colonial states, the historical memory of unhappy private sector involvements—even if they occurred decades ago—play a significant role in shaping the legal and contractual frameworks today.

However, few states have found it possible to resist the advantages of risk sharing, financing, and technical and

Box 4.3 Deep-Sea Mining

Technological advances are yielding access to mineral deposits in the deep waters of the oceans. This frontier for mining exploration involves licensing in waters subject to national jurisdiction (exclusive economic zones or EEZs) and in international waters. The environmental and social impacts of such activities are not yet fully understood and a cautious approach is encouraged for such development.

In international waters, applications for rights are granted by the International Sea-bed Authority (ISA) under the UN Law of the Sea Convention, which establishes and governs the “area” beyond jurisdiction of coastal states for “the common heritage of mankind.” The ISA has established a mining code and issued several sets of regulations on minerals. The code requires information on the proposed plan of work in a license application, to include a preliminary assessment of the possible impact of the proposed activities on the marine environment; a description of the proposed measures for prevention, reduction, and control of pollution and other hazards, as well as possible impacts on the marine environment; and a description of environmental baseline studies and rules relating to possible environmental impact. Companies must enter into a contract with the ISA before receiving an exclusive right to explore for or exploit the mineral resources of the deep seabed.

Developing states have preferential access to the area if they identify banked sites with known prospectivity. Exploration licenses from the reserved banked sites have been granted to commercial companies sponsored by Nauru (2011), Tonga (2011), and Kiribati (2012). State sponsorship entails responsibility to monitor and control the operations. Apart from the economic rent, the expected advantage is knowledge transfer. Already more than two dozen licenses have been granted to countries such as Brazil, China, India, Japan, and the Russian Federation.

A number of countries are also seeking to derive benefits from deep-sea mining in their EEZ as well as in international waters. Papua New Guinea became the first state to award a seabed mining license in its national waters. Fiji is among the growing number of Pacific Islands countries engaged in licensing, adopting a law to promote investment in this area: International Seabed Minerals Management Decree 2013. The United Kingdom passed its Deep-Sea Mining Act in 2014. For the ISA National Legislation Database, see <http://www.isa.org.jm/en/mcode/NatLeg>.

The marine mining industry has produced a voluntary code to address environmental protection issues—the International Marine Minerals Society’s Code for Environmental Management of Marine Mining, http://www.immsoc.org/IMMS_code.htm.

managerial skills transfer that comes with foreign participation. Norway, for example, had a very public debate on whether or not to open its petroleum sector to foreign investors and eventually decided to permit foreign involvement for many of the reasons just given (Gylfason 2004, 26–27).

EXPLORATION. Although the exploration phase generates valuable information for the host government and investors, it remains a financially high-risk undertaking. Thus, the question about whether or not the government should assume this risk is an important policy issue. Faced with the risks, governments have four basic options: they can (1) develop the resources themselves, (2) contract private petroleum and mining companies to develop the resources for fees, (3) auction the right to develop the resources to a private company, or (4) adopt a combination of any of the aforementioned alternatives. More often than not,

governments enter into agreements with private companies to explore and develop the resources at their own costs and risks. This option is particularly attractive where a government or its NRC does not possess the essential technical know-how and skills to develop the resources themselves (Tordo 2007, 5–6).

LOCAL BENEFIT. Policy statements increasingly outline expectations with respect to local benefit as governments seek to maximize impacts from resource development in the wider economy. Local benefit requirements seek links between core sector investments and operations, on the one hand, and local employment and economic activities, on the other. Policy makers are likely to experience strong pressures from local business or communities to promote such content. However, such pressures can present issues for both host governments and foreign investors, as the necessary skills for some petroleum and mining operations may

not be available in the state concerned (see boxes 4.5 and 4.6 and chapters 2 and 10).

FISCAL OBJECTIVES. Fiscal objectives are normally the focus of intense attention at the detailed implementation level, but at the policy level they typically emphasize both revenue sharing and safeguarding of incentives for efficiency and investment. These dual objectives are often simultaneously pursued and must be balanced against each other for optimal results. However, such a balance will be affected by global or regional market conditions and by perceptions about the going rate in similar country contexts (see chapter 6).

REVENUE AND EXPENDITURE MANAGEMENT. There is a growing recognition of the particular challenges resource wealth can present to macroeconomic management. As a result, many policy statements issued by governments spell out intentions with respect to the saving and investment of resource revenues (including the possibility of resource funds) and to their expenditure. Examples of states that have developed policy statements in this regard include Chile, the Islamic Republic of Iran, Kuwait, Norway, Papua New Guinea, and Timor-Leste. Some of these policies are summarized in chapter 7.

SOCIAL AND ENVIRONMENTAL CONCERNS. Strategies for protection of the social and physical environment usually feature prominently in EI sector policy pronouncements. Their focus often goes beyond measures aimed at the mitigation of adverse consequences and extends to the kind of resource-led development measures discussed elsewhere (see chapters 2 and 9). These include the promotion of net benefits and the distribution of those benefits between the poor and the elite, between men and women, and among other disadvantaged groups such as the elderly and children (see chapter 9). The challenge here is to ensure that these policies are joined to the policies specifically aimed at EI sector development and that implementing agencies coordinate. Often they do not.

LOCAL CONTEXT AND COMMITMENTS TO INVESTORS AND CIVIL SOCIETY. The overall regime for the EI sector must, or should be, sensitive to investors' concerns about long-term investment security. Where the context is one of past nationalization or frequent unilateral changes to contracts, investors will usually expect the policy and related legal framework to signal a changed investment climate. Similarly, there needs to be a proactive communications approach to civil

society to ensure that there is an accurate understanding of the government policy for the EI sector (particularly important for the mining sector). This can correct misinformation and fill information gaps.

Investors will be sensitive to a general problem that is sometimes referred to as the "obsolescing bargain."¹⁹ Once a large-scale investment is made in largely immovable assets, the investor faces a risk that the government may unilaterally change the terms of the investment regarding shareholder agreements, taxes and tax rates (increasing project-specific or sector-specific taxes), or, in the most extreme case, nationalizing a project. The risks are typically larger in states with small economies and only one large minerals or petroleum operation.

These risks can often be reduced by increased transparency and accountability related to a combination of national legislation and contracts that are binding under international law and arbitration. The obsolescing bargain problem can also be reduced by such actions as shared commitments to private-public partnerships for major infrastructure that supports the minerals and hydrocarbons operation. international financial institution (IFI) funding of the project or its infrastructure can also reduce risk, because there would be IFI sanctions on governments that do not keep their obligations under legal agreements to which IFI's are signatories (see chapter 9).

Once the major policy decisions have been made, governmental authorities need to agree on exactly what is to be awarded, to what end, and the manner of award. Typically, rights will be awarded on the basis of procedures in laws or regulations rather than being negotiated in agreements or contracts. This promotes transparency about the licensing process, gives some protection against corrupt practices in which rights might be obtained by bribes, and mitigates the asymmetry of information and capability that can arise between inexperienced officials in small governments and highly experienced and skilled company negotiators. The following section addresses laws for oil, gas, and mining activities.

4.5 HYDROCARBONS AND MINING LAWS

Key ideas

1. The building blocks of a legal framework for oil, gas, or mining are laws, contracts (often model form contracts), and implementing regulations. Often the laws are sector-specific, treating hydrocarbons and mining separately, but intermeshing with other domestic laws

dealing with tax, investment, and environment matters, for example, and also any bilateral and multilateral treaties to which the state is party. It is crucial for all parties (and not only investors) that these legal instruments function as a coherent framework, with links where appropriate to other parts of the country's legal system and its enforcement agencies and taking into account all federal and provincial levels of government. The *Sourcebook* online version includes many examples of these instruments.

2. The host state for EI investment may and often will play not one or even two but three roles: owner of the resource, regulator of operations, and operator by means of an NRC. These roles will often overlap and may conflict. In the event of disputes, the host state may also be the primary forum for hearing and adjudicating the issues.
3. Capacity will play a crucial role in the operation of a regime. If little is available, the resulting constraints can be anticipated in the framework, at least in its early stages of operation. Legal frameworks can include "nondiscretion" provisions that specify that the government "shall" issue a license provided that the specified procedures are followed and criteria are met as defined in the law and regulations (these are the procedures and a criterion that generally relate to legal entity status, good standing, and financial and technical capacity). Such provisions help limit the need for discretion by a government minister or other authority in granting licenses, thereby promoting certainty and countering possible corruption. However, a sound framework will be effective only if there are well-functioning, accountable institutions with adequate resources to implement them.
4. Any legal framework for hydrocarbons or mining will operate within a wider legal system in the host state that is shaped by civil law, common law, Islamic law, or a hybrid.
5. The legal framework for hydrocarbons or mining has to be consistent with the country's constitutional framework. Constitutions differ to the extent that they recognize and guarantee private property rights or prohibit private parties or foreigners from acquiring property rights in general and rights over extractives in particular. They will often differ in their approach to vesting authority to regulate specific matters in special agencies (for example, environmental protection) or in the executive (for example, taxation and foreign exchange) or the judiciary (review of government decisions and settlement of disputes). They may also differ in the way and

the extent to which they vest authority to grant rights in particular levels of government rather than the central authorities. The interpreter of constitutional requirements may be a special court and not the executive. If so, the court's interpretation can sweep away entire hydrocarbons and mining laws if they conflict with the constitution. For example, the Indonesian constitutional court declared the entire Hydrocarbons Law void in 2012, ruling that the independent regulatory agency interfered with the state's direct control over national resources as required by the constitution.

6. The legal framework has to be consistent with the country's international obligations. A wide variety of international hard and soft law, rules, and principles will have an impact on the domestic laws of most EI-producing countries. These range from the obligations on trade from membership of the World Trade Organization and various free-trade agreements, investment treaties, and double taxation treaties to soft law principles such as those concerning transparency (for example, the Extractive Industries Transparency Initiative) and sustainable investment (such as the Equator Principles). This can impact on the design of local benefit provisions, health, safety, insurance, and environmental standards to be followed by investors in the host country.
7. Often there are separate laws for petroleum or hydrocarbons on the exploration and production activities, on the one hand, and the transportation and refining provisions, on the other: between "upstream" and "downstream."

Issues to be addressed

Typically, there is a wide range of issues addressed in the legal framework, whether it applies to hydrocarbons or mining. The same issues need to be addressed by the package of legislation and licenses or contracts. Differences between the two EI sectors tend to lie in the level of detail or comprehensiveness adopted in each legal instrument. As ideas about good practice develop, a mechanism needs to be in place to ensure that these rules can be adapted and updated. The principal issues that need to be addressed are the following:

- Ownership of the natural resource
- Authority to allocate rights for the development of natural resources
- Establishment of a clear framework for the role of the competent bodies of government, for companies, and for civil society and local communities

- Identification of the authorities and procedures by which the government allocates mineral or petroleum rights along with the rights and obligations of both the license holder and the government
- Clear, transparent, competitive, and nondiscretionary procedures for issuing exploration and production rights, including those issued by contracts, along with the technical and financial qualifications needed to hold a mineral or petroleum right
- Permissible contract types
- Assurance to a prospective license holder or contract signatory of security of tenure, which includes issues relating to development rights, assignment rights, and retention rights
- Listing of the obligations of the mineral or petroleum right holder to explore, invest, and produce the mineral or petroleum or else relinquish the right so that it can be made available or assigned to another party ready to take on those obligations
- Reporting requirements of the license or right holder
- Conditions for voluntary relinquishment and termination for cause of the license or right
- Health, safety, and environment (HSE) requirements related to the license or right
- Procedures for management of possible land-use conflicts between different claimants or users
- Dispute resolution procedures
- Establishment and implementation of an effective communications strategy
- Definition of the mandate and role of state-owned NRCs and minority state equity in mining, oil, and gas companies (NRCs are addressed further in chapter 5)
- Granting of the right to construct and own infrastructure specific to petroleum or mining operations (for example, pipelines or rail routes)
- The main principles of the fiscal regime

Operation of the rules

The basic principle underlying any EI sector-specific legislation is that the government provides the investor with mineral or petroleum rights in exchange for the investor's undertaking exploration or development work. The laws and regulations need to specify the authorities and procedures by which a government allocates mineral or petroleum rights along with the rights and obligations of the license holder. A well-designed licensing system (see section 4.6) will provide a licensee with assurance that whatever is found can be developed by the licensee and that what the

licensee develops can be retained with an equitable sharing of both risks and benefits with the host government.

The legal regime will also provide the government with assurance that licensees or contractors will undertake exploration or development work in a timely, technically competent, environmentally responsible, and socially acceptable manner or be obliged to relinquish the mineral or petroleum right so that the land can be made available to another party. Thus, the laws will need to clearly specify the mandate, authority, and responsibility of different agencies and ensure that overlaps and inconsistencies are avoided between different laws, particularly between EI sector laws and HSE regulations.

Most laws require a measure of interpretation for them to work that requires an understanding of what a rule means and what it was intended to achieve. A lack of trained staff to interpret laws will create uncertainty, confusion, and poor decision making.

In the event that omissions or ambiguities arise, one way to resolve them may be through supplementary agreements with individual operators or investors until the needed amendments can be made to the laws or regulations. In countries like Norway and the United Kingdom, governments issue guidance notes on a regular basis to provide clarity on the operation of the laws. In the case of overlapping regulations between EI sector laws and environmental laws, for example, different departments of government may decide by written memorandum of understanding which regulation will be applied and by whom until the regulations or legislation are clarified. Such a procedure can give clarity in the interim and allow activities to proceed. However, this is unlikely to meet with success unless there is extensive consultation with the local communities and any local nongovernmental organizations.

Some extractives sectors have peculiarities. For that reason, laws governing oil, gas, and mining are treated separately in the following material. Taxation issues are treated in chapter 6, but it should be noted that in most countries a separate hydrocarbons or mining taxation law supplementing and consistent with the general tax code is adopted as the normal practice. Alternatively, a set of special provisions related to oil and gas and mining issues is inserted in the country's general tax code.

Petroleum

Three distinct approaches to the design of hydrocarbons legislation can be identified:²⁰ (1) a comprehensive, highly detailed approach, (2) reliance on individually legislated

contracts or agreements, and (3) a hybrid approach, which combines less comprehensive, or framework, legislation with detailed regulations and flexible contract or agreement specificity.²¹ Usually, laws relating to petroleum will be adopted separately from laws that address mining of other minerals. This can lead to the perception that there are significant differences between mining and hydrocarbon legislation. However, the similarities between the two sectors often outnumber the differences.

Each of the three approaches that follow have one feature in common: they will normally provide for upstream (exploration and production) activities only, leaving downstream activities to be covered in a separate law. This could be a gas law (addressing phases of gas development after production, such as processing, transportation, storage, and trading) or an energy law (addressing either or both gas phases postproduction and/or electricity and other forms of energy). An exception to this (for oil and gas) is the Indonesian Law 22 of 2001 Concerning Oil and Gas, which covers oil and gas upstream and downstream activities but in distinct chapters of the law and in separate regulations. This topic is discussed further in chapter 5.

DESIGN OPTION 1: DETAILED CONTENT APPROACH. This approach fixes, in a particular law and enabling regulations, all or most of the provisions that are required for the conduct of petroleum operations. These detailed instruments, enacted by the legislature, mandate standard content for licenses and contracts usually in the regulations, which can be easily and, if necessary, often amended, although some specific terms may be left for negotiation or competitive tenders. This codified approach is often supplemented by highly detailed guidance notes that provide an official interpretation of key provisions and issues. It is the preferred approach in almost all Organisation for Economic Co-operation and Development (OECD) states, from Canada and Australia to Norway and the United States, many of which have extensive legislative experience of these regimes.

There are also a number of Latin American states that have adopted this approach. Its supporters claim it has several advantages: it (1) ensures equal treatment for all EI-sector participants or licensees, (2) focuses negotiations on a few key variables and limits opportunities for arbitrary or discretionary behavior, (3) ensures full knowledge and transparency regarding the licensing regime, (4) enhances protection against corrupt practices whereby resource rights are obtained for bribes, (5) mitigates the disadvantages of

asymmetry of information and capability between often inexperienced officials of small governments and highly experienced and skilled resource company negotiators, and (6) also avoids scarce government capacity being tied up in intensive negotiations on individual projects.

The main disadvantage of this approach lies in its inflexibility. Any adjustments require changes to primary legislation, which may be difficult, or at least slow, to achieve (Date-Bah and Rahim 1987, 94). Nonetheless, there appears to be a preference for states to adopt this detailed legislative approach in the mining sector (Williams 2005), while the petroleum sector tends to adopt a framework approach to legislation, albeit with a higher degree of reliance on a model contract to supplement the legislative framework (Onorato 1995).

DESIGN OPTION 2: INDIVIDUALLY LEGISLATED AGREEMENTS. Under this approach, the most important terms are contained in individually negotiated agreements between the state or its agent and investors. These are given the force of law by legislative ratification. This has been the approach taken in developing states where the existing law was too general or when there was no overall petroleum code in place and when waiting for the preparation and passage of comprehensive legislation is deemed to be costly in terms of delayed investment and development. A model agreement may still be used to facilitate negotiations. Since such an agreement is consensual in character, is subject to negotiation, and has the force of law, it reduces the chances of unilateral intervention by the state and can create a stable and predictable framework for the private party.

This approach also gives maximum flexibility to government authorities to negotiate terms with investors. This is perceived by some as an advantage but by others as a serious drawback. At its worst, it may facilitate corruption. At a minimum, it can complicate sector management by creating a patchwork or multiplicity of legal regimes. This is due to the fact that once terms have been agreed on and legislated they become fixed, subject to any provisions they may contain regarding stability of terms.

DESIGN OPTION 3: HYBRID APPROACH. Under a hybrid approach, which is now common in states with sectors to develop, legislation typically takes the form of a relatively brief enabling law, sometimes called a framework law. It is used to confirm policy choices and covers key concepts and topics but refrains from going into detail and leaves room for further definition by governmental authorities through secondary regulations and individual contracts. States as

diverse as Côte d'Ivoire, Namibia, and Timor-Leste have preferred systems where the government has the power to enact detailed rules and regulations but also has sufficient discretion to make adjustments of some terms on an individual basis. The less detailed legislative content under this option is designed to minimize the need for later amendments in the primary law. While this benefit is often considered to be a significant factor in states where the legislative process is typically lengthy, or where such legislation represents a delicate compromise of diverse interests, it can also prove challenging to reconstitute in an amendment process.

Negotiating discretion under this hybrid approach can be, and usually is, limited by the issuance of model licenses or contracts. This can be important in reducing the burden on government bodies with limited resources at their disposal. At the same time, the enabling legislation allows governmental authorities to respond quickly to new needs as they arise by adjusting model contracts for new awards and amending regulations: a process that will be carried out primarily at the ministerial level rather than by legislative action. The main advantage of this approach is that “it predetermines in a legislative form all those issues in respect of which the government requires a minimum standard or which can be realistically, as it were, prenegotiated” (Date-Bah and Rahim 1987, 96).

ASSESSMENT OF OPTIONS. The choice of approach to legislative design will depend on state context and take into account legal, cultural, political, social, and economic factors as well as the level of investor interest in development of the sector. At greater or lesser levels of detail, all three of the approaches will seek to reflect the overarching policies noted in section 4.4 and in particular will include reference to the topics listed in that section. Effectiveness will depend very much on the fit with context rather than any formal advantage one approach may have over another.

In all cases, a key consideration is that sector legislation is harmonized with other relevant legislation, including not only fiscal and environmental legislation but also other legal texts applicable to economic activity, such as foreign investment laws, labor laws, and the general tax code.

Gas

A gas law usually refers to legislation that covers the activities beyond the field delivery point along the gas supply chain, such as transmission pipeline networks, distribution, and supply to end-consumers. It is very unusual to adopt

a law specifically for gas *exploration and production*. The reasons for this are explained by Le Leuch (2012):

[B]oth oil and/or natural gas may be discovered from exploration activities and therefore the rights granted to the state and the explorers concern both products. Oil and natural gas consist respectively in the liquid and gaseous forms of petroleum or hydrocarbons generated in underground formations. Moreover, the search for and exploitation of oil and gas require techniques and methods relatively similar.²²

EXAMPLE. The scope of the Cameroon Gas Code 2002 provides an illustration of the objectives and content of a gas law in a developing country designed to encourage the growth of the domestic gas industry. Section 1 states the following:

This law . . . shall govern the downstream gas sector comprising transportation, distribution, processing, storage, import, export, and marketing of natural gas within the national territory.

Except as otherwise provided, this law shall exclude the following:

Prospecting, exploration, exploitation, transportation, storage and processing activities of liquid or gaseous hydrocarbons as governed by Law no. 99/13 of 22 December 1999 to institute the Petroleum Code . . .

Under section 2 it states the following:

The purport of this law is to promote the development of the downstream gas sector in Cameroon. As such, it is aimed at:

- Putting in place a legal framework conducive to the development of gas resources;
- Setting up an attractive environment for private national and foreign investors in the gas sector;
- Laying down principles governing regulation of the sector.

There are other reasons it is hard to specify precise rules for gas in the way that is typically done for oil.

- First, there is a need to identify a specific market for the gas discovery in order to decide how commercial it is. Usually, such markets will be regional; for example,

an obvious market for the sale of gas from fields in either Mozambique or Namibia would be South Africa.

- Second, in the absence of an international dollar-denominated price as in oil, gas has to be priced according to a basket of alternatives that reflect the market it is to be sold into. The resulting formula is usually complex and needs to be negotiated in each case.
- Third, the cost of infrastructure for gas commercialization is very high, whether in terms of transportation and distribution pipeline networks or installations for its liquefaction and specialized tankers for its transport. Finance for such long-term fixed investments on a large scale is unlikely to be forthcoming from lenders, unless there is an assurance of long-term markets and contracts. This has implications for the kind of gas sales contract that is adopted by the parties.
- Finally, the lead time for development of a gas field is usually quite long. The contract provisions (or the petroleum law or both) will normally allow for a much longer period to discuss commercialization of a gas deposit than oil; they usually require the parties to discuss how to proceed and give them a generous amount of time to conclude their discussions on the technical and financial aspects of the discovery.

Given these conditions, the common practice is to have provisions inserted into a hydrocarbons law that address specific features of natural gas development and extraction. Suboptimal practice would be to treat gas as oil and omit specific provisions encouraging gas activities. In particular, customized provisions should provide for incentives to encourage the development of new projects and uses and to compensate for the higher cost and lower value of natural gas relative to oil. As Onorato (1995) notes in a policy research paper on legal frameworks:

Enlightened modern Petroleum Laws have specially tailored gas development and commercialization provisions to encourage positive action on gas discoveries.

These special provisions will typically be variants of the following:

- Ownership of gas in the ground belongs to the state, as with oil.
- Associated gas will be distinguished from nonassociated gas.²³
- Licensing procedures are adapted so as to permit longer times for appraisal and for production than for oil, with the right to authorize a specific retention license for

assessing the viability of a gas discovery and finding buyers for the gas.

- Joint development and production of gas discoveries is mandatory between several licensees when such an approach makes viable gas projects that would otherwise be noncommercial.
- Gas flaring or venting is prohibited except in strictly defined circumstances.
- There is a statement of the priorities for gas uses: between domestic and export uses and for gas reinjection in oil reservoirs; establishment of national gas reserves if required and conditions for gas exports.
- Specific fiscal incentives for gas promotion need to be defined as well as the principles for gas pricing, including the entry point into the mid-/downstream facilities and the valuation point for tax purposes.
- Specific provisions are made for unconventional gas.
- Transparency issues, such as publishing government revenues and related agreements on oil and gas, are addressed.
- If gas export revenues are expected to be large, the law may provide for the establishment of a sovereign wealth fund (see chapter 7).

EXAMPLES. Australia was one of the first countries to use the concept of a retention lease to allow the holder of rights to a gas discovery to benefit from a longer exploration and appraisal phase. Vietnam allows a retention period of up to seven years. Australia also encourages the joint development of gas projects combining the resources and infrastructure of third parties so as to jointly develop or complete an access agreement for the use of facilities or technology to provide an acceptable rate of return. Angola forbids gas flaring except for short periods when this is required for testing purposes and other operating reasons. Indonesia's Oil and Gas Law of 2001 sets out a priority for domestic gas uses over gas exports and introduced a domestic market supply obligation.

Suboptimal practice would include absence of regulations to limit flaring of gas or giving a priority to gas exports in highly populated countries with potentially limited gas resources.

PETROLEUM AND GAS CONCLUSION. It is unusual for a petroleum law to include the activities of transportation, commercialization, and utilization. This is typically provided for in a separate law, discussed in chapter 5. Indonesia is one of the very few countries to adopt a law that covers both upstream and downstream sets of activities in a single law, the Oil and Gas Law of 2001.

Mining

At the most basic level, a mining law or code should be simple and clear to understand. The challenge for many countries is that existing laws may date from a premodern period, because mining is often an old activity, perhaps with a history of hundreds of years, as in many Latin American countries. In Africa, the laws might date from colonial times. It was only in the 1990s that many Latin American countries undertook major reforms of their old mining laws. Many African countries trod the same path in the early 21st century. This need to grapple with a historical legacy of mining is in contrast to the hydrocarbons industry in many parts of the world, which tends to have a more recent history, not least due to its shift into offshore areas.

The kinds of benefits that investors look for in a mining law include clear and transparent processes, security of tenure, the freedom to transfer their rights, and freedom to operate and market their output on commercial terms. The laws are usually complemented by provisions in investment or tax legislation that “provide reasonable freedom to dispose of foreign exchange earnings, primarily profit-based taxation on internationally competitive terms, and stability of those terms by contract for a reasonable period of time” (Naito, Remy, and Williams 2001, iii). Of all of these, security of tenure—the guaranteed right of an exploration right holder to mine the ore that the holder has discovered—is particularly important. If the exploration license holder needs to obtain governmental approval of its feasibility study and mine development plan as a condition for the grant of a mining right, it is at risk of not obtaining a right to mine an ore that it has discovered. This acts as a strong disincentive to investment.²⁴

If the law takes a framework character rather than being highly detailed, it can permit flexibility in project-specific or site-specific agreements. These can include agreements for community programs, targets for local employment, or agreements on value-added or government equity in a specific project.

Lessons for the successful reform of mining laws were generated by several Latin American countries in the 1990s. Among the key principles of mining law reform identified from that period were (1) ease of access to areas on a first-come, first-served or some other nondiscretionary basis (but with a review of the applicant’s financial and technical qualifications), (2) an open mining cadastre and title registry, (3) free transferability of mining titles, (4) simple financial maintenance requirements, and (5) minimal royalty obligations. These were found to be essential

elements for attracting foreign investment. However, learning from the experience of others can be hampered by not knowing how to apply new knowledge in a particular setting. Attempts at regional and bilateral harmonization of mining regulatory regimes have developed to compensate for this. Examples of regional attempts include the African Mining Legislation Atlas, an online platform about legislation in Africa’s mining sector, and the directive adopted by the Economic Community of West African States (ECOWAS) in 2009, setting out the issues that a national mining law should address.²⁵ The directive’s impact is likely to be limited by the diversity of circumstances that it encounters among the 15 member states. An example of a bilateral attempt is the mining and geology cooperation agreement between Angola and the Republic of Congo of 2013, which promotes the exchange of geological data and the harmonization of tax frameworks in areas such as diamond mining and establishes training and assistance programs.

Environmental aspects of mining laws are particularly important, so it is necessary to identify whether environmental regulations are integrated into the mining law and whether they are attached to the title of mineral rights or are imposed as conditions of operation. The provisions where such considerations are particularly important are those relating to environmental and social impacts as well as mine closure and land reclamation. A key principle is pollution *prevention* rather than just *control and mitigation* of impacts. Provisions on community consultation, publication of information, and community development could also be enshrined in the law and developed in detail in regulations, noting the role of international standards in guiding the latter and filling in any gaps.

In this vein, the intrusive character of mining may require provisions in the law expressly limiting its scope. The kind of areas that may be excluded include national and local parks, nature reserves, and areas close to communities. In the Philippines Mining Law of 1995, for example, ancestral lands are excluded unless consent is obtained from the local cultural community. Military or government reserves, cemeteries, infrastructure, and public or private buildings are also excluded. Such exclusions should be made explicit before any rights are awarded so that they do not affect any preexisting title. In Ghana, the mining law permits the minister of lands and natural resources to reserve land that is not “subject of a mineral right.”²⁶ If rights have already been rewarded, it is still possible to grandfather them in and allow such mining to continue.

Unconventional oil and gas

Very few laws on oil and gas make distinctions between conventional and unconventional sources (including shale gas or oil, tight gas or oil, and coal-bed methane). However, the economics and the extraction techniques used are different. The growing interest of governments and private investors in awarding and acquiring exclusive rights to explore for and produce unconventional sources of gas and oil has begun to change this and to encourage provisions that deal with each category of unconventional gas and oil relative to their conventional counterparts.²⁷ In Argentina an amendment was made to the Federal Hydrocarbons Law in 2014, introducing a new type of concession contract for unconventional exploitation, with a 35-year term and unlimited 10-year extensions. In the United Kingdom, the existing regime for licensing has been adapted to include certain new conditions, but in terms of structure it remains the same as for conventional sources. Since operations are mostly located on land, important environmental and social considerations need to be assessed prior to the development of policies and legal frameworks. Indeed, comparisons may be made with the challenges typically arising in the mining rather than the conventional hydrocarbons industry. In all cases, transparency is of particular importance in order to promote a positive community response to a new (and controversial) industry, as well as to attract foreign investment.

Any policy and legal framework must take into account several specific features of unconventional gas and oil, such as the following:

- *Operational considerations.* Higher density of wells and on-land base for exploration, appraisal, development, and production operations leads to a greater demand for land access authorizations and operational permits. A well for shale gas will typically run vertically down to the shale layer for a about a mile and then extend horizontally, possibly for as much as two miles, potentially going under the land of many owners.
- *Environment and social regulation.* The potential impact and perceived risks on the surface land, air quality, and underground water resources mean that regulation is required. In practice, the risks of groundwater contamination from the fracking process itself are likely to be less common than those arising from improperly managed sludge and fracking pits and improperly disposed fracking fluids. Such fluids typically contain methane, ethane, and volatile organic compounds, which may be hazardous to health if not contained and disposed of during

fracking operations. Air pollution may also arise from inadvertent venting of substances into the atmosphere and affecting the quality of air in the surrounding area.

- *Fiscal incentives.* These are required when the cost of unconventional operations is substantially higher than for conventional ones. This could mean reduced royalty rates, a tax credit or more favorable schemes for cost recovery, and a profit gas split. This approach is less justified if there is an additional profits tax or a profit-sharing scheme in place, because in that event the economic criterion on which it is typically based will allow for an automatic integration of the economic differences between conventional and unconventional gas.
- *Licensing systems.* Adjustments would be needed to provisions on exploration and appraisal periods, work commitments, the definition of an unconventional gas field, and submission of development plans. Where rights have already been awarded specifically for conventional petroleum or coal exploration and production in a given area, new rules may allow the award of separate rights for unconventional resources. In Indonesia, for example, regulations give a priority access to holders of existing rights if they wish to seek rights over unconventional resources. The production-sharing contract (PSC) for coal bed methane has a term of 30 years, including an initial exploration term of 6 years, which may be extended by 4 years for assessing the viability of a commercial coal-bed methane project.

4.6 CONTRACTS AND LICENSES

Contrasts between hydrocarbons and mining

The host government–investor agreements typically used in the petroleum industry have limited relevance to those commonly found in the mining industry. Agreements, contracts, and sometimes licenses are the favored terms in the hydrocarbons sector, while licenses are typically favored in mining, with permits and concessions sometimes used. Similarities between the sectors’ usage do exist, but the considerable differences between the two industries are reflected in their contractual preferences and, indeed, in the existence of separate regimes for hydrocarbons and mining regulation in most countries. Some of the differences are as follows:

1. Some of the main differences arise from considerations of geology and exploration, production processes, market economics, and environmental and social impacts.²⁸

2. These differences go a long way to explaining why agreements are more widely used in the petroleum industry than in mining. The production-sharing form of agreement, for example, which is so widespread in the petroleum sector, is largely absent in mining.
3. The scope of most petroleum agreements is also wider, extending over more phases of the industry's activity (exploration, appraisal, production, and sale) than mining agreements typically do (Land 1994, 187).²⁹
4. The degree of government involvement and control is usually greater in petroleum agreements than mining agreements (Land 1994, 187–88).

As one observer notes: “Where petroleum agreements do have some relevance for mining agreements is in areas not directly related to the particular production, for example, similarities in local content, dispute resolution, stabilization etc.” (Southalan 2012).

THE IMPORTANCE OF NEGOTIATION. In both industries, the formal characteristics of contracts and licenses matter, but the ways in which particular clauses reflect the risks and benefits of the areas that a government can offer are of crucial importance. Differences among agreements are stronger to the extent that EI sector laws give broad powers to governments to negotiate agreements with potential investors. Negotiators are allowed to develop terms to attract investment in a competitive market, with an eye on the going rate for the acreage they have on offer. The terms can be adapted to take account of specific risks in new or higher risk areas and adapt any standard terms to other circumstances. However, the scope for abuse of this discretionary power is such that recent trends confer less discretion, encouraging greater standardization in the terms of agreements and licenses.

TRANSPARENCY. In both hydrocarbons and mining, arguments have been advanced for the publication of contracts between host governments and investors, sometimes called “primary contracts.” (Rosenblum and Maples 2009). A recurring theme in such arguments is that publication will facilitate scrutiny and counter corruption. This is not a new argument, but it has acquired greater force in recent times. Many contracts have highly standardized forms, and indeed a significant number of them are available on various Internet websites, including the EI *Sourcebook's* site. The counterargument—usually based on a need to respect commercial confidentiality—has been significantly weakened by the reality of increased access to contracts. Maintaining the

commercial confidentiality of some contract terms for a period of, for example, two years might be one way to assuage this concern.

Does a model help?

Standardization is also encouraged by the use of a model contract or license for the basic relationship between the host state and foreign investors. Examples of this practice are found in South Africa in mining licenses and in the United Kingdom in hydrocarbons licenses. Essentially, this use of a model involves creating model clauses in legislation and then inserting them in the license. They are regulatory in character and are not actually negotiated. The model clauses are likely to change only slightly over time and will usually include extensive regulatory controls.

A more common approach is for governments to issue models as a basis for negotiation with interested parties. Not only governments do this. The larger international EI companies usually maintain their own databases of model contracts and may well use an in-house model as a starting point in negotiations with a government. There is, however, no industry-wide recognized model of a host-government agreement. If a host government wants to avoid being disadvantaged in contract negotiations, it would be well advised to have its own model prepared before it commences discussions with foreign investors or launches a licensing round. It can then set the framework for the offers and negotiations. The use of model contracts to standardize provisions also has the advantage of reducing the impact of a capacity shortage and inexperience that is often felt on the government side. Further, it can increase transparency, not least by giving a prospective investor an idea of what the government's intentions are. Such models are commonly used by governments in international publicity exercises or road shows in Houston or London, for example. On the downside, even a good model may require negotiations about matters of detail in specific cases, and it can also act as a straightjacket for government officials if it is treated too rigidly. As the name implies, a *model* contract is intended as a guide with general application in a particular EI regime.

The responsibility that government negotiators bear is considerable. Sadly, faced with an experienced and highly professional team from the foreign investor, they will, in many cases, have challenges from a lack of sufficient capacity on their side to negotiate a contract and in monitoring an operation. This capacity issue is one reason some advisers may argue for a rigid, highly standardized form of model contract, to be presented to prospective foreign investors on

a take-it-or-leave-it basis. The terms and conditions may be developed with assistance from international experts, but once the model contract has been agreed on by the host government, its terms and conditions will function as being effectively set in stone for government officials and prospective investors alike. For countries facing a serious shortage of qualified staff, this rather extreme approach may be thought necessary to safeguard against the conclusion of a bad deal and/or against the risk of corruption. A variant of this approach would be to incorporate most of the key terms in legislation, such as a hydrocarbons law, rather than to place them in a model contract, with the same outcome that little would be left to be negotiated with the prospective investor in the individual contract.

These remarks on models apply to host government–investor agreements. There is no internationally recognized model for agreements on production sharing or concessions. Models vary widely in structure, level of detail, and links to existing legislation and economic circumstances. Where the domestic legal system is weak or poorly developed for EI purposes, contracts may be especially detailed to compensate for these shortcomings. Routinely, governments design agreements for their own use, drawing on the various models or actual agreements from other jurisdictions. Models are not, however, universal practice. In some cases, standard terms may be set down by the government but not in the form of a model agreement. For many years the United Kingdom has published regulations (a form of secondary legislation, which can be amended with relative ease from time to time) containing model clauses for inclusion in its petroleum production licenses. These are updated and reissued from time to time. For each license granted these regulations are incorporated, apparently with few amendments. The set of model clauses that apply is the one applicable at the time the license is issued, with any subsequent changes in the model clauses applying only to later licenses.

Models are used extensively in the EI industries; they provide the legal foundations for many activities in which the parties seek to cooperate.³⁰ They cover various kinds of activity such as exploration, development, and mine operations and confidentiality and nondisclosure. (See, for example, the Rocky Mountain Mineral Law Foundation’s forms and model contracts.)³¹ Among models designed by the Association of International Petroleum Negotiators (AIPN), there are several kinds of model agreements for joint operations involving several companies.³² There are also models for unit development of a field that crosses several contract areas; assignment of interests in a concession; the sale and

purchase of natural gas or LNG; confidentiality issues; provision of services or goods to the operating company; dispute settlement; and bidding for blocks.

With thousands of oil, gas, and mining transactions concluded every day around the world, the advantages of standardization lie in savings of time and effort by using boilerplate text that can be applied to many contracts. Some industry associations have encouraged their development and use. Their length and content varies considerably, with detailed guidance notes added in many cases. Although the emphasis in such agreements tends to be more on their relevance for industry, their content can be very useful for host governments, not least if they have a national company that is a party to the resource operations (Martin and Park 2010).

Oil and gas contracts

The main types of contract in the international oil and gas industry relevant to the framework chevron of the EI Value Chain are those that establish a cooperative relationship between the host state and the investor or consortium and those that establish forms of cooperation among the consortium partners, where often a state company can be involved.

COMMON AGREEMENTS BETWEEN GOVERNMENTS AND INVESTORS. Three common forms of agreement govern the relationship between government and investors in upstream oil and gas operations: (1) licenses or concession agreement (a tax and royalty system); (2) PSAs; and (3) risk-service agreements (RSAs). Typically, only concession agreements are found in the mining sector, while the licenses found in hydrocarbons activities have a contractual character and so differ from a simple administrative permission. An important consideration is that each of these legal forms may be modified so that it has an economic outcome that is broadly similar to the others. The choice of contract or license form ultimately tends to be determined more by the overall objectives of EI sector policy or by the country’s administrative capacity than by economic or fiscal considerations.

An effect of resource nationalism in the oil sector in the 1970s was that the PSA emerged as a most effective way of addressing host-government demands to retain ownership of the resources even when foreign or domestic investors were involved in petroleum operations. PSAs do not confer rights of ownership of the petroleum on the company or consortium that concludes the agreement. Instead,

the company receives a share of the overall production (and a percentage of the costs). So throughout most of the operations it, or the joint venture, provides technical expertise and capital (exploration and production services) and assumes project risk in return for exclusive rights to explore for and produce oil and/or gas from the contract area. In contrast to the concession or license form, the PSA does not confer a right to own the petroleum at the wellhead. Indeed, if the state owns the pipeline, it may not take ownership of its share until it has reached the port of loading. For a country that is sensitive about ownership of its resources by foreigners, this arrangement has many attractions.

THE LICENSE OR CONCESSION. The modern petroleum license is rooted in the old concession idea and is the oldest of the three forms of agreement in common use from the North Sea to parts of Sub-Saharan Africa. However, as the international petroleum and mining industries have evolved, the past 100 years have seen major adjustments of the concession form in favor of host states (Moran 1972, 216–19). The modern concession provides host states with active roles in the management of their natural resources. This often occurs through the direct participation of NRCs in the development of a host state’s EI sector (Nahkle 2010).

Under a license, the investor or group of investors holds rights to extract and own 100 percent of the produced resource—but not the resource in the ground. This is particularly appealing to petroleum sector investors because it allows the investor to book all the corresponding oil and gas reserves for financial reporting purposes.³³ The licensee bears all risks and funds all operations. Host-state revenues under licenses generally consist of a royalty and an income tax, possibly including additional income taxes on the investor’s excess or windfall profits. As a result of these fiscal features (see chapter 6), the license is often referred to as a “tax and royalty agreement.” It is found in all the OECD countries in one form or another and also in many Asian and other countries. In the Russian Federation and Kazakhstan, attempts to use the PSA have given way to a preference for concessions.

State equity participation in petroleum licenses usually occurs through the state’s NRC, where such participation is perceived as a means of increasing revenues and boosting control over operations (see chapter 5).³⁴ In the mining sector, it is equally—if not more—common to find the state holding a direct minority equity stake through the mining or finance ministry rather than through an NRC. In spite of its negative historical connotations for many countries, the

modern petroleum license continues to be used widely throughout the world.

A recent example is the concession contract for prospecting and production under the Mozambique Petroleum Law of 2014. This grants the exclusive right to carry out exploration and production as well as a nonexclusive right to construct and operate oil pipelines or gas pipeline systems for the transportation of crude oil or natural gas or infrastructure for liquefaction of gas produced from the concession contract area, except where access to an existing oil pipeline or gas pipeline system or existing infrastructure is available on “reasonable commercial terms.”³⁵ However, the fiscal regime of this so-called concession contract is designed with production-sharing mechanisms in terms of cost recovery and production sharing.

PRODUCTION-SHARING AGREEMENTS. PSAs were introduced by Indonesia in the 1960s. Since that time, PSAs have become an increasingly popular means for petroleum contracting, especially among developing states. These include the Arab Republic of Egypt, Gabon, Peru, and Trinidad and Tobago. Under a production-sharing model, an agency appointed by the state—typically its NRC—is the concessionaire, and the investor is a contractor to the concessionaire; the concessionaire (the state) holds the mining rights, not the investor. The investor, however, as under concession agreements, bears all risks and funds all operations (unless there is state equity participation).

Revenue sharing between the host-state government and the investor is determined by arrangements for sharing petroleum production volumes between the two, as spelled out in the PSA. The investor does not own total production but only its entitlement under the PSA. As a result of these legal structures, the investor can book only a share of the total reserves.³⁶ The PSA contractor is normally required to pay income taxes on income derived from the PSA, which complicates administration (see chapter 6 for a detailed description of PSA fiscal provisions, especially figure 6.4).

Under PSAs, the state agency or national oil company (NOC) is directly involved in operational decisions either in its capacity as concessionaire or in its participation as a member of a management committee (similar to a joint operating committee) with the investor. These committees are common in PSAs but rare in concessions. In a number of states, the NOC will participate in the project with an equity stake in the PSA.

The advantages of the PSA include the following:

- The investment risks are borne by the petroleum companies while the host state shares any profits arising from the project without sharing the risks.

- From the perspective of the investor, if the PSA is enacted into law, it provides legal security for petroleum companies even though it limits the parties' ability to modify the agreement without parliamentary approval.
- It ensures a "more direct government control and participation" (Tordo 2007, 10).

On the other hand, the main disadvantage of the PSA is that the host-state government may find its profit interests in conflict with its regulatory role when its own regulations raise the costs of a project under a PSA. Furthermore, the host-state government will tend to become legally responsible for decommissioning if it acquires title to installations and structures through the PSA—although often the parties will tend to agree otherwise in the PSA (Tordo 2007, 10).

Licenses (especially modern tax and royalty systems) and PSAs differ in legal structure, ownership (and marketing) of production, and related reserve booking possibilities but otherwise share many key attributes.

RISK SERVICE AGREEMENTS. RSAs, like PSAs, tend to be a phenomenon limited to the petroleum sector and almost never apply to the mining sector. RSAs go beyond PSAs in asserting host-state control. The state or NOC hires an investor as a contractor. The investor assumes all risks and costs and is reimbursed for its costs. The investor is also remunerated for the service it provides in accordance with a mutually agreed formula so long as commercial production targets are met.

The investor never obtains rights to the petroleum, however. Even produced petroleum when brought to the surface continues to belong entirely to the state. Reimbursement and remuneration are normally in cash, although in some states the cash payment may be converted to an equivalent amount of petroleum by right.³⁷ The investor cannot book reserves if it is paid only in cash but is entitled to do so for payments in petroleum.

Most RSAs provide for a transfer of operatorship from the investor to the NOC at a given date prior to expiration of the contract. For states where host-state sovereignty issues are emphasized, the RSA is a popular contractual choice.³⁸ Investors, on the other hand, tend to resist RSAs when possible, because they restrict access to petroleum ownership rights and also limit the economic upside potential available under typical remuneration formulas.

From the investor's perspective, the main advantage of the RSAs is often thought to be that it enables the investor to gain access to produced petroleum on preferential terms. In states with large reserves, but where license or PSA

arrangements are unavailable, investors will still often agree to RSA arrangements in the hope of developing a lucrative long-term relationship. However, for states with unexplored frontier areas the RSAs may be less attractive to potential investors because they tend to offer relatively too little return to the investor (Nahkale 2010, 104; Date-Bah and Rahim 1987, 99–100).

RSAs have been used in Middle Eastern countries such as the Islamic Republic of Iran and Iraq and in Latin America by Argentina, Brazil, Ecuador, Mexico, and the República Bolivariana de Venezuela. In Mexico the state oil company, Pemex, was authorized to enter into multiple service contracts in 2004. The contractor is remunerated in the form of a service fee in cash for the work and services it has carried out. In the contract this fee is expressed as a list of specific unit prices for each type of work and service that the contractor delivers.

Licenses are perhaps slightly more favored in industrialized states, in the legal form of administrative licenses or leases, while PSAs tend to be more popular in developing states. RSAs, the least common of the three contractual agreements, tend to be found in those states with strong nationalistic leanings or a limited need for foreign expertise. In a number of states, hybrid approaches to contracting have been adopted. Trinidad and Tobago has experimented with all three forms of contract.

CONTRACT PROVISIONS. Contract names—such as licenses, PSAs, or RSAs—are conventions only and their use by states can vary, as the Mozambique example described earlier shows us. Their economic content is far more important. Apart from the distinguishing characteristics described in the previous section, all three contract forms share many of the same basic provisions. They are common to most mining agreements as well.³⁹

The following short sections explain what some of the key contractual provisions are for the conduct of operations and handling of administrative and commercial issues in exploration and production activities in the hydrocarbons sector. Fiscal provisions and instruments as well as valuation issues are addressed in chapter 6. Social and environmental provisions are addressed in chapter 9. It is important to note that for many of these provisions the content is largely settled and noncontroversial. Only a few are subject to changes in thinking about what is good practice, and these are highlighted below.

Parties to the Contract. Normally, contracts are entered into by the state or the NRC (representing the state) and the private investor (or investors). In the highly

international economy for oil and gas, the investor will commonly use a subsidiary company based in a location that offers it both maximum tax advantages and opportunities for future dispute resolution (for example, in a country that has a bilateral investment treaty). It is therefore a matter of great importance to the host state to ensure that it has examined closely the prospective investor(s) and assured itself that an agreement with it does nothing to jeopardize its power to levy taxes, to regulate, or to defend itself robustly in a future dispute.

Exploration. Petroleum contracts specify an exploration term (six to eight years is typical) divided into phases with associated obligatory work programs and budgets and limited requirements to surrender areas at intervals. Given the complexity of exploration and the characteristic paucity of technical data on deposition, exploration terms for mining are typically less demanding than for petroleum.

Petroleum contracts invariably provide the investor with both a right to explore and—in the event of successful appraisal of a commercial discovery—develop, produce, and benefit economically from it. In contrast, mining contracts often separate out the two activities, with success in exploration not necessarily guaranteeing rights to commercial development (Stanley and Mikhaylova 2011, 6–7). However, there may be a presumption of continuation dependent on demonstration of technical and financial capacity and an acceptable mine development plan.

Development. The right to development is usually conditioned on approval by government authorities of a comprehensive development and production plan. Such plans will normally include annual work programs and budgets and provisions for abandonment or decommissioning of mining or petroleum projects at the end of the project's life cycle (see chapter 9).

Contracts can, and often do, provide for a development and production phase ranging from 30 to 40 years. Detailed provisions are often made for the right to build, possibly own, and operate essential infrastructure.⁴⁰ The issues relating to public infrastructure used in the mining sector are the subject of a good practice note and brief available on the *Sourcebook* website.⁴¹

Normally, the investor is required to conduct the exploration and development expeditiously and in accordance with stipulated work obligations; otherwise, the investor will surrender the rights to the host-state government so that the rights can be awarded to another potential investor. The host-state government may also require

guarantees to ensure that the work obligations are fulfilled and that the resources are exploited in a sustainable manner (Duval et al. 2009).

Conduct of Operations. This contractual provision obliges the investor to conduct all operations in accordance with good practices as generally applied in the EI sector. Petroleum contracts often make reference to “good oil field practice,” which is a widely recognized term, connoting, inter alia, the use of sound international practices with due attention to conservation of the resource, safety, and protection of the environment.

Force Majeure. Contracts excuse an investor from performance obligations under the conditions of *force majeure* (Onorato 1995, 32). A contract clause defines *force majeure*—typically, events beyond the investor's control that make it impossible or at least very difficult to perform. The clause may list qualifying events that, in addition to natural events, may include unwarranted government interference or changes in law adversely affecting the investor.

Control and Inspection. Control over investor operations may be exercised by the relevant EI sector ministry, its technical agency, or possibly, although not ideally, the NRC (see chapter 5). The contract normally requires host-state government approvals of exploration and appraisal programs and budgets, the development and production plan, and annual work programs and budgets.

Submission of Information. Provisions related to the supply of information to the host-state government have become increasingly important, given government interest in being more directly involved in EI sector operations. The investor is typically required to submit—on a timely basis—all information and data generated by, prepared for, or obtained in the conduct of operations. This is critical not only to supervision of the investor's contractual obligations but also to the host state's understanding of its existing and potential petroleum or mineral resource base.

Data Ownership and Confidentiality. This is an extremely contentious area. Investors consider both the ownership and confidentiality of the data they generate or acquire as vital to their commercial interests. Host states, on the other hand, see ownership as critical to building a national data repository to inform their decisions on EI sector issues. The government's interest includes the right to

release data as essential to the promotion of exploration and development interests. Contractual provisions, outside of a few industrialized states, now assign ownership to the host state while allowing the investor to retain copies of paper or electronic data and samples of physical data, subject to confidentiality requirements (Rosenblum and Maples 2009, 23–25).

Often, contracts will impose time limits on confidentiality. In these cases, confidentiality requirements are normally stipulated to terminate when the relevant contract ends, when an investor relinquishes its rights under the contract, or for some shorter specified period, such as five years (Rosenblum and Maples 2009, 23–25).

In terms of confidentiality, technical data is of enormous commercial and strategic importance. However, beyond technical and physical data, confidentiality may extend to financial data and other information generated under the contract and even to the contract itself (see chapter 8).

Ownership of Assets. Treatment of the ownership of assets in petroleum contracts varies depending on the contract type. Under concession agreements, the investor usually retains ownership at least until the end of the concession, at which point it may be transferred to the host-state government for its eventual decommissioning (Cotula 2010, 24; Kaplan et al. 2012, 28).

Under PSAs, the transfer of asset ownership from the investor to the host-state government usually occurs earlier than under a concession agreement, ranging from the time when the assets are installed to the time when the investor has recovered its costs. The operative provision under both types of agreement is that the investor retains the use of the assets, without charge, during the life of the contract, along with all the obligations in the contract such as those related to the decommissioning and abandonment of the assets.

Assignment. Given the frequency with which hydrocarbons companies are likely to sell or buy interests in contracts or licenses, it is normal practice for a host government to offer the possibility of assignment, sale, or transfer of contract interests. Provisions on assignment, direct or indirect, are standard in both model and actual agreements and in petroleum and mining legislation. For example, principles relating to transfer of the parties' rights and obligations under joint operating agreements (JOAs) are set out in the widely used AIPN International Joint Operating Agreement.⁴² Governments have an interest in ensuring they are aware of a proposed transfer, to whom and under what conditions. Increasingly, they require information about beneficial

ownership, both as an anticorruption measure and as a way of ensuring that tax obligations are met if there are offshore and domestic gains.

Small pioneering oil companies are likely to want to monetize their interest at an early stage or bring in a larger company to participate in carrying out the petroleum operations. So, the more restrictions on the right to sell or assign that are imposed by a state, the less the potential value of the interest to a first mover company.

There are a number of principles that apply to these transactions that are well settled and generally understood. At a minimum, the host state will require prior approval of the proposed transaction by the relevant government authority.⁴³ The purpose of such approval or consent is to ensure that any assignee meets the government's expectations for financial capability and technical competence in the project (the *raison d'être* for inviting the foreign company in at the outset) and can therefore discharge its obligations under the petroleum agreement. If there is a doubt about the assignee's capacity to perform its financial obligations, the assignor may be asked to provide the NOC with a guarantee of performance of the potential assignee for a certain amount of time (as has happened in Vietnam and Angola).

Without notification of a prospective change, the government will not be aware that a change of contractor and/or operator has taken place and will have no opportunity to ensure that the necessary checks are carried out to verify the new assignee's capabilities. The most common form of state approval is by written letter before the transfer of interest takes effect, rather than an *ex post facto* endorsement. To avoid arbitrariness on the part of the governmental authorities, assignment clauses often stipulate that approval will not be "unreasonably withheld" or "unreasonably delayed."⁴⁴ In Liberia, for example, if consent has not been given within 30 days, it is deemed to have been given (although this is too short a time frame to be treated as a guide).

A contemporary example from the Middle East may be found in the 2007 Jordan Model Production Sharing Agreement. This model contract reflects the industry principles just described in that it establishes the general principle that the state's prior written consent is required for any assignment or other disposal of "all or any portion of [the contractor's] duties and obligations" under the contract, subject to a limited, defined exception concerning affiliates:

Article 31—Assignment

(a)(1) CONTRACTOR shall not assign or otherwise dispose to a non-Affiliate person, partnership,

corporation or other entity all or any portion of its duties or obligations hereunder, without the prior written consent of [Natural Resources Authority of Jordan] whose approval shall not be unreasonably withheld.⁴⁵

Tax implications relating to the assignment of contractual rights may also have to be assessed (see chapter 6). In particular, there is the question of capital gains tax (CGT) being imposed on the proceeds of a sale. After several cases in which governments have sought to do this in the face of expectations to the contrary, it is likely to be a consideration for international oil companies in their assessment of and negotiation of contracts. The issue of tax being levied on sums made at the time of exit appears for many years not to have been an area of controversy in petroleum investment practice. What has changed the situation in recent years is the size of the amounts involved in exit transactions. This is the origin of recent increased interest by governments in such transactions and in the possibility of taxing them. In Central and East Africa alone, at least five governments have been reviewing their CGT rules (the Democratic Republic of Congo, Kenya, Mozambique, Tanzania, and Uganda) and another (South Africa) has been called on to do so by an influential policy institute within the governing party.⁴⁶ Previously, there was no practice of levying tax on such transactions. The shift in policy preference has therefore encountered an absence of legal power in some existing arrangements.

Foreign Exchange. These provisions cover investor rights and obligations with respect to recording foreign exchange transactions and to retaining foreign exchange earnings outside the host state. The foreign investor seeks to ensure that funds earned within the host state are convertible at a non-discriminatory market rate of exchange.

Foreign exchange provisions also seek to ensure that funds are remittable at the foreign investor's discretion to the overseas parent company or its shareholders. Such provisions also seek to ensure that the remittance is governed by rules that both parties will adhere to for the duration of the contract. Most developing states provide full foreign exchange remittance guarantees. The host government will nevertheless be keen to ensure that foreign exchange transactions do not have an impact on macroeconomic management, a possibility because the hydrocarbons sector may well be large in relation to the rest of the economy.

Auditing and Accounting. These contractual provisions mandate that the investor maintain books and accounts in conformity with national or international norms and grants the host-state government the right to conduct audits. In the absence of internationally agreed accounting standards, care needs to be taken about the way in which expenses are to be calculated and about transfer pricing (see chapter 6).

Qualification of Contractor. Some petroleum contracts require the investor to conduct business through a locally incorporated company for tax purposes and other legal reasons. This is an area of key concern to a host state, because internationally operating companies are usually highly sophisticated in ensuring that their operations are structured so as to minimize their tax liability (Cotula 2010, 26).

Health, Safety, and Environment. This provision requires the contractor to conduct operations in conformity with the host state's HSE laws and regulations (see chapter 9). This may be supplemented by reference to industry best practice or international environmental standards.

Reclamation and Decommissioning. Some petroleum contracts vest responsibility for reclamation, repairing, and/or decommissioning of sites in the contractor. Other types of contractual provisions require that funds be deposited in a dedicated account each year to cover the reclamation, decommissioning, and abandonment costs (see chapter 9). As more and more countries face the prospect of decommissioning, this is likely to be an area of evolving practice.

Local Goods and Services. Most petroleum contracts require the investor to purchase their goods and services from within the host state, provided both quality and price are competitive and subject to availability (Tordo et al. 2013). The reasoning behind local benefit provisions is to promote linkages between the EI sector and the local economy (see box 4.4 and box 4.5 and chapter 9). It is particularly challenging in new provinces where there is no infrastructure and no government knowledge of the sector.

Training and Local Employment. Most petroleum contracts require the foreign investor to give preference to nationals who have the requisite skills for employment in the EI sector. These provisions normally also require that the investor conducts training programs with a view to promote local employment (see box 4.4).

Box 4.4 Local Benefit

Most petroleum and mining laws require that foreign companies adopt some measure of preference for local goods and services. In addition to the direct benefits to stakeholders (such as local businesses, entrepreneurs, and communities) through market diversification, productivity, and access to business opportunities, capital, and technology, there are wider benefits typically sought by such requirements: (1) increased employment and skills, (2) increased domestic and foreign investment, (3) technology and knowledge transfer from international resource companies, (4) exports and foreign exchange, and (5) increased government revenues.

The definition of *local benefit* (often called *local content* in the literature) is very important. Some states consider “local” companies to be those that are registered nationally rather than fully taking into account the degree of added value that these companies create for participation by local individuals. Ideally, preference should be given to companies that are involved in actual manufacturing activity as well as those with significant ownership, management, and employment of local citizens. Companies within the “region” should also be treated as local.

For companies as well as states this is a matter of some sensitivity. Internationally operating companies prefer to work with contractors they are familiar with and to use their standard company procedures for holding tenders and procuring goods, services, and other work. Local companies will be unfamiliar, at least initially, with such procedures. For certain kinds of activity, expertise is unlikely to be available among domestic companies. Tensions can therefore be expected in the development of a local benefit policy.

Problems should be anticipated in the following four areas:

1. Where certain goods and services are lacking in the host country
2. Where there is poor quality of domestic goods and noncompliance with international standards and safety requirements (as stated by foreign investors, for example)
3. Where there is a practice of using local mediators as suppliers of goods, services, and other works instead of domestic manufacturers
4. Where there is a lack of employees with the appropriate qualifications

The design of a local benefit policy can also create problems in implementation. Take, for example, the following provision mandated in Chad: licensees must “give priority to those goods and services available in Chad insofar as their prices, qualities, quantities, delivery terms and sales conditions compare to goods and services available abroad and do not require the licensee to bear any kind of extra economic burden” (Tordo et al. 2013, 51).

Provisions such as these are often insufficiently disseminated, monitored, and enforced. Moreover, it may be difficult or impossible to compare factors such as the reliability or performance quality of a local supplier of goods and services in relation to competing suppliers.

Nonetheless, contracts may include fairly elaborate provisions on local benefit requirements that specify criteria, including certification, to identify when materials are not available locally or at reasonably comparable quality standards. They may also involve a monitoring system through the NRC or a specialized government agency or procurement office.

Stabilization. Stabilization clauses are offered as an investment promotion device, often because they are given by other states in the region also competing for investment capital. The guarantees they provide protect the investor’s contractual rights against adverse interference by the state through legislative measures. Although such provisions may not stop the government from exercising its legislative powers, stabilization clauses can mandate that a court or arbitration tribunal compensate the investor for any damage suffered. Aside from a strictly legal assessment of their value in formal proceedings, stabilization clauses may enhance the ability of an

investor to negotiate a more favorable settlement in a dispute with a host state that seeks to revise the terms of the original agreement (see section 4.9 and chapter 6). Therefore, any stabilization clause has to be well balanced and properly drafted to protect the state’s interests in an appropriate manner.

Termination. The contract normally stipulates the circumstances that permit either party to terminate the agreement (for example, when there is breach of a fundamental term by the other party). These can include a failure to carry out a work program or a breach of environmental obligations.

Box 4.5 Local Benefit: The Kazakhstani Experience

As Kazakhstan moves toward the status of a major oil and gas producer, it has developed a policy on sourcing hydrocarbons-related work to Kazakhstani firms. Legal mechanisms have been put in place to require oil and gas companies (or “subsoil users”) to use local goods, works, and services in their operations and to increase the proportion of Kazakhstani employees in their staff and in the staff of their contractors. The policy was first introduced into hydrocarbons legislation in 2004 with the terms *Kazakh manufacturer* and *Kazakh origin* applicable to goods, works, and services. It had little practical impact. The Kazakh Content Law of 2009 took a more robust approach to implementation and has proved effective. Virtually all of these provisions migrated into a new Law on the Subsoil and Subsoil Use (2010).

Why was this change necessary? When goods, works, and services were purchased from a foreign supplier, the funds benefited non-Kazakhstani economies, often the same country of origin as the subsoil user. All such expenses were treated as contributions to the annual minimum level of investments that were required under contracts between subsoil users and the state. Failure to meet this target could lead to unilateral termination by the state. Finally, once production was started, the subsoil users had the opportunity

to avoid paying higher taxes for the investments, giving them an incentive to overstate their costs at the exploration stage.

In response, Kazakhstani content on goods is defined as a percentage share of the cost of Kazakh-origin materials and the producer’s expenses for goods processed in Kazakhstan. For services, Kazakhstani content is defined as an aggregate cumulative share based on the cost of goods used for the performance of works, as well as the agreement value and/or payments to Kazakhstani employees. It also takes into account the salary fund of the entity performing works or providing services. Among the key elements in the Kazakhstani regime is an online registry of goods, services, and work in subsoil operations that allows the authorities to monitor the operation of the procurement rules, according to the 2010 law. Quarterly reports by subsoil users ensure that this mechanism allows the authorities to monitor fulfillment of obligations on content. Calculation of the local benefit percentage is done by means of a uniform method. Certification of local benefit is also used. There is also a long-term plan with targets for local benefit set in percentage terms.

Violations of procurement rules are treated as a breach of the subsoil contract and the penalties may include termination of that contract.

Natural gas

Agreements for the exploration and production of petroleum typically cover both oil and gas. They usually contain clauses dealing with the peculiarities of the gas industry: longer lead times to identify viable markets if gas is found and to reach agreement with buyers for long-term sales contracts. Longer times are also needed for securing the high levels of investment for field development, processing, and transportation. (See pages 70–71 and 107–08 in this chapter.)⁴⁷ The fiscal terms applicable to gas production have to be more attractive to investors than those for oil, because the selling price is lower than its oil equivalent (and hence offers lower profitability), transportation costs are higher, and the production profile is longer and flatter. The duration of the project and the long payback period mean that investors will tend to pay extra attention to the guarantees provided by stabilization clauses.

To anticipate the complexities of contracting, a government may provide a special legal instrument for the interim

negotiating period. For example, Vietnam’s amended Petroleum Law (2000) states the following:

If discovering gas with commercial value, while lacking the consumption market as well as conditions on pipelines and suitable treatment facilities, contractors may retain the areas where gas is found. The duration of retention of such an area shall not exceed five (5) years and may, in special cases, be extended for two (2) more years. Pending the consumption market and the conditions on pipelines and suitable treatment facilities, the contractors shall have to proceed with the work already committed in the petroleum contracts (Le Leuch 2011, at 8.6.2).

The concept of a specific retention lease was first developed in Australia. Its objective is to encourage the exploration of gas and the identification of commercial gas markets by granting the contractor enough time to assess the

viability of the discovery and its potential for marketability. In the Offshore Petroleum Act of 2006 a five-year retention lease is provided for. The criteria for granting it are (1) that the block contains petroleum and (2) that the recovery of such petroleum is not currently commercially viable but is likely to become so within 15 years. Guidelines have been issued to define what “likely to become commercially viable” means. The Australian legislation anticipates a further complication for gas development:

Where commercial viability is dependent on combining a development with other potential third party developments or access to third party facilities or technology, the petroleum will not be considered commercially viable if the titleholder is unable to complete an agreement to jointly develop or complete an access agreement for use of facilities or technology which provides an acceptable rate of return. . . . The Joint Authority may declare an offshore pipeline to be subject to common carriage (Le Leuch 2011, 8.6.4).

In a spirit of realism, the Australian authorities also note in their Guideline for Grant and Administration of Retention Lease that success is not guaranteed even if a period of extra time is granted:

[I]t is recognized that the market for natural gas is often characterized by large, long-term contracts, at specified rates over specified periods, and specific quality. Therefore, in some circumstances, the Joint Authority may agree that an otherwise commercially viable gas project (assuming current prices) is not commercially viable and may not proceed due to an inability to obtain a contract at prevailing market terms and conditions, which would support development. Alternatively, the Joint Authority may accept that the level of resources, while substantial may be insufficient to meet any currently available market opportunity (e.g. an LNG project) (Le Leuch 2011, 8.6.4).

In approaching the design of specific contract clauses on this subject, it should be noted that there has been a shift in recent years to include incentives for foreign investors to develop any gas reserves found. Typically, the PSA contractor would be granted more attractive fiscal and contractual terms for gas projects. Years ago, a different approach was adopted in many countries: there would be an automatic transfer of a gas discovery to the state or its national oil company.

An example of this regime in a modern contract is found in Angola (Le Leuch 2011, 8.7.3). Where nonassociated gas is discovered, the rights for its appraisal and exploitation are automatically transferred to the state company without any compensation to the contractor, unless the state company invites it to participate in the development of the gas field on terms that the parties agree on. Until the 1980s Egypt had a similar approach, with the result that gas exploration was neglected. This approach is nowadays the exception rather than the rule. Egypt modified its PSAs to give the company the right to develop and produce gas under certain economic provisions included in the PSA which are more favorable than those for oil. The result was a significant growth in gas production, domestic gas utilization, and exports in subsequent years. The Angolan example highlights what may happen if no provision is included on the consequences of a gas discovery for the right holder or investor. Without some prior right to develop the resource, it would be obliged to negotiate with the government in competition with other companies or it may find that its discovery is handed over to a state company to develop with or without foreign partners.

Box 4.6 outlines the main provisions in petroleum contracts signed with the host government that relate particularly to natural gas. Chapter 5 reviews the main characteristics of gas industry contracts, such as agreements between buyers and sellers, pricing arrangements, and an overview of how the downstream sector is organized for natural gas and LNG operations.

There is one kind of contract that is designed to address a specific set of circumstances: a gas deposit has been discovered but the investor was not interested in developing it and surrendered its rights. Several years, perhaps decades, later, the deposit appears highly commercial and investment in development is possible. In such circumstances, a government may offer to a new investor a development and production-sharing agreement (DPSA) or an appraisal/development and production agreement. Appraisal of the existing discovery would confirm whether the gas resources within the block are sufficient to justify a final decision to invest. The agreement with the new investor would include a field development obligation but no exploration rights. Qatar, one of the world’s most successful gas-exporting countries, has adopted this approach. The various DPSAs were concluded between the national petroleum company and foreign investors to develop nonassociated gas from the giant North Field.

The consequences of a failure to develop a gas policy that leads to a monetization of the country’s gas resources are

Box 4.6 Contractual Provisions for Natural Gas

Petroleum exploration and production contracts signed with governments will typically include some or all of the following specific gas-related provisions:

1. **Definitional provisions.** Natural gas operations typically are highly integrated but contain distinct segments: upstream, midstream, and downstream, each subject to a specific fiscal regime. Definitions are required to clarify the phase of operations to which the contract applies, the point of delivery, and the point of valuation, distinguishing upstream facilities from transportation pipelines and downstream facilities. Definitions will cover associated and nonassociated gas, condensate, and natural gas liquids.
2. **Appraisal of discovery provisions.** Relative to oil, a longer period is generally allowed for appraisal of a natural gas discovery. Assessment of commercial potential generally takes more time given limited domestic markets, the absence of competitive international markets, and the need to establish long-term sales agreements (based on a sufficient aggregation of gas reserves, before final commitments to development are made). A retention period mechanism may be included in the contract.
3. **Joint development provisions.** Contracts may include obligations for joint development of gas discoveries and for the use of common infrastructure where stand-alone development would be noncommercial. It is similar to schemes designed to develop a project as a single unit where the resource crosses a boundary.
4. **Associated gas provisions.** Natural gas is often found together with oil. The priority use of associated gas is generally in support of oil operations to increase oil recovery through reinjection into the oil reservoir. Disposal of associated gas provisions may (1) prohibit or heavily fine gas flaring on environmental grounds, (2) allow the investor the right to commercialize associated gas if possible, or (3) set terms for the sale or delivery of associated gas to the state if so requested by government.
5. **Gas market provisions.** Contract provisions may require priority allocation of gas to the domestic market and/or set conditions for the authorization of export sales.
6. **Gas pricing provisions.** The typical absence of a competitive upstream market for price reference purposes and the integrated character of gas operations necessitate that contracts contain a detailed gas valuation clause (in addition to the oil valuation clause) setting out how wellhead prices are to be determined for sale of the gas. Often government approval of gas sales contracts, including pricing, is required; there can be tensions as a result between the imposition of a low price for domestic consumption and a price based on fair market value, with damaging effects on long-term investment.
7. **Fiscal provisions.** Gas operations are typically less profitable than oil operations. Fiscal terms in contracts are typically adjusted to reflect this distinction unless the fiscal regime is based on achieved profitability (in which case no adjustments are required). The past practice of leaving the negotiation of fiscal terms until discovery or setting fiscal terms for gas equivalent to those for oil has largely been abandoned (see chapter 6).

evident in Nigeria's case. A large proportion of its associated gas is still flared, with significant environmental and social costs. The reasons are rooted in the absence of appropriate infrastructure for processing, transporting, or distributing gas or for generating electricity.

Mining

TYPES OF LICENSES AND APPLICATION PROCEDURES. The vehicle used to transfer a right to a company or other legal entity to explore for and extract minerals is usually called a *license*. The name can vary, however, with *convention*

being common in civil law countries and *development agreement* sometime used in others. The idea is the same: it is a legal instrument that sets out rights and obligations of the investor and host state that are additional to the legislation relevant to mining activities. Sometimes the content is in a standard form, sometimes it is individually negotiated, and sometimes it is partly standardized and partly negotiated.

More often than not there are between two and three kinds of licenses covering prospecting, exploration, and exploitation (the mining regimes of Ghana, Côte d'Ivoire, Tunisia, Turkey, and the Republic of Yemen are examples).

Some countries offer a special license to artisanal or small-scale miners. Algeria, Madagascar, Mali, Mozambique, and Nigeria, for example, have such a license, the Democratic Republic of Congo and Zambia have a license for each). Some such licenses for local citizens only (Namibia, Tanzania, and Zambia, for example). In some cases, the words *permit*, *lease*, or *concession* are used. There may also be significant legal implications following from the terms used between civil and common law countries.

According to the vehicle chosen, the mineral right is transferred by the government authority in exchange for a commitment to carry out mineral exploration, development, or production. The manner of transfer and the rights and obligations of the licensee are usually set out in laws and regulations (see 4.7, “The Award of Contracts and Licenses”). Most countries with mining operations offer two main types of license for commercial-scale activities: a license to explore and a license to mine. A small number of states, especially in Latin America, where Chile is the most important example, grant a simple mining concession—which is a right to produce—through an application to a judicial proceeding. The application must show technical and financial capacity. In addition, these states will probably also offer some type of artisanal and small-scale mining license or registration.

A prerequisite of the law and regulations is to stipulate clearly the procedures for submitting license applications and the process by which mining rights will be issued and approved. Any qualifications, such as technical and financial capacity requirements, also need to be set out in relation to the kind of license, the obligations imposed, work commitments, and the size of land being licensed. Normally, the time will be stipulated within which a license will either be issued to an applicant or in which the applicant will be informed of the reasons as to why it has been denied. The manner of award of rights is discussed in section 4.7.

Investors expect any license conditions offered to provide successful applicants with strong security and continuity of tenure for the term of the license. As long as the licensee is fulfilling its obligations, it should be clear that this title will not be taken away arbitrarily and will be renewed if requested by the licensee. Moreover, it should be equally clear that if the holder of an exploration license wishes to be granted a mining license for a discovery it seeks to develop, there is a provision in the law for this to happen. Without these provisions on security of title, usually regarded as good practice, companies might not apply for licenses (Onorato et al. 1998, 31).

An illustration is found in chapter 4 of the Swedish Minerals Act Minerals Ordinance (2007, section 3):

If several persons have applied for a concession for the same area and more than one person can be considered, . . . the applicant holding an exploration permit within the area for any mineral covered by his application for a concession shall have precedence. If none of the applicants holds an exploration permit, the applicant who has undertaken appropriate exploration work within the area shall have precedence.

This security includes exclusivity and a prohibition on unlicensed activity in the area. However, some countries allow licenses to be awarded to different licensees for different minerals on the same areas. The 2006 Ghana Minerals Act, section 34(1), for example, states the following:

The Minister may, on an application duly made by a qualified person and on the recommendation of the Commission, grant a prospecting license in respect of all or any of the minerals specified in the application.

Linked to this provision on security of tenure is the provision of rights to assign license interests to other parties. Usually, any such transfers would be permitted subject to the consent of the relevant government body, with consent largely triggered when the application meets financial and technical capacity criteria. Such transferability tends to be particularly important to junior mining companies that are the driving force behind high-risk, grassroots exploration. The Ghana Minerals Act, section 14(5), addresses this in the following terms:

Subject to the other provisions of this section, an undivided proportionate part of a mineral right or application for a mineral right may be transferred, assigned, mortgaged or otherwise encumbered or dealt with.

The Minister must approve such a transaction and his approval shall not be “unreasonably withheld or given subject to unreasonable conditions” (section 14(1)).

To limit speculation, the authorities in Western Australia do not allow a transfer of an exploration license to take place during the first year in which the license has been held.

Other provisions typically included in licenses (or in the provisions of the mineral law or regulations relating to licenses) are ones that identify the competent government

authorities and their responsibilities, a matter that limits the risk of duplication or overlapping jurisdiction. They set forth rules for relinquishment, whether voluntarily after disappointing exploration, a failure to perform work obligations, or as part of an agreed scheme to return acreage in stages to the public authorities. They also set forth considerations for dispute settlement by a third-party authority (see section 4.11, “Disputes: Anticipating and Managing Them”).

LICENSES: EXPLORATION. Most exploration licenses have a short term relative to a mining license: an initial period in the range of two to four years may well be followed by subsequent (“repeat”) extension periods of two to four years, giving the licensee a total period in the range of 10 to 12 years. This amount of time is generally considered necessary or reasonable to allow for the identification and subsequent proof of an economic deposit that is viable for development. Some states grant exclusive licenses that will cover any and all minerals discovered.⁴⁸ Other states grant licenses only for prespecified minerals. In these cases, different companies may have licenses for different minerals on the same tract of land. However, the latter approach can result in conflicts of interest as different license holders may be permitted to explore on the same land area.

A fundamental goal of an exploration license is to ensure that exploration does in fact take place and, further, that a flow of information is delivered to the granting authority, the state. License holders are therefore given the right to search for, or exploit, minerals *on the basis of use*. Typically, a license holder will lose provisions and rights under the license if the area is not developed. This is to ensure that mineral rights holders do not simply obtain the rights and then hold them for speculative purposes. A “use it or lose it” approach can be implemented through a variety of mechanisms such as work requirements and obligations, time-based mandatory relinquishment of a portion of the license area, or annual rental payments for holding a license area that progressively increase over time.

The need to promote exploration activity can enter into the way other provisions are drafted in the exploration license. It may be necessary to define the content of a work program in a flexible manner, because the licensees will seek to do more work in areas that have proven to be promising and less in areas that have been found to be less prospective. There are, however, limits to the flexibility a government will typically offer. Minimum expenditures should, for example, be nonnegotiable. Exploration expenditures should be primarily for substantive and verifiable

exploration work, rather than for large overheads or indirect cost allocations. Alternatively, a government could impose progressively increasing land rental or holding fees, which raise the cost of holding the license area each year. Licensees will retain land they consider highly prospective but will relinquish less promising land.

Another key principle is that exploration license holders should contribute to a flow of data to the state on the progress of their geological activities. They may be required to provide an annual summary report of their findings for land that they continue to hold. They may also be required to provide full details of their exploration work and findings and their interpretation of the exploration data for land that is handed back from the license area. Such information received by the government is usually kept confidential until the license is surrendered. Then it can be made public. Termination provisions should apply in the event that companies fail to meet minimum expenditure requirements or to provide required exploration information.

In addition, license holders are normally required to restore any land that is disturbed during exploration. Penalties or sanctions typically apply to companies that fail to comply. In cases where the license is surrendered or terminated, an in-migration management plan and a resettlement and compensation plan is also mandated; these stipulations are particularly important in the mining sector. A full-fledged environmental impact assessment (EIA) is not generally required for exploration activities, but governments may require that a scoping study of an EIA be prepared.⁴⁹ In most of these factors just described, there are strong parallels with the practices found in the petroleum sector.

LICENSES: EXPLOITATION. Before any mining license is issued to an applicant company, there needs to be a bankable feasibility study,⁵⁰ along with the necessary environmental and social assessments and management and mitigation plans. There also needs to be a mine financing plan to demonstrate that the mine can be financed. In practice, there may be variations in approach. In small states where licenses for large-scale mines may be issued only once every few years, the government may require that a bankable feasibility study be completed and submitted with the license application. However, states with very large mining sectors and many mining license applications each year may issue the mining license on the basis of an application process that takes into account the technical and financial capacity of the applicant without formally requiring the submission of a bankable feasibility study.

Exploration license holders usually expect an exclusive right to apply for a mining exploitation license for an area where they have discovered minerals, and to convert that exploration license to a mining license subject to fulfilment of specific criteria required by the relevant laws and regulations. Without this, they will probably not wish to take on the exploration risk: in the event of success, they may after all fail to be granted a right to develop the deposit. In any two-stage system, this is a source of risk, but many countries have taken steps to strengthen the linkage between exploration and mining rights in their laws. In Chile, Argentina, Mexico, Mongolia and Madagascar it comes close to being automatic access to a mining right for the licensee in its exploration area. Demonstration of the existence of a commercial deposit or of technical and financial capability to develop it become of little or no importance as criteria for granting a mining license.

The initial term for exploitation licenses is generally 10–30 years for large to very large deposits—shorter if the deposit will be mined out in a shorter period—with one or possibly two extensions depending on the size of the ore body (Martin and Park 2010). In the Centre for Sustainability in Mining and Industry study (CSMI 2010) for the *Sourcebook*,⁵¹ the sample of countries using mining licenses found that periods varied between 25 and 40 years, with an option to renew. These periods could be negotiated depending on the estimated life of the mine. Licenses are generally exclusive and specify the main mineral products that will be or may be produced. The license will usually also give the license holder the exclusive right to exploit other minerals that may be found in the mining license area following approval and permits for such development.

Investors generally expect to be granted the right for the license holder to assign the license to another party with the consent of the government. Where given, this consent should be conditional on the new license holder meeting certain financial and technical capacity criteria. The government may also make the transfer conditional on payment of a tax on any capital gain made from the transfer. Policy on this subject has been rapidly evolving, particularly in Africa. Mozambique provides an example. In a takeover by Rio Tinto of a mining project no CGT was paid. This triggered significant popular unrest, and as a result the law was changed, but not retrospectively, and was enforced in relation to similar changes in the hydrocarbons sector.⁵²

The mining license will typically contain reporting requirements on a variety of matters. Licensees have to report on and be in compliance with the prevailing health, safety, environmental, and social laws and regulations in the country.

Similarly, license holders are expected to provide reports at regular intervals (monthly, quarterly, and annually) on production, employment, sales, stockpiles, earth moving, tailings, health, and safety performance. Reporting requirements will generally also include specifications on development and exploration activities as well as capital investment programs. If the license or contract contains provisions on reporting of payments made, it is important that such provisions are clear about when, where, and how such payments are to be made, as well as how much, and about the content and timing of the required reports. The government may also seek the power to require the data underlying the payment calculations or any operating reports the licensee is required to provide.

Termination provisions set out the circumstances under which the license can be terminated. Typically, this will include failure to construct and operate the mine as approved and/or frequent, repeated, uncorrected, and substantial HSE violations. There are normally provisions requiring the defaulting party to be notified of the breach and giving it an opportunity to rectify it. Termination of a license by a government is usually considered a last resort and is always open to legal challenge. For this reason, the termination must be material to the mining license or development agreement. If voluntary termination by the company is provided for, this provision needs to ensure that the circumstances are clear and that any required payments are set out. Closure of the mine is a stage that requires careful monitoring to ensure that obligations on rehabilitation and reclamation have been carried out (see chapter 9).

OPERATING PERMITS. In addition to the mining license requirement, construction and operation of a mining project will be subject to environmental, water use, and land use permits (related to zoning and/or conversion from other uses such as forestry and agriculture) and approval for the commencement of production. It is likely that a bankable feasibility study will be required for environmental permitting.⁵³ An approved preliminary mine closure plan, which includes financial assurance provisions, will usually be required.

MINING AGREEMENTS. While there are many types of legal agreement used in the mining industry, a *mining development agreement* is commonly used to attract investment and develop mining projects. Usually, such agreements are provided for in a mining law and so are negotiated within the parameters set by such a law.⁵⁴ An example is section 10 of the 2010 Tanzania Mining Act, which allows the minister of energy and minerals to enter into a development agreement

with the holder of a mining right, with a view to granting the government a free carried interest and state participation and financing of mining operations. The level of carried interest is subject to negotiation and the agreement itself is subject to review by the parties every five years. This is carried out on the basis of a standard model provided in a set of the Mining (Mineral Rights) Regulations 2010. The agreement may contain provisions that guarantee the fiscal stability of the long-term mining project.

Mining development agreements may be useful in the case of large-scale projects, where the mining company may have to set up appropriate infrastructure that might attend not only to the needs of the mining project itself but also those of the local community or of other economic sectors (collateral use of the infrastructure by third parties with nondiscriminatory tariffs and creation of development corridors). On a broader view, mining development agreements may ensure more flexibility to deal with specific projects. If the adoption of mining development agreements is intended, it is recommended that in drafting them they take into account the model text prepared by the International Bar Association (IBA 2011), the Model Mining Development Agreement (MMDA) (see box 4.7).

Mining agreements can be controversial where the law is characterized by elements that are no longer regarded as good practice. An example is the Malawi Mines and Minerals Act of 1981, which authorized the responsible minister on behalf of the government to enter into mining agreements. Extensive discretionary power was vested in the minister, such as the power to waive or vary many of the provisions of the act as he or she saw fit or to have the

final say in matters in dispute without further appeal. The minister was not required to act on or seek advice and did not have to set forth grounds on which decisions should be made. It was therefore possible for almost all important matters to be regulated, including elements of the fiscal regime to be addressed in a mining agreement, through a special regime created for a particular project. This approach would now be unusual, because modern mining laws tend to limit the scope of discretionary powers and—where discretion is required—make their exercise subject to clear criteria and frequently to advice from a statutory body such as a mining advisory council. Discretion is typically time bound and decisions are open to review by an aggrieved party through independent review procedures.

The era of ad hoc mining agreements negotiated between individual mining companies and a (capacity-challenged) state has been replaced by one in which generally applicable provisions of laws are the dominant rule-setting mechanism. In many cases, mining laws are still complemented by different kinds of mining contracts, but these tend to be standardized and nonnegotiable. They can, for example, provide the investor with stabilization of the fiscal and legal regime.

The adoption of a mining development agreement may not be required. The mining law could well stipulate that local benefit, procurement, infrastructure, and other concerns of the government be attached to the mining license itself. In South Africa, the mining licenses set out detailed requirements that would make a separate development agreement of doubtful relevance. However, South Africa is

Box 4.7 Model Mining and Development Agreement

In an interesting experiment, a group of mining lawyers analyzed about 60 mining agreements and produced a model mining development agreement, or MMDA. This project identified clauses that were clearly written and that reflected a reasonable measure of balance between the interests of the host state and the interests of investors. The aim of the project was to identify clauses that constitute a form of international best practice in regard to mining agreements. The MMDA project sought to provide solutions for states with gaps in their mining codes; clauses from the MMDA could be included in supplementary private agreements on an ad hoc basis. The result is a

collection of clauses that are representative of the kind of matters that would typically need to be addressed in an agreement for a mining project. The MMDA aims to provide a guide for drafters covering such matters as fiscal terms, tenure, rights and obligations, and community and sustainable development. The MMDA envisages a series of options that will assist the parties in a negotiation to identify the options that are best for them.

The final text and explanatory materials are available at the *Sourcebook* website: http://www.eisourcebook.org/2425_TheIBAModelMiningDevelopmentAgreementMMDAProject.html.

an established mining country, and a different approach may suit a country establishing a mining regime for a new industry. If they are required, or thought valuable in lessening political risk or financial risk for the investor or to address site specific issues, the following guidelines may be noted.⁵⁵

Filling Gaps and Making Clarifications. Well-designed mining agreements can (in situations where the laws and regulations are incomplete or poorly drafted) be used to fill gaps, clarify ambiguities and uncertainties, or resolve differing interpretations. However, where there is a satisfactory modern legal and fiscal regime, agreements should not be used to define licensing conditions, environmental and social protection requirements, or fiscal terms—these should all be set by the law. Five practices that should be avoided in designing a mining development agreement are identified and briefly discussed in box 4.8.

Contentious Issues. While laws and regulations may specify regulatory requirements, the procedures by which they are applied can also be very important. Mining agreements can also be used to spell out the details of procedures regarding actions that have potentially significant financial implications or risks for both the investor (such as expropriation and cancellation or suspension of a license) and the government (such as abandonment, closure, and reclamation). In this vein, agreements can also spell

out more detail on force majeure and dispute resolution procedures.

Benefit Sharing. The management and mitigation of environmental and social risks should be a matter of regulatory compliance and enforcement. In contrast, site-specific issues related to how a mining operation can support national and local economic development involve developing a shared understanding among government, the mining operator, and (for local impacts) the community regarding matters such as targets for or minimum levels of (1) employment and procurement for the economy as a whole and (2) employment and training for the local community, community programs, community infrastructure, and social capital development. A mining agreement can be used for the investor to provide and government and the community to receive commitments in this regard and might also cover the use of foundations funded by the company.

Government Commitments. A mining agreement can also provide site-specific commitments by the government to the investor and/or community of actions that the government will take. This could include benefit-sharing actions (for example government support for mine-related vocational training programs or small business training programs) or assurances for investors that are not in the law—such as tax stabilization clauses if the government is prepared to make such a concession.

Box 4.8 Practices to Avoid

At least five practices should be avoided, and if they are present in mining development agreements they should be treated as a source of significant concern.

1. **Fiscal terms:** Mining agreements that include fiscal terms that are more favorable to the investor than the fiscal terms in the law
2. **“Most-favored investor” provision:** Mining agreements that include a “most-favored investor” provision, entitling the company to any benefits subsequently granted to another investor
3. **Extension to other areas:** Mining agreements that contain provisions for their own extension to cover new areas, a particularly bad practice when the terms are potentially unfavorable to government (Sierra Leone had a bad example of this.)

4. **Long-lived exploration rights:** Mining agreements that provide license holders with long-lived exploration rights (such as rights lasting longer than a decade) and that do not require substantial work activity or costs for holding land—so that the license holder can “bank the land” for its own benefit, thereby denying the possibility of mineral development that could benefit the nation as a whole
5. **Land banking:** Mining agreements that tie up very large amounts of land relative to the size of the area to be mined during the expected life of the mine—which again has the effect of enabling the license holder to bank the land for its own benefit

Infrastructure. An important role for mining agreements can be to address site-specific infrastructure issues such as power supply and the provision and operation of roads, railways, and ports for transport of mining inputs and products. The approach used may vary according to circumstances, so this is a matter for negotiation between the government and the investor leading to an agreement on key issues such as who pays for constructing the infrastructure (mining investor or government) and whether it is dedicated to the mine or if it will support broader economic development—and if the latter how it will be operated and managed and how user charges will be determined.

Other Matters Requiring Consensus. Beyond infrastructure, mining agreements can address other site-specific matters requiring consensus between government and company such as

- information sharing by the mining company beyond reporting requirements in the law and regulations (for example projections of expected tax payments; and
- accounting rules to be used for taxation purposes.

Shareholder Agreements. In situations where the state has a share in an otherwise privately owned mining company, good practice is for a shareholder agreement to be used to spell out arrangements, obligations, and authorities of the different shareholders and management. Special care in drafting such agreements is of paramount importance so as to clearly protect the state participating interests.

4.7 THE AWARD OF CONTRACTS AND LICENSES

Objectives, constraints, and context

Typically, awards are made by a government authority on behalf of the state for the exclusive right to explore and, if certain conditions are satisfied, to exploit any commercial discovery. The objectives in designing the award process are to find the best candidate (for example, the most efficient explorer and developer); to maximize the potential revenues as a result of the award; and to avoid any distortion of incentives to perform.

Contract or license award decisions should logically emerge from the overarching EI sector policy objectives listed in section 4.4. As a priority, the following policy determinations should be made: (1) whether or not to

explore and develop the EI sector, (2) at what pace the EI sector should be developed (if the answer to the first question is an affirmative), and (3) whether or not the private sector should participate. Very few states choose not to explore, given their development needs and the revenue potential of the petroleum or mining sector in the event of success.⁵⁶ States, however, may be concerned about the pace of exploration and development activity because of their capacity to absorb the revenues (see the discussion in chapter 7), infrastructure constraints, or social and environmental risks.

In designing and/or conducting a licensing round, several government authorities are likely to be involved, with one designated as the lead authority. It will face a number of constraints, both external and internal. Geology and price expectations, each critical to investor interest, tend to fall into the first category; there is not a great deal that the authorities can do about them. Some actions are possible, however. If uncertainty about geology is a factor, a government can prepare comprehensive information packages based on existing data and the possible acquisition of limited new data along with their interpretation. Good practice encourages this.

New data, such as seismic or aeromagnetic data (see box 4.9), might be acquired at the government's expense, through donor support, or on a speculative basis by private investors or seismic contractors acting on the government's behalf and reimbursed through data sales. Depending on its nature and value, the data might be made freely available to potential investors, sold to interested parties, or its purchase may in some cases be made mandatory as a condition for participation in the licensing round.

With respect to price expectations, governments may, if circumstances allow flexibility on timing, choose periods of rising resource prices to launch a licensing round. Such periods are, however, likely to be periods of maximum competition among states for investor interest.

Internal constraints (matters over which the government might be expected to have control) will also have a major bearing on licensing prospects and include issues of macroeconomic and political stability as well as the types of legal, contractual, regulatory, institutional, and fiscal regimes a government chooses to adopt (see chapter 6 and chapter 9).

Conditions for success

Turning from contextual considerations to the licensing process itself, a number of conditions have been demonstrated

Box 4.9 Geodata

“Effective acquisition, maintenance and dissemination of geodata can act as a magnet to investment and can enable governments to understand better their natural resources in order to manage them most effectively” (BGS International 2102).

The successful discovery of natural resources requires significant effort at the exploration stage. It also requires the application of sophisticated exploration and exploitation technology. To attract foreign investment, a host government should try to limit information uncertainties and asymmetries associated with its resource endowments.

Many developing states lack the geosciences information (geodata) necessary to undertake detailed land-use planning. Because governments are faced with budget constraints and pressures to provide critical services to their citizens, geodata is poorly maintained and hard to access. Many governments find it difficult to justify the collection of geodata when the payoffs are generally long-term in comparison with the country’s immediate spending needs.

Geoscience information can be collected on an ad hoc basis, resulting from a “lucky” discovery by artisanal miners or from more systematic, complex, and

large-scale efforts. The quantity of this information (whether it is produced by a state or private investor) depends ultimately on the benefits and costs perceived by either party.

If all of the benefits are not internalized by the government, or if the returns associated with the collection of geoscientific data are prohibitively difficult to calculate (due to perceived high levels of political, technical, or security risks), a state may be left with less geoscientific information than it needs for efficient development. A state should identify those policies required to ensure that a sufficient amount of geosciences information is produced.

A sufficient quantity and quality of geodata are needed to ensure that a host state earns an equitable portion of its natural resource wealth and to enable private investors to assess the geological prospects of a license area. In these situations, the state does not need expertise in assessing the value of the license area, because the competitive tension created by a properly managed auction process should ensure that the license is fairly valued. For example, the government of Papua New Guinea has been skilled at utilizing such data collection to promote investment in its EI sector.

as critical to success. The first is an environment where there is *competition among potential investors*. If this can be achieved, it can potentially result in the best outcome for the state.

Competition among potential investors can also help offset some of the asymmetry regarding access to information that tends to disadvantage governments in licensing. Investors are often better informed about a state’s geological prospects than their government counterparts. This is particularly true in the early stages of EI sector development when data-sharing requirements have yet to be established. While problematic in the case of one-on-one bilateral negotiations over contract awards, this informational disadvantage is largely nullified when informed investors are made to compete against each other (Cotula 2010, 18).

The second condition critical to success is institutional capacity. Properly preparing a licensing round and evaluating potential investors and their contract proposals requires sophisticated professional technical, legal, and commercial skills. These skills need to be acquired by host-government

authorities responsible for the contract award process. Pending their development, the authorities are generally encouraged to engage support from outside experts.

Award procedures

Transparency is at the core of good practice when it comes to award procedures. Whether acting individually or as participants in a competitive bidding round, license applicants—on a nondiscriminatory basis—should be made fully aware at the right time of the procedures to be followed. They should also be provided access to all available data, whether on a free or purchase basis, and be informed of all applicable legal and fiscal regimes (including model contracts). Documentation should also provide assurances that areas offered for license are currently unlicensed and that proper authority exists for their licensing.⁵⁷ With the possible exception of specific technical data, this information should be available in the public domain. All of this reduces the risk that one investor or consortium may be unfairly favored over another.

It is desirable, and now increasingly common practice, that applications for awards should be prequalified to ensure that bidders have the financial and technical capacity to undertake a substantial exploration or mine development program. This also allows the government to eliminate bidders who are not serious and to safeguard any special interests it might have, perhaps to reserve a proportion of the areas on offer to local oil and gas companies. Where geological information is limited, or not immediately encouraging, governments may decide to adopt an open door, first-come, first-served licensing procedure or direct negotiation with a limited number of prequalified companies. Where significant geological data is available and investor interest is high, competitive auction is generally considered the best option.

Criteria for award

Once the credentials of potential investors have been established, good practice favors setting a limited number of clearly specified criteria for the award of a license. Arguably, the most important of these is the investor's work commitment, which should be specified in both physical terms and financial (minimum) expenditure terms.

In petroleum contract awards, the work program is generally considered to be controlling and it must be performed even if resultant expenditures exceed the minimum.⁵⁸ In mining contracts awards, it is not always possible to be very specific about the work to be performed, and therefore giving priority to work programs may not be appropriate. In most petroleum licensing procedures, the work program and expenditure commitments are combined with financial and fiscal variables (such as bonuses, royalties, or production shares). For reasons discussed in chapter 6, the last of these is probably preferable on efficiency grounds.

Sometimes a third variable may be added, but where awards are based on more than one variable, applicants or bidders need to be told the relative weights the authorities have assigned to each variable for selection purposes. Ideally, the variables selected should be relatively easily assessed not only by the authorities but also by observers of the award process. Adding variables related to contributions to local infrastructure and or local benefit—whether by direct participation in the award or through commitments to local suppliers—can make bid evaluation difficult even if the potential political and developmental appeal of such variables is strong.

Oil and gas

METHOD OF AWARD. In designing a method of award of rights, several overall objectives are likely to predominate: the method needs to be consistent with the government's overall policy for the hydrocarbons sector; it needs to encourage participation by both foreign and, ideally, domestic participants; it should favor selection of the company or consortium best able to do the job; it needs to deter collusion among bidders who might otherwise try to keep their bids low; and it needs to provide some deterrence against political and lobbying pressures that might work to distort allocation by favoring some over others (Tordo, Johnston, and Johnston 2010, 34–37). The method also needs to take into account the available technical and administrative capacity in the host state and adapt the design accordingly.

There is no standard method of allocation of rights that could be applied by any government in any circumstance. However, there are two principal methods used by governments to allocate rights to explore for and exploit oil and gas: (1) the open-door method, by which rights are awarded at any time in a contractual form as a result of negotiations between the government and interested investors, following solicited or unsolicited expressions of interest in specified areas, and (2) rounds of award. The latter method can be subdivided into two categories: administrative procedure and auction. Under administrative award, rights are allocated according to a process of administrative discretion on the basis of a set of criteria defined by the government. Under the auction method, rights are allocated to the highest bidder. In practice, most countries use a combination of these systems, since country-specific objectives and constraints will change over time, as will exogenous factors such as the level and trend of oil and gas prices. Moreover, the areas over which rights are granted will have diverse characteristics, including mature, frontier, or deepwater areas, requiring more flexible allocation policies.

OPEN DOOR. The open-door method presents transparency risks. Criteria for award are often not predefined or known to market participants. The acreage on offer may be completely unexplored or frontier in character, meaning that little or no information is available to the parties, creating the risk of major errors of judgment. The government usually retains significant discretionary power and flexibility over the manner in which it awards rights. There is less competition than in awards made following a competitive

round. Corruption is very possible. However, Tordo, Johnston, and Johnston (2010) argue that such systems can “be made more transparent through the definition of clear award criteria, the publication of negotiation results and the use of external oversight bodies.”

In the distant past, the award of rights by direct negotiations was common, but the trend among host states has long since favored some form of competitive bidding (Duval et al. 2009, 37).

COMPETITIVE BIDDING. The award of rights in a round of competitive bidding has a greater potential for transparency. Unlike auctions, allocation in rounds does not divert significant sums of money away from exploration work. However, when administrative procedures are dominant, award criteria can be vaguely stated or not published at all. To counter this, the United Kingdom makes public its award criteria and more recently has published information on the scoring that is attached to each criterion. The United Kingdom also awards rights on the basis of work programs proposed by the bidders and publishes those of successful applicants. Unsuccessful applicants can request detailed feedback on the evaluation of their applications. Where discretion is involved, it requires a level of technical capacity and resources among government officials if they are to evaluate the proposals properly. Where there are capacity constraints this is not likely to be an attractive option.

By contrast, the use of auctions can ensure that rights are awarded to the highest bidder. Auctions offer the advantage of conveying information about the value given to blocks by bidders and which bidder values them most. For areas that are underexplored or frontier in character, or where information is very limited, this can be a significant benefit.

Elements that can be bid on include signature bonus payments, work programs, royalties and various forms of profit sharing, “infrastructure-linked,” or a combination of some of these.

- If a *signature bonus* is the parameter, then the investor that offers the highest up-front cash payment is most likely to be granted rights to the area on offer. Whether or not hydrocarbons are discovered, this offers a convenient source of early revenue to the government. It is unusual for a government to depend solely on a single parameter such as this when it may be combined with royalties and corporate income tax to capture the economic rent.
- If bidding is based on *work programs*, it will be focused on exploration activity, and the investor will bid to carry out a specific set of activities within a specified time. Like bonus bidding, it represents a cash outflow for the investor prior to a discovery, but by contrast exploration costs are usually recoverable and tax deductible. The program would normally contain some flexibility to allow for new information that results from performance of the work commitments.
- If *royalty* is taken as the main parameter, the investor that offers the highest rate will receive the rights to explore for and develop the resource in the area on offer. Such payments are conditional on future production and therefore on a commercially viable discovery. Since no large up-front payment is required, this method of bidding is more attractive to smaller investors than cash bidding.
- If bidding is based on *profit sharing*, the investor who offers to pay the highest share of potential future profits is granted the rights for the area on offer. Like royalty bidding, this is an offer to pay that is conditional on discovery, development, and production of hydrocarbons, and also requires no up-front payment.
- Linkage of access to resources with infrastructure investment has become more popular in recent years: so-called bundled bidding. For emerging petroleum countries, including many in Africa, that have significant infrastructure needs and limited public expenditure capacity, the bidding parameters could include the improvement of local infrastructure related to the area where the project will be developed. However, this approach does present the risk of not selecting the most appropriate investor qualified for the effective exploration of the area to be awarded.

The literature on methods of award of rights tends to dwell on the element of discretion and its potential for creating uncertainty. This wariness may be exaggerated. Typically, a state will make a standard offer to all comers but in some cases it will be possible to negotiate or bid on quite crucial elements of the bargain. In practice, this use of discretion in making the final award can be valuable for the host state, because it may allow the state to choose an investor that is more likely to fit the government’s social, industrial, or environmental policies. Tordo, Johnston, and Johnston (2010, 16) recognize too that “the award of future licenses may be a powerful way for a government to influence the behavior of existing investors.” Discretionary

power in this respect has the potential to act as a carrot or incentive to existing investors to cooperate with other policies that may be quite distinct from allocation ones (and without which the state's ability to persuade a reluctant investor may well be much less).

In a comparative study of discretion in oil and gas regimes, Terence Daintith (2006, 2) notes, "Discretion appears most significantly as a way of relaxing rules which might lead to the loss of title in the absence of development or production," pointing to the examples of Australia and the United States. Rules and standards for government behavior can become too strict in some regimes, and discretion can act as a way of addressing the resulting rigidity. However, in countries where there are few checks and balances, such as through legislatures, courts, and civil society groups, the arguments for reducing the scope of discretion in the award of rights are much stronger.

A different set of issues arises with respect to the award of rights to companies for the acquisition of data (see "Objectives, Constraints, and Context" under section 4.7). Many governments seek to reduce geological risk and increase competition among potential investors by allocating these limited rights to a single company for a very limited period. Such technical information is expensive to obtain and has commercial value. Governments therefore typically allow the company to sell it in packages to potential investors as a way of recovering costs and making a profit. Access to the data is, of course, shared with the government.

JOINT BIDDING. In the oil and gas industry, irrespective of the kind of contract that a host state intends to offer, it is very common for companies intending to submit a bid to join in a consortium. This is a helpful way of securing the participation of smaller companies, as has been found in Australia, Brazil, and the United Kingdom. By making a joint application the parties seek to reduce their individual risk, to share the application costs, and to set down the principles on which they plan to work together. The joint venture allows them to pool diverse strengths such as financial, technical, and commercial capability as well as good connections with the host government and a track record in the country or region. This joint approach leads to the conclusion of an agreement governing the relationship during the application period: a joint bidding agreement. If the bid is successful, this early form of joint venture agreement will be the precursor to the joint operating agreement (discussed in chapter 5.3).

The mechanics of such agreements are described in the following material. However, some governments take the view that joint bidding should be discouraged and even prohibited, because it reduces the number of competitors and may encourage collusion. Angola, the United States, and the República Bolivariana de Venezuela have taken this approach, as had Norway until a few years ago.

If investors are to conclude a joint bidding agreement, the parties need to disclose and discuss what each can offer the joint venture. Exchange of information can be a sensitive matter, because it may be that one party owns technical data likely to give the group a competitive edge in a bid. The parties, therefore, will require a *confidentiality agreement* within which to have these discussions. If the bid does not go ahead, this can assist in dealing with the return of information and obligations about nondisclosure. Another document that the parties may consider necessary is an agreement that establishes an *area of mutual interest*. The agreement predates a joint bidding agreement and is a statement that the parties' interests are in alignment and that they intend to work together to pursue joint development opportunities if the area becomes available for development.

The joint bidding agreement establishes the terms on which the parties will make their bid. It sets out the area and the kind of rights that are being applied for, as well as a timetable, steps to be taken to prepare and submit the bid, and agreement on how the costs are to be allocated among the parties. It may well prohibit any party from submitting a bid for hydrocarbon rights in the area separately from the group. It also sets out the basic terms on which a JOA will be entered into if hydrocarbon rights are eventually awarded to the joint venture. It can be more or less detailed and cover, in outline at least, many or only a few of the topics that a JOA would normally cover (voting and withdrawal mechanisms, for example). Given the time it takes for a JOA to be fully negotiated and concluded, the joint bidding agreement may, if the bid is successful, prove to be the basis for the parties' initial operations covering several years. It is, nevertheless, an agreement concluded with a view to securing, rather than managing, the contract rights and so is likely to have an interim character.

In principle, it would not be impossible for the parties to proceed with their bid application without such a joint agreement. However, the investment of some extra time and money over that required to make the bid itself is usually thought worthwhile in defining in detail the terms that will govern the new relationship.

Mining

METHOD OF AWARD. The procedure for allocation of mineral rights is typically based either on a noncompetitive process (sometimes called “first come, first served” or “free entry”) or a competitive (“tender”) process. Both are commonly found within a single state but not used simultaneously.

In the noncompetitive method, the party that first applies for rights in a particular area has a priority position to be granted rights to explore, provided it satisfies some administrative requirements. This has typically been common for exploration licenses due to a lack of geological information and correspondingly higher risk and lower investor interest. Even where information is available, the likelihood of a large discovery may be small. This approach has the advantage of being simple to administer with online applications being possible.

The second method is often used when a government invites bids for areas it has offered already and on which it provides more assured information about potential. The risk is therefore lower than for greenfield acreage and allows investors to make more informed decisions. It tends to be used in situations where geological data is available from exploration programs and where there are strong indications of interest from more than one potential applicant. This may occur if licenses are released by state companies (in connection with a divestment program, for example) or where mineral rights have been relinquished or revoked. It is harder to apply to greenfield sites about which there is little information or where such information needs to be reviewed and confirmed. The main difference between the two methods lies in the application process rather than in the eligibility criteria used or the terms and conditions. It lies in “the route followed to acquire the mineral right” (CMSI 2010, 4). Any method of allocation of mineral rights should be subject to continuous review and assessment, because lessons are learned from experience and incorporated into future practice.

There is a body of literature that argues for competitive bidding in preference to the first-come, first-served method (for example, Collier 2010, chap. 5). It usually notes that this method is very common when awarding rights for oil and gas activity but less so in the mining sector. Yet in both cases the value of natural resources could be captured for society by encouraging competitive bidding. A UN study notes, “Transparent and competitive concessioning of known mineral assets can help” in setting a fair market value on the resource (UN 2011, 95). Others argue,

“The technical nature and risks of finding resources in the two industries and in the different economic and risk profiles” between hard-rock mining and hydrocarbons provide a justification for favoring the first-come, first-served approach in awarding mining rights (Haddow 2014).

In some cases, a government may elect to grant exemptions from either of these methods or to give a community a preferential right to mineral rights in its area. It may also decide to make an award of rights on a direct basis with an investor in exchange for infrastructure. This kind of bundled deal offers potential for a wider development in the country concerned and beyond. This is addressed in chapter 9, and for a further discussion see Stanley and Mikhaylova (2011).

A delicate feature in any regime for allocating rights is the amount of discretion reserved to a government in relation to an award. If this is not narrowly drawn, there is potential for an abuse of power, and this will certainly be treated as a significant risk factor by potential investors. Appeal to judicial review is less likely when provisions for actions by government officials are couched in discretionary terms, rather than, say, as duties imposed on such officials. In the Ghana Minerals and Mining Act of 2006 (section 5(3)) a provision was introduced that required the minister for lands and natural resources to provide written reasons when an application is not granted or the application is granted over only a part of the land applied for. This was designed to ensure transparent use of discretion and to give comfort to applicants for mineral rights.

Nondiscrimination is an important principle in making any award of rights. It is important in countering any attempt to favor domestic mining companies or state-owned mining enterprises. In Western Australia, the mining regulations address this by a common device. Section 57(4) of the Mining Act 1978 states the following:

[T]he Minister, may on the application of any person, after receiving a recommendation of the warden . . . grant to that person a license to be known as an exploration license.

Usually an application for an exploration right is accompanied by a program of work. Over time a new program will be required as progress is made and greater knowledge acquired. Performance of the program will normally be a condition for renewal of the license. In Chile, a failure to establish this condition of a work program has meant that little greenfield exploration has been carried out. Relinquishment is also included as a condition.

It should also be noted that in states where minerals belong to the landowner, negotiation of payment of royalties will be the typical means by which an investor will acquire mineral rights. Where the land cadastre is in traditional ownership, even though the mining cadastre (the subsurface rights) is usually owned by the state, it will be essential for the investor to develop a constructive working relationship with the local community through its leaders. About 80 percent of the surface land in Ghana, for example, is in traditional ownership.

In the CSMI (2010) study on allocation of mineral rights, the authors identified eight suboptimal practices:

- Discriminatory practices and overuse of discretion by government and officials
- Lack of clarity and transparency in the processes and procedures for acquiring mining rights
- Absence of consistency in the terms and conditions applied to mining rights
- Disregard for the rule of law by both government and investors
- Poor governance with regard to rights and obligations of mining right holders
- Inadequate institutional frameworks for management of the mining sector
- No provision for social and environmental impacts of mining
- Inequitable distribution of benefits from mining

To counter these, five principles of good practice ought to be applied to both the competitive and noncompetitive application/administrative processes, in their view. The first of these, *equality before the law*, requires a framework that ensures nondiscrimination to all applicants, whether local or foreign, based on predefined eligibility criteria; compliance requirements and titleholder obligation; public disclosure of application (and related consultation with landowners and affected communities); standard terms and conditions (covering duration, transferability, and discouragement of hoarding, for example); a transparent fiscal and royalty regime; and equal application of the law in the acquisition of mineral rights. The second overarching principle is *good governance*, which implies that the rule of law should apply to both the government and the investor with respect to administrative justice and procedural fairness, consistency in the application of the law, clarity of administrative procedures, guided discretionary powers, security of tenure, access to courts, and compliance with the law.

Three further principles were *social and environmental protection* (reflected in the compilation of environmental and social impact assessments and implementation of good labor practice and observance of health and safety laws); *equitable distribution of benefits* (including charters to ensure benefits filter through to society as a whole); and *institutional framework for implementation* (well-defined responsibilities and capacity for effective management systems, including targets, performance measuring tools, and a computerized cadastre system).

FIRST COME, FIRST SERVED. The traditional approach to the allocation of mineral rights—whether licenses or contracts—was the first-come, first-served approach. The availability of this method was thought to incentivize companies to make an application for mining activity, and it was not necessarily biased in favor of any party. Examples include Australia, the United States, and some Latin American and many African countries. However, over time a number of states have adopted the competitive bidding approach. Examples of this shift are Algeria and Tanzania.

The changing trend is generally due to more geological data becoming available and an increasing interest among companies in obtaining exploration rights than in past decades. Thus, the noncompetitive approach has come under review in a number of states, particularly where more than one company is applying for a license for the same tract of land.⁵⁹

As always, the key issue is not whether a country should become part of a trend or not but whether its own circumstances merit this approach or the alternative or some hybrid. In China, a mixed approach is adopted: auctions are allowed for areas previously explored but first come, first served is adopted for unexplored areas. If the state's capacity to process applications is low, it may find that the first-come, first-served approach results in a very large number of applications (several thousand in Mongolia, for example), with the effect of choking its ability to assess them properly. Some applications may also be purely speculative, and the government may decide that they are not to be encouraged. Mongolia provides plenty of examples of this, given that its Minerals Law of 1997 did not include a review of the applicant's technical and financial qualifications. Again, China provides a contrast: its version of the first-come, first-served approach included a requirement of proof of technical qualifications, a technical exploration plan, and proof of funding.⁶⁰

The noncompetitive approach will continue to be appropriate for areas that are largely unexplored. However, in

areas where good geological data is available and where there are strong indications of interest from more than one potential applicant, governments are more likely to offer licenses on a competitive bidding basis. The key is to ensure that rights are offered on a fair, transparent, and timely basis. It should also allow for dispute settlement processes in the event that disputes arise.

In the face of allegations that this method leads to a hoarding of rights, some have proposed the adoption of a “use-it-or-lose-it” regime, whereby the licensee has to explore, mine, or relinquish its rights.

COMPETITIVE BIDDING FOR MINERAL RIGHTS. Where deposits have been previously explored and new development and production rights are being offered, competitive bidding should be used. Governments are encouraged to develop in detail their strategies for mining activity prior to bidding, which is in itself a positive development. There are successful examples in Peru and Afghanistan.

Two examples of new development and production rights being offered are, first, when land is released by an NRC back to the government for licensing to private investors, and second, when a license holder hands back land for which more detailed geological data has been provided to the government. In both cases there may be several investors competing for the same license; in these cases only competitive bidding should be used (Global Witness 2008, 11, 20). In the case that land is offered for competitive bids and there is only one qualified bid, that bid would, of course, be the winner.

Competitive tenders also become appropriate in post-conflict and fragile states where mineral assets, including past operating mines, have become separated from the holder of prior rights. As governments strengthen their regulatory control and improve their knowledge of the resource base, the need for a competitive award of mineral exploration and exploitation rights grows. The Aynak copper deposit in Afghanistan is an example (Stanley and Mikhaylova 2011, 7), and other examples can be found in many African postconflict countries, such as Liberia, Mozambique, and Sierra Leone. The existing body of geological interpretation may, however, prove to be of limited use for mining company applicants.

Tendering requires some upfront costs from the bidders, and if there is an element of administrative or political uncertainty, or a lack of transparency, it may fail to attract investors. In some countries of the former Soviet Union, the process has been adopted and proved time consuming and expensive for investors (Clark et al. 2003). Payments have

been required, as well as higher taxes and royalties than in neighboring countries.

Good practice calls for a transparent competitive bidding process that can be accomplished by ensuring access to all qualified bidders and having standardized bidding documents that include (1) all available geological information, (2) confirmation that the land is unlicensed, (3) details of the applicable legal regime and procedures, and (4) full details of the rights that will be granted to the winning bidder.

MINING BIDDING CRITERIA. Single bidding criteria (usually an upfront cash premium with staged payments) are simpler to apply than multiple bidding criteria. A single bidding criterion can be either (1) an upfront premium or (2) the value of the work program to be undertaken. In either case, the winning bidder should submit a bankable feasibility study within a given time or risk forfeiting the license.

If a set of multiple bidding criteria are used, factors such as upfront cash payment, conditional payment, and/or minimum exploration expenditure can be combined. This can be achieved through an equation that creates a numerical value. However, any combination that includes a work program evaluation will involve subjective judgments on the part of a committee evaluating the work program. In the case that mining exploration is being competitively bid, it is quite rare that an upfront cash premium or a future payment is used, because mining companies do not see sufficient value to bid such a payment. Typically, however, an exploration work commitment will be competitively bid. Relevant considerations include the following:

1. Cash bonus bidding, which is generally considered to be less efficient in frontier areas
2. Use of area-wide licensing, in which the government takes into consideration the bidders’ expressions of interest in other areas
3. Market segmentation, which takes into consideration the bidders’ technical and financial ability to pursue different types of exploration activities (Tordo 2007)

4.8 WHY REGULATIONS ARE NECESSARY

While matters of fundamental principle will typically be settled in a law and be authorized by the legislature, some rules need to be made that build on these principles and can be periodically adjusted without having to go through the normally long process of adopting a new law. This is the basis for the adoption of secondary rules, called *regulations*.

Regulations complement laws and contracts, filling in the details essential to their implementation. Typically, legislation should authorize the competent authority to make regulations from time to time, providing the detail and procedures by which to implement the policy objectives for the EI sector and by reference to specific enabling provisions of the legislation. Regulations are subsidiary instruments of the EI sector legislation and should never be inconsistent with it.

Regulations should focus primarily on technical and operational matters (such as licensing procedures; contract area; monitoring, inspection, and control of operations; reports on operations; and operational standards) but may also include fiscal elements (such as royalty definitions, surface rental, fees, and fines), cost and volume audits, and/or social and environmental requirements. In some cases, regulations may even specify the competent authority or authorities in the EI sector.⁶¹ In the area of local benefit, one can expect the general principles to be set out in a basic law, but the detail is better suited to regulations, involving specific mechanisms to achieve the law's general objectives. The Mozambique Petroleum Law of 2014 and the regulations it envisages illustrate this.

A failure to understand the different roles of primary and secondary legislation means that matters of detail may be dealt with in the main law—whether petroleum, mining, or in some countries, like Kazakhstan, in both. As knowledge of the EI sector grows, there will be pressure to amend the rules accordingly. If all matters, including essentially technical ones, are covered in a comprehensive law, the tendency will be to require amendments to the primary law. It will quickly become an unwieldy, complicated instrument, largely impenetrable to investors and citizens alike. A response to this problem is to issue guidance notes as aids to interpretation.

In the early stages of EI sector development, regulations may focus on main principles rather than detailed rules, leaving details to be elaborated at a later date based on growing EI sector experience and understanding. There are, however, a number of critical provisions related to resource management that should be recognized at the outset, including the right to receive all relevant information, the right to inspect, and the right to issue more specific rules as the EI sector develops.

A general trend has been for regulation to become more performance based under a goal-setting approach as opposed to prescriptive in character. The latter approach is reliant on the application of a rigid framework in which step-by-step compliance is required and inspections and

audits are common. The former sets outcomes to be achieved and is more flexible about how the company meets the outcomes that the government is seeking. In the EI sector such an approach is becoming much more common. It is standard in environmental practice. It does mean that government needs to be clear about what outcomes it is seeking and how it will assess and monitor the companies. At its best, it can encourage companies to innovate and lower the cost of reaching specific outcomes by applying new technologies which improve performance.

Regulations in the EI sector typically fall into two major categories: (1) resource management and (2) health, safety, and environment matters.

Resource management

Regulations directed at resource management are now common practice and are vital to effective EI sector oversight and control. This is an area in which good practice may not be a sufficiently high standard to recommend, irrespective of the context. Rather, the *best available* practice may well be essential. These regulations generally focus on the following: (1) regular and comprehensive reporting; (2) transfer of all significant data, analyses, and samples obtained in operations; and (3) consultation, consent, and approval requirements at critical stages of operations.

Typically, requirements are numerous. They include reporting and, where appropriate, consent or approval by the governmental authorities at each of the following junctures in the implementation of the EI Value Chain: (1) reconnaissance, (2) exploration work program implementation, (3) drilling, (4) discovery, (5) appraisal, (6) commerciality, (7) development plan and any revisions thereto, (8) reservoir management and production, (9) late field or mine life plans, and (10) decommissioning plans.

Beyond their immediate relevance in ensuring adherence to good oil field practice, one can expect these regulations to provide vital inputs to broader policy decisions on licensing, the pace of sector development, state participation, social and environmental safeguards, and macroeconomic planning.

Health, safety, and environment requirements

Regulations dealing with social and environmental concerns have become critically important in the management of the EI sector and are dealt with in more detail in chapter 9.

However, at the basic level, there exists a well-developed international practice on HSE standards.⁶² These standards

are reflected in state legislation or regulations and are available for adoption by newcomers to the EI sector of a particular state. As the EI sector develops, HSE regulations tend to become more detailed and highly prescriptive.

The current trend, however, is to move away from overly detailed requirements and to develop goal-setting regulations. These are normally backed up by nonmandatory guidance notes (Miller 1991). The regulations set out the objectives that must be achieved, but they allow flexibility in the methods or equipment that companies may use to meet their obligations. Instead of putting all the burden on the regulator to decide *ex ante* what would count as safe and what would not, increasing responsibility is put on the company to convince the regulator that its plans are reasonable and responsible.

This goal-setting approach is also sometimes referred to as the *internal control principle*. The perceived advantages of the approach are that (1) it avoids the problems that inevitably arise when prescriptive regulations become outdated because of rapidly changing and increasingly complex operating conditions and procedures, and (2) it puts responsibility where action can be taken: at the company or operator level.⁶³

4.9 INVESTMENT GUARANTEES: STABILIZATION

A challenge to the design of any legal and fiscal regime for oil, gas, or mining is created by the combination of unknowns at the time the contract is signed and the volatility of markets for resources once extracted. “Changed circumstances” is a familiar doctrine in international law (*rebus sic stantibus*), but it has greater than usual force in the EI sector when prices may rise or fall with precipitous speed, magnitude, and duration, with disruptive consequences for all parties. Governments have the legal capacity to introduce new laws or revise the terms of existing contracts in response to these and other changed circumstances. Their sovereign power to do so is not in question. Once an investor has taken the initial risk and proved that a commercial deposit exists, the allocation of risks in the original bargain shifts from the capital-hungry state to the investor. The resulting political risk of unilateral alteration of acquired rights has encouraged the industry practice of using stabilization instruments such as clauses in contracts with host governments or separate stability agreements.

Stabilization instruments take many forms, but the idea is often criticized because it appears to invite states receiving investment to constrain key sovereign rights. The MMDA section 13.2, Tax Stabilization Clause, cautions the following:

“Stabilization Clauses are very controversial, even within the MMDA Working Group. Neither this generic clause nor the example clauses provided reflect the opinions of the Working Group” (IBA 2011, 89). Their target is not to stabilize markets but to limit the consequences of a *political* response to market changes (such as a very large rise in prices) or legislative actions due to other circumstances (such as a realignment of domestic politics affecting foreign investment). The principal beneficiary of stabilization is the foreign investor, but the state too can benefit by acquiring a competitive advantage over a neighbor by including such an incentive in a bid to attract capital from investors that typically have a number of options in their portfolios.

Forms of stabilization

The majority of stabilization instruments take a contractual form. The practice of including clauses in mining and hydrocarbons agreements with host states is widespread but not universal. The four main kinds of stabilization clause are described in box 4.10.⁶⁴ It is important to note that hybrids are common and that more than one form of stabilization clause may exist in a single contract, representing a kind of “belt-and-braces” approach on the part of the investor. In practice, the names of particular types of clause may well vary from one actual contract to another, underlining that any classification is for guidance purposes only. However, the essential idea is the same: the parties to the agreement seek to provide contractual assurance that the investment terms at its core will remain the same over the life of the agreement.

CARVE-OUTS. It is common for a state to insist on a narrowing of the scope of a stabilization clause, so that, for example, matters of health, safety, and environmental protection are sometimes expressly excluded from its scope.

STABILITY AGREEMENTS. Some countries offer distinct stability agreements. Chile, for example, enters into such agreements for mining investments made under a concession. Taxes specified in the agreement, applicable to the investment, as well as customs and foreign exchange provisions for the payment of costs and the repatriation of profits and capital, are frozen for terms of up to 20 years. The agency is the Foreign Investment Committee. Ghana is another example. Under its Minerals and Mining Act 2006, section 48, a stability agreement may be granted for the mining lease holder’s interest. This has a term of 15 years and protects the holder of a lease from being adversely affected by future changes in

Box 4.10 The Four Main Forms of Stabilization Clause

Freezing

In its strictest form, a freezing clause prohibits the host state from changing its laws and handcuffs the state so that it cannot exercise its sovereign rights to change its law with respect to the particular contract containing the stabilization clause. It may also incorporate the country's laws in their entirety at the time the contract was signed into the particular contract creating a special governing law.

Example: “The Government hereby undertakes and affirms that at no time shall the rights (and the full and peaceful enjoyment thereof) granted by it under Article [X] (Income Taxation), Article [X] (Royalty), and Article [X] (Other Payments to the Government) of this Agreement be derogated from or otherwise prejudiced by any Law or the action or inaction of the Government, or any official thereof, or any other Person whose actions or inactions are subject to the control of the Government. To the extent there is inconsistency between the [Tax Law] as defined in Article [X] (Taxation), the Agreement shall govern” (MMDA sect. 13.2 in IBA 2011).

Intangibility

This attempts to freeze the contract rather than the law. It prohibits unilateral changes to the investment agreement and requires the consent of both parties before any changes may be made.

Example: “The government will not without the agreement of the contractor exercise its legislative authority to amend or modify the provisions of this Agreement and will not take or permit any of its political subdivisions, agencies and instrumentalities to take any administrative or other action to prevent or hinder the Contractor from enjoying the rights accorded to it hereunder” (Model PSC, Mozambique 2001, art. 30.7(d) and (e)).

Rebalancing

These clauses require a renegotiation of contract terms in the event of specified circumstances occurring. If the host state adopts a measure subsequent to the conclusion of the contract (a triggering event) that is likely to

have damaging consequences to the economic benefits of the original bargain for one or both of the parties, a rebalancing has to take place. Petroleum contracts differ in their treatment of how that balancing will be effected. These clauses do not seek to prevent a change in the law applicable to the contract by the host state. Rather, they seek to address the economic impact of such a change in the original bargain and establish a framework to renegotiate or rebalance that bargain.

Example: “(a) In the event of changes in any Law, the provisions of which are more favorable to the Company, then such provisions shall apply to the Company if Company so requests.

(b) In the event there occurs any change in the legislation of the Government or local legislation (including provisions relating to imposts, duties, fees, charges, penalties, and tax related legislation) after the date of this Agreement, and if in the Company's sole and good faith opinion such change would have the effect of divesting, decreasing, or in any way limiting any rights or benefits accruing to the Company under this Agreement or under current legislation, then the Parties shall, in good faith, negotiate to modify this Agreement so as to restore the Company's economic rights and benefits to a level equivalent to what they would have been if such change had not occurred” (MMDA sect. 13.2 in IBA 2011).

Allocation of Burden

The burden arising from a change in laws applicable to the contract is shifted by means of this clause from the investor to the state company. No balancing is implied and no amendment of the contract is required. It is the national company that is required to take remedial action under the contract, such as paying an additional tax or royalty.

Example: “The GOVERNMENT shall indemnify each CONTRACTOR entity on demand against any liability to pay any taxes, duties, levies, charges, impositions or withholdings assessed or imposed on such entity which relate to any of the exemptions granted by the GOVERNMENT under this Article 31.1” (Model PSC, Kurdistan 2007) (see Cameron 2010, 80).

laws that result in heavier financial burdens. It has to be ratified by the parliament. If a development agreement is entered into, under section 49 of the same act, it may contain stability terms. This kind of agreement is also subject to ratification by parliament. In the hydrocarbons sector, both Timor-Leste and Nigeria have provided dedicated instruments for stabilization prior to investments being made, mostly in the natural gas sector. Some Latin American countries have provided for stabilization agreements that cover various kinds of investment including mining, oil and gas investments.

ASYMMETRY. A dimension of these clauses that governments may want to consider carefully before agreeing to them is their occasional asymmetry.

The fiscal stability clauses in many mining and petroleum agreements are asymmetric: protecting the contractor from adverse changes to the fiscal terms but passing on benefits of reductions in tax rates or other changes beneficial to the contractor, such as more liberal rules for cost recovery (Daniel and Sunley 2010, 417).

For Daniel and Sunley the asymmetry is a “one-way bet” that offers both protection and benefits to the investor. They provide an illustration of how this stability would operate by reference to the Kurdistan Model Production Sharing Contract of 2007. In addition to a right to negotiate an offsetting change if a package of government-initiated changes leaves the investor in an adverse economic position, this “would allow the contractor to request the benefit of any future changes. In effect the contractor could cherry pick a balanced tax reform package combining, say, lower tax rates with less favorable capital recovery rules” (Daniel and Sunley 2010, 422–23.) In other words, a fiscal stability clause can provide both a positive and a negative form of protection with respect to future state actions, with the positive element working to ensure that any available benefits occurring after the original agreement are brought into that contract to benefit the investor. This contrasts with the kind of fiscal stability offered by Timor-Leste in its tax stability agreement which, Daniel and Sunley (418) note, is an example of a “two-way bet”: it “fixes tax parameters in both directions—the contractor does not benefit from tax reductions.”

4.10 CONTRACT NEGOTIATIONS

As section 4.6 “Contracts and Licenses” suggests, contracts and licenses are diverse and sometimes complex. As a result, their negotiation, probably on the basis of a model, will

require considerable expertise across disciplines, involving law, geology, engineering, and economics skills. Before any negotiations start, the government needs to give some thought to at least four features of EI contract negotiations in a modern setting:

1. *Legacy matters.* Negotiations rarely take place in a context that lacks a history of interactions with international companies. The country’s history of dealing with investors, and investors’ track record in dealing with the country, including any deals struck that appear in retrospect to have been made on bad terms for the state, influence any subsequent negotiation.
2. *Extractives differ.* Negotiations on oil exploration or mining exploration and their possible development will differ, sometimes involving complex issues of infrastructure development. If gas development is envisaged, it requires special knowledge of gas pricing, transportation, and marketing.
3. *Capacity limits can be managed.* In the face of capacity shortages, a government usually has no difficulty obtaining offers of outside help. The challenge is to identify offers that come from the best source. *Best* means the ideal fit with the government’s objectives and needs, rather than a rapid response.
4. *Technology helps.* The idea that negotiations always require face-to-face meetings does not fit the context of computers, Internet connections, and video conferencing. This influences the tasks of preparation, research, and reduces the number of on-site meetings of all of the parties.

In general, negotiating procedures tend to be complex and lengthy, covering potential investments for long-term projects in conditions of considerable uncertainty. Negotiations have different phases, from formulating strategic policies and regulatory frameworks to preparing for and carrying out negotiations for particular projects and monitoring and enforcing contracts. They typically address the sharing of economic rent between the investor and the host government and have significant economic development, environmental and social impacts. The government must carry out due diligence on its potential partners in what may be a long-term relationship.

Negotiations require special skills, particularly a grasp of both legal and economic issues, such as fiscal modeling, to explore the impacts of various fiscal options prior to making a choice. A major problem for most countries is the lack of capacity (specialized know-how, technical expertise, and

negotiating experience) to negotiate the necessary agreements with well-resourced and experienced foreign investors, suppliers, and contractors. This is often due partly to difficulties in attracting or retaining qualified and experienced staff as a result of salary differentials with the private sector and a high staff turnover. As more countries make commercially viable discoveries, the demand for negotiating capacity (and support from third parties outside the country) increases. The abundance of suppliers of such skills among development organizations goes some way toward mitigating this problem.⁶⁵

Given the complexity of the issues involved and their consequences in terms of revenue and other benefits, governments should place a premium on the development of internal negotiation capacity and access to knowledgeable external expertise. This is especially important given the considerable information, skills, and resources generally available to those on the other side of the negotiating table.

Two helpful tools are the availability of model contracts to the government side (see section 4.6) and the potential role of a state resource company. Such companies can “sustain a cadre of trained personnel with skills that can be deployed effectively in negotiations. By comparison, sector ministries are often ill-equipped to contend with the challenges of contract negotiations” (Land 2009, 170).

Governance issues can play a role in negotiations. In some cases, governments reject or not seek support in negotiations despite internal capacity shortcomings. The reasons may be a lack of coordination, a lack of resources, distrust, internal disagreements, or corruption. One study of ministry behavior noted, “Some ministries may want ownership over particular deals, and may therefore be reluctant to coordinate and collaborate with other ministries” (CCSI 2012, 9). Alternatively, the authority of a particular ministry within government or of a state resources company to manage the negotiations and approve the final terms may well be uncertain. Government officials may also seek quick, short-term solutions for political reasons. Where corruption is prevalent, officials prefer to retain maximum discretionary authority throughout the decision-making process. In such contexts, it is useful for the other organs of government such as parliament (and also civil society) to be aware of contract negotiation issues to function more effectively as a source of checks and balances in the domestic system. Governments may then be held accountable for the deals they have negotiated.

Renegotiation is a highly sensitive topic. Gas sales contracts typically contain price review clauses, but it is rare for a hydrocarbons or mining contract to envisage a renegotiation of the basic terms in a comparable way.

Inevitably, in a long-term relationship one of the parties may come to view the terms of the original contract as unfair, poorly drafted, or inappropriate to changed circumstances. For the government, an insistence on renegotiation (however justified it may see this action) will usually carry a high reputational cost and risk triggering international arbitration. Irrespective of any short-term benefits in a particular case, the impact on future investment may be negative, and if formal arbitration has resulted, the outcome in terms of legal costs, time spent, and reputational damage can be significant. A much more common approach in such circumstances is to seek discussions on an amicable basis with the investors, seeking a resolution away from the glare of publicity and minimizing its adversarial character. The investor too may seek to revisit its contractual obligations, perhaps seeking to reduce its work program in the light of unfavorable early results.

Sometimes it has been claimed that renegotiations have taken place under duress.⁶⁶ The expression *forced renegotiations* has been used in media descriptions of investor-state negotiations in Latin America and some other regions. It underlines the importance of following good practice in any such negotiations. If duress has occurred, the outcomes are likely to be deemed null and void.

In the *Aminoil* case,⁶⁷ the investor argued that it was threatened with a shutdown of its operations if it failed to agree to new terms offered by the Kuwaiti government after a significant oil price increase. The investor also argued that obtaining its consent in such circumstances rendered any decision invalid because it was obtained under duress. The presiding tribunal did not accept this claim.⁶⁸ It set out four principles that should be followed if the negotiations were to be deemed fair: they had to be conducted in good faith and there had to be sustained negotiations over a period appropriate to the circumstances, an awareness of the interests of the other party, and a persevering quest for an acceptable compromise.⁶⁹ If the investor was under financial pressure, this did not necessarily mean that an agreement reached between the parties was made under duress. There had to be some evidence of abuse by the other contracting party.

4.11 DISPUTES: ANTICIPATING AND MANAGING THEM

The likelihood of a dispute emerging at some point in a long-term EI project is high, and can even occur prior to any production of the deposit. With respect to oil and gas, a dispute may arise between the host government and/or its

state resources company and the investor, among the parties to a joint venture, or between the host state and a neighboring state over a range of issues, such as ownership of land or seabed or the use of infrastructure such as pipelines. In the mining sector, it typically arises between the state and the title holder or applicant, between competing miners, or between a title holder or applicant and noncompeting parties. The range of issues may include revocation or suspension of a license, perhaps due to alleged lack of compliance with performance obligations; a dispute over environmental or social obligations during the development phase; or interpretation of issues relating to mine closure. For a foreign investor, a key question is whether such disputes are to be referred to the country's normal courts and tribunals or a separate nondomestic agency such as an international tribunal.

Anticipation of this possibility of a dispute is essential. The appropriate time to prepare for it is during initial contract negotiations, prior to the commencement of EI operations. Every investor is aware of this need for preparation, partly because disputes can arise not only with the host state but also among the investors themselves, such as between parties to joint venture contracts as much as between the parties to a host-government agreement. It is important that the host state understands this risk too and identifies the responses it would be most comfortable with, not least because of the high public profile likely to attend on any such dispute with investors.

Prevention is the best cure. The downsides of a formal dispute (in terms of cost, time, reputation, and potential damage to the project) are usually greater than any benefits to the parties. Management of differences is therefore a highly desirable goal, and procedures should be put in place to try to resolve disputes at an early stage. Although precise evidence is lacking, due to confidentiality, it appears that many disagreements in oil, gas, and mining are settled prior to the triggering of formal legal processes, or if that occurs, they may be settled before they reach the stage of an arbitral award. This reflects the importance of both commercial realities and the need to preserve the long-term relationships between investors and host states.

There are commonly used ways for parties to settle their differences amicably and speedily (such as mediation, conciliation, or cooling-off periods). They can also include the use of stepped or multitiered approaches in the contract itself. In this way, parties are required to submit disputes to an increasingly rigorous and formal series of dispute resolution methods. This allows the parties to encourage and allow opportunities for an agreed settlement, either through

mediation or (in the AIPN models) negotiation by senior executives on each side. It means that the parties retain control over their own destinies in the initial stages and also ensures that if these relatively informal efforts at a settlement fail, the next step will be one that allows a third party to render a binding decision. If a stepped approach is adopted, it is important that the transition from one step to another is made clear (to avoid challenges by one of the parties). The increasingly wide adoption of multitiered dispute resolution procedures makes them part of good practice in contract design.⁷⁰

Failing these dispute prevention methods, one or both parties may choose to pursue formal and binding legal proceedings. This may require the dispute to be heard by the local courts, but often in the EI sector the parties will have agreed that in the event of a dispute they will submit their disputes to international arbitration: a form of private justice.⁷¹ Many governments would prefer to see their domestic courts settle disputes, but international arbitration will be keenly sought by most foreign investors to limit actual or perceived risk from local court processes; it is a concession many states have been prepared to make. The possibility of lengthy delays, open-ended proceedings, corruption, or lack of due process in local courts comprise some of the perceived risks by investors. Arbitration is unlikely to be quick, but once a decision is made, it provides finality about the dispute. Appeal is possible only in very limited circumstances and not on errors of law or fact.

Apart from international arbitration, there is another dispute settlement route for issues that have a technical, scientific, or accounting character: expert determination. The central idea is that a third-party expert should be appointed to evaluate the dispute. For example, a dispute concerning the specifications of a particular product used during operations could be resolved by an expert determination without having to commence arbitral proceedings.

There are important differences between determination by an expert and arbitration: there are usually no statutory provisions governing the former in contrast to the latter, and the legal requirements of an arbitration may be absent, with the parties not necessarily being required to present their case or to submit evidence. Whereas the courts may be used to assist in an arbitral process, by appointing arbitrators if necessary, by granting interim injunctions, and above all by enforcing awards (that is, like a court judgment) of the tribunal, there is no comparable role for the courts in the process of expert determination. Enforcement of the expert's determination is a matter left to the contract itself, if it is enforceable at all. On the international level, this is

even more problematic; since it is not an arbitral award, it cannot be enforced under the Convention on the Recognition and Enforcement of Foreign Arbitral Awards (New York Convention).⁷² Challenges to an expert's role may be made on limited grounds such as fraud or collusion or that the expert had departed to a material extent from the instructions given.

Whatever method is used, the dispute settlement mechanisms will be set out in the contract and will constitute a very important assurance to the investor that the bargain struck in the contract will be secure over time. A well-drafted dispute resolution clause will, in the event of breach, provide a means for seeking compensation through an arbitral award enforceable against the state hosting the investment. Under the New York Convention, an arbitral award is enforceable through the local courts of 146 states.

Investment treaties

In making preparations for potential disputes, it is crucial to note that investors may bring a legal claim for damages against a state based on a legal instrument existing outside

of the contract: a bilateral investment treaty (BIT) or a multilateral investment agreement (MIA), of which there are now more than 3,000 in existence. These treaties are concluded between states for the reciprocal protection and promotion of investment by investors from either state in the territory of the other state; they are part of international law. Among the rights they confer is the right to initiate arbitration if the host state or its agencies have taken measures alleged to be inconsistent with the treaty obligations. The treaties generally cover access to arbitration, the rules applicable to the arbitration, and the enforcement of arbitral awards.

BITs and more recently free trade agreements have become very popular as a means of promoting and protecting foreign direct investment in the globalized economy (Sornarajah 2010). The typical content comprises substantive provisions (see the list in box 4.11) and mechanisms for dispute settlement. All of these treaties will contain a provision that protects foreign investors from expropriations without compensation. To date, tribunals have held, for example, that a government expropriated an investor's property when it revoked its license to operate, and that it

Box 4.11 Claims under Bilateral Investment Treaties (BITs)

The substantive rights protected under a BIT usually include the following:

- Fair and equitable treatment
- National treatment
- Most favored nation treatment
- Full protection and security
- Protection from expropriation
- Umbrella clauses

Many claims have included a reference to the *fair and equitable* treatment standard. Some of these concern the review of administrative decisions and the weight given to legitimate expectations and due process. In *Occidental v. Ecuador* (2004) the tribunal held that the stability of the legal and business framework is an essential element of fair and equitable treatment; this view was also supported in the *CME v. Argentina* case (2005). Other cases support the view that in certain circumstances the standard has limited application only. There are other cases concerning the application of this standard that involve the treatment of investors

by the courts of the host state (denial of justice, for example).

The requirement of *national treatment* is a different substantive right and aims to provide a level playing field for foreign investors at least after the investment has been made. Typically, the foreign investor is given treatment that is no less favorable than that accorded by the host state to its own investors.

Another requirement commonly found in BITs is that investments of nationals of either contracting party shall enjoy *full protection and security* in the territory of the other contracting party. This is typically concerned with failures of the state to protect the investor's property from actual damage caused by state officials or by the actions of others, where the state has failed to carry out due diligence.

An *umbrella clause* is a catch-all provision to cover every kind of investment obligation of the host state. The clause brings obligations or commitments that the host state has entered into in relation to foreign investment under the protective umbrella of the BIT, and can elevate contract claims to treaty claims.

violated its “full protection and security” obligation because it failed to protect the investment from losses and disruptions caused by local citizens. Clearly, such treaties limit sovereignty; a question commonly raised is whether the system of justice based on these treaties and resulting awards is as fair to sovereign states as it appears to be to investors.⁷³ Whatever the merits of the arguments for and against them, it cannot be overstressed that a host government must enter into these commitments only after serious and considered assessment of their potential benefits and risks.

THE ROLE OF MIAs. The best known of these are the North American Free Trade Agreement (NAFTA), the Energy Charter Treaty (ECT), and the ASEAN Investment Agreement. In each case, investment disputes have arisen under their provisions. NAFTA is concerned with trade generally, and the ASEAN Agreement is concerned with any legal disputes that may arise directly out of an investment. By contrast, the ECT is concerned with energy only. It was opened for signature in December 1994 and was ratified in 1998. Its aim is to establish “a legal framework in order to promote long-term co-operation in the energy field” (article 2). The definition of “investment” is comprehensive and lists specific asset types.

In recent years, the number of claims arising under the ECT has overtaken those registered under NAFTA. This is largely due to claims against European governments for changes made to their subsidy regimes for renewable energy resources. For EI matters, the ECT has been used for disputes mainly involving East European and Central Asian states. Its provisions on the settlement of any investment disputes that may arise provide for the use of compulsory arbitration against governments at the option of foreign investors for alleged breaches of the investment agreements, without the need to first exhaust local remedies. Moreover, binding state-to-state arbitration is provided for in article 27. This involves the use of an ad hoc tribunal for disputes between states concerning the application or interpretation of the treaty. It is not restricted to the resolution of disputes arising from investment issues. The dispute settlement procedures may in fact be diverse, including international arbitration, and provide for final and binding solutions to many disputes. The rules and procedures governing transit disputes in particular have been enhanced since ratification to minimize disruption when a dispute is taking place. A key provision lies in article 26, which provides various options to investors to take host governments to international arbitration in the event of an alleged breach of the treaty’s

investment provisions.⁷⁴ Each state that is party to the ECT is obliged to provide for effective enforcement of arbitral awards in its country. There are three ways of bringing an action:

1. The International Centre for the Settlement of Investment Disputes (ICSID),
2. A sole arbitrator or an ad hoc tribunal established under the UN Commission on International Trade Law, or
3. An application to the Arbitration Institute of the Stockholm Chamber of Commerce.

Arbitration

Arbitral proceedings are often complex and have become an increasingly common forum for resolving disputes in the petroleum and mining industries throughout the world. Since arbitration is a private mode of dispute settlement in international commerce, in which the rules are agreed by the parties themselves, it is often assumed that it exists independently of the national courts. In fact, there is a global adjudication system in which international investment and other commercial disputes are “resolved by binding and final arbitration, as regulated, however, by national legislation and judiciaries” (Brower, Brower, and Sharpe 2003, 415). It is crucial at all stages (design, proceedings, and settlement) to be aware of this fact of enforcement and the role played by the New York Convention in making awards enforceable through the local courts. The amounts awarded by tribunals can be very large, amounting in some cases to billions of dollars. An investor can try to enforce a ruling in the national courts of a third state where the host state has assets and have them seized or have bank accounts frozen.

If arbitration becomes a reality, it is essential to review the law governing the dispute and the method of arbitration chosen in the contract.

THE ARBITRATION AGREEMENT. The defining feature of arbitration is that it is a form of justice based on the parties’ agreement. The fundamental document for the jurisdiction of the tribunal is the arbitration agreement, usually the arbitration or dispute settlement clause in the hydrocarbons or mining license or contract. This will set forth a description of the disputes that will be subject to arbitration, the scope of a tribunal’s authority, applicable law, language, and location of the arbitration, whether it will be administered by an institution such as ICSID or the International Chamber of Commerce (ICC), and may include rules and procedures to be followed.

The *lex arbitri* or law of the place where the arbitration is held (sometime called the seat) will govern the procedures of the arbitration. This includes the admissibility of evidence, security for costs, judgment and confidentiality orders, appeal ability, and the enforceability of an award against assets in New York Convention countries. From a practical point of view, it is best to choose the governing law of a country in which there is a probability that the legal profession and judges have some knowledge of the law relating to oil, gas, and mining.

INSTITUTIONAL OR AD HOC ARBITRATION? The parties may choose to have the arbitration conducted through an international arbitral institution or on an ad hoc basis. These are sometimes called administered and nonadministered arbitration, respectively. An institutional form of arbitration sets timetables and procedures to be followed when establishing the arbitral tribunal for the conduct of the arbitration. An ad hoc arbitration is conducted under rules agreed by the parties or set by the arbitration tribunal. There are a growing number of options in institutional arbitration. The most popular forums for arbitral disputes are institutions such as the ICSID, the ICC, and the London Court of International Arbitration (Brower, Brower, and Sharpe 2003; Paulsson 1995). There are also a number of regional arbitration centers that are available to assist in resolving disputes, such as the Singapore International Arbitration Centre and the Arbitration Centre of the Stockholm Chamber of Commerce.

The advantages of an institutional approach are usually thought to include the following: it provides a wealth of arbitral experience, including that of the arbitrators themselves; it ensures that the arbitral tribunal is appointed and deals with any challenges to arbitrators; it has rules that are a known quantity; it sometimes has sufficient prestige to persuade a reluctant party to arbitrate and comply with the award; and it can be particularly useful when parties have different levels of sophistication or different languages and cultures. In an ad hoc arbitration, parties may designate the rules in their contract or they may adopt a preexisting set of rules, such as the rules of the United Nations Commission on International Trade Law (UNCITRAL).⁷⁵ They are designed to provide a comprehensive set of procedural rules on which the parties may agree for the conduct of arbitrations arising out of their commercial relationships. This freedom of the parties to customize the arbitration is thought to be the main advantage of the ad hoc approach, inviting comparisons between a tailor-made suit and one bought off the rack.

4.12 SUMMARY

The first chevron in the EI Value Chain contains two key elements that shape the subject matter of chapter 4: property rights and the contract. In almost all countries, extractive resources when in the ground are owned by the state, and exploration and development of those resources is carried out under contract or license by corporate entities, usually foreign ones, often with the state as a partner. Decisions on the award of rights follow from the kind of property rights and contract/license regime they establish. Together with the fiscal terms, discussed in chapter 6, they establish what we may call a *first pillar of governance* for the extractives sector. It plays a crucial role in conferring legitimacy on the terms and conditions on which investments are made. If flawed, the long-term stability of these arrangements is unlikely to prove enduring.

Finding 1: Knowledge of the fundamentals of extractive industry legal and regulatory frameworks is readily available. Supply is abundant. Much of it has been assembled in the *Sourcebook*. Understanding the form and content of basic oil, gas, and mining laws, contracts and licenses, regulations, and methods of award is facilitated by the large number of well-established model forms available to governments, legislatures, and civil society.

Finding 2: Application of this knowledge is difficult because of four distinct sources of dynamism.

1. First, and most obviously, every country context is unique. Each contains specific features of a social, cultural, political, geological, and economic nature that require some adaptation of this body of knowledge before it can become operational. As a result, there can be no such thing as a “model” for a government to follow, lifted from another country context. However, this chapter shows that there are different ways of combining established legal forms and instruments. The question for the country becomes, *What is the right combination of established instruments for our particular context at this time?*
2. Second, legacy matters. Only in very rare cases will an extractives policy be developed from a blank slate. For oil and mining (rather than gas), it will have to absorb or build on a legacy of policy, laws, and contracts, usually developed when less knowledge was available and in less propitious circumstances. In East Africa, for example, the legislation developed when there was little oil or gas discovered has been found to be incomplete when addressing the complexities of hydrocarbon production from very large discoveries. The question becomes, *Given this*

living legacy, how do new proposals manage such constraints and limit their impact?

3. Third, adaptation will be required. This is true even when a new, cutting-edge regime is in place. As knowledge of the links between the extractives and wider economic and social transformation grow, the blend of different laws, contracts, other instruments, as well as some of their contents, has to be modified to reflect this. A failure to do so carries the risk that the overall regime will lose its legitimacy and long-term credibility. Currently, local benefit, change of control or transfer of interests, and infrastructure linkages are areas where established approaches are being modified to better achieve development goals. *Are formal mechanisms in place to allow future administrations to make adaptations smoothly and quickly, and is the capacity there to achieve this?*
4. Fourth, looking ahead, any choice made with respect to a combination of legal and regulatory instruments will need to be adjusted as knowledge grows and capacity increases. The initial choice has to be made with this flexibility in mind, or it must include ways to adapt to a variety of future circumstances. *What mechanisms can we put in place to allow for flexibility without creating uncertainty for future investment flows?*

Finding 3: Policies are becoming increasingly differentiated among the segments of the extractives sector. They recognize the distinct challenges in each segment. This is evident in the use of gas policies or master plans, greater appreciation of the different approaches to the award of rights that are common in the mining and hydrocarbons industries, and the need to provide overarching justifications for development policies within the extractives sector. An element that affects the legal and regulatory framework in all extractives sectors is the need to sharpen instruments aimed at securing benefits from wider developmental impacts on their economies, such as local benefit. Publication of policy documents online as in the *Sourcebook* can accelerate this process.

Finding 4: Countries have progressively better defined the nature of subsoil rights granted and the scope of each stage of the entire upstream process, especially in hydrocarbons. The aim has been to facilitate the administration of subsoil rights, to limit interpretation problems and possible areas of dispute, and to integrate the experience the countries have accumulated from implementing previous licenses or contracts. The increasing transparency of contracts in oil, gas, and mining sectors is probably contributing to this process of improvement in the detail of contract design.

4.13 TAKING ACTION: RECOMMENDATIONS AND TOOLS

Legal and regulatory framework

In designing its legal and regulatory framework, each country should take into account general factors such as the mineral or crude oil price; the existence of small, medium, and large deposits or fields; whether they are on-land or offshore or both; whether they are mature and/or frontier areas; and whether they are of a conventional or unconventional nature, for example. Then, if it seeks to achieve an appropriate level of hydrocarbons activity in each of these categories, it will have to develop the conditions that fit its unique combination of circumstances. If a country has only one set of rules for all categories, it will probably succeed in developing only one category of resources or none at all.

Method of award

Any policy on allocation of rights has to be flexible and able to respond to changing geological conditions and to changing global market conditions, especially the expected level and trend of future oil, gas, and mineral prices. These factors are beyond the control of governments and will play a crucial role in determining investors' strategies and risk assessments. Selection of a method has to reflect these wider contextual variables.

There is an element of discretion in most methods of allocation of rights to extractives. Its scope has to be considered in relation to both the need for (and benefits of) transparency and its value in a government's local benefit policy or the promotion of environmental and strategic objectives. These play a key role in conferring legitimacy on the overall regime among the wider public. For an award of rights to have long-term stability there has to be a perception that the award has the potential to benefit the public welfare.

Gas extraction

Any petroleum policy has to contain specific provisions on gas, distinguishing between associated and nonassociated sources. This should also address unconventional gas if prospective resources may exist in the country. The policy should include incentives to the private sector to develop gas fields, taking into account the higher costs of doing so, the longer time required to assess its economic viability, and the varying sizes of fields.

An upstream policy for gas is insufficient to promote gas resources. It has to be complemented by a downstream gas policy consistent with the goals given to the upstream policy.

Policy has to be tailored to the respective gas resource potential and the expected gas demand of the country, with the aim of fostering gas investments. As a result, the legal framework should state the priorities for gas uses between domestic and export uses and include incentives such as longer appraisal periods and production periods than for oil; special fiscal incentives must be included for promoting gas activities and principles for gas pricing; mandatory joint development of gas discoveries between several licensee companies must be addressed; and provisions for unconventional gas must be included.

Knowledge tools

The kind of technical support available to governments for planning, negotiating, implementing, and monitoring investments in the extractives sector is being enhanced by the use of Internet-based tools such as the Negotiation Support Portal, designed by Columbia Center on Sustainable Investment (CCSI) and aimed at host governments (www.NegotiationSupport.org). This sort of tool is likely to evolve into an invaluable source of data, tools, and resources to tackle many of the problems discussed in this chapter. Further, for examples of petroleum and mineral contracts available in the public domain, there is Resourcecontracts.org, a repository developed by CCSI, the Natural Resource Governance Institute (NRGI), and the World Bank. It also provides annotations of the contracts' environmental, fiscal, operational, and social provisions to facilitate comprehension of what are often lengthy and complex documents. There are well over 1,000 contracts from around 90 countries available. In spite of these excellent initiatives, the crucial bottleneck for most governments will probably remain one of securing access to the right combination of information, expertise, and skills.

NOTES

1. Rent seeking can take many forms: offers or solicitations of bribes and illicit payments to or by government officials, fraudulent declarations to the tax authorities, embezzlement of state funds, conflicts of interest of officials who have an ownership stake in companies doing business with the government, inappropriate use of position to influence government decisions, and others. A World Bank (2008, 2) report on the Democratic Republic of Congo noted how, for historical reasons, a culture of rent seeking had developed in the DRC.
2. Of course, they may also do both, with the sector law repeating the more authoritative statement contained in the

constitutional document. For comparative studies of approaches adopted in mining, see Bastida, Warden-Fernandez, and Waelde 2005. For a comparable multi-author study on petroleum law, see Duval et al. 2009.

3. Article 268 of the 1992 Constitution of the Republic of Ghana. <http://www.ghanaweb.com/GhanaHomePage/republic/constitution.php>.

4. Mineral Resources Law of the People's Republic of China, 1986, amended 1996, art. 3, para. 1.

5. Transitional Government of Somalia, Petroleum Law 2007, art. 5.1.

6. Such leases will typically not contain an arbitration clause for the settlement of disputes, in contrast to the petroleum and minerals agreements between investors and states found outside the United States (Hood 2012).

7. 1962 General Assembly Resolution 1803 on Permanent Sovereignty over Natural Resources: GA res. 1803 (XVII), 17 UN GAOR Supp. (no. 17), UN Doc. A/5217 (1962), p. 15. This has been supported by later judgments of the International Court of Justice.

8. For an overview of the literature on maritime delimitation disputes, see Cameron 2006.

9. The Memorandum to the Ghana Minerals and Mining Bill of 2006 provides an explanation of the changing policy priorities that made necessary certain provisions in the new law. The Mozambique Petroleum Law of 2001 states that its adoption is to ensure "greater competitiveness in the petroleum sector and guarantees the protection of rights and assets of participants in Petroleum Operations." Petroleum Law No.3/2001 of 21 February 2001, Preamble. <http://www.eisourcebook.org/cms/files/attachments/other/Mozambique%20Petrol%20Law,%202001.pdf>.

10. Republic of Liberia, National Petroleum Policy November 2012, 7, <http://www.eisourcebook.org/cms/January%202016/Liberia%20National%20Petroleum%20Policy%202012.pdf>.

11. Liberian National Petroleum Policy, 19.

12. Department of Mineral Resources, Pretoria, South Africa, 2010, <https://www.westerncape.gov.za/Text/2004/5/theminingcharter.pdf>. See also Department of Mineral Resources' 2015 *Assessment of the Broad-Based Socio-Economic Empowerment for the South African Mining Industry*, <http://www.dmr.gov.za/mining-charter-assessment-report.html>.

13. See the National Minerals and Mining Policy of Ghana, Accra, November 2014, principle 18, 22.

14. This list is not exhaustive. Detailed intentions under each of these, and other possible policy headings, would normally be provided by implementing legislation, model contracts, contract award procedures, regulation, and fiscal regimes.

15. Transitional Federal Government of Somalia, Petroleum Law of Somalia, Law No XGB/712/08 dated 06/08/2008; and

President's Office Ref JS/XM/182/06/2008, August 7, 2008. *Sourcebook* reference, <http://www.eisourcebook.org/cms/Jan%202014/Somalia%20Petroleum%20Law%202007.pdf>.

16. In Canada, the federal government retains authority over income taxation while royalties are a provincial responsibility.

17. For an overview of the literature on maritime delimitation disputes, see Cameron 2006.

18. Even in the Middle East, several companies have engaged private sector participants: for example, in Persian Gulf states such as the United Arab Emirates or Qatar. The rationale for such participation is access to cutting-edge technology and a sharing of technical and financial risks.

19. Economists also refer to the obsolescing bargain as the "time inconsistency problem."

20. This section follows closely the scheme set out in chapter 3 of Duval et al. (2009, 28–29), *International Petroleum Exploration and Exploitation Agreements: Legal, Economic, and Policy Aspects*. This study provides an excellent survey of key issues under these headings. The terms used by Duval et al. are, however, slightly different: fixed content, agreement, and flexible systems are the three categories used there.

21. It should be noted that rules contained in a basic constitution are likely to override any of the above in the event of conflict.

22. The list of special provisions for gas in a petroleum law is based on Le Leuch (2012), and much of this text follows the content of his paper.

23. Associated gas will usually mean gas that is produced in association with oil but in a project that is primarily focused on oil production. Nonassociated gas usually refers to gas in fields or reservoirs that contain mostly gas reserves, even if associated liquids such as condensate are present as well.

24. This was evident among the "transition" countries examined in the World Bank Group Mining Department report *The Potential for Mining Investment in Transition Economy Countries of East and Central Asia* (Clark et al. 2003).

25. The ECOWAS Directive on the Harmonization of Guiding Principles and Policies in the Mining Sector. 2009. Abuja, Nigeria. ECOWAS is a group of 15 West African states. <http://documentation.ecowas.int/download/en/publications/Ecowas%20Directive%20and%20policies%20in%20the%20minning%20sector.pdf>.

26. Minerals and Mining Act 2006 Act no. 703, section 4(1).

27. For an overview of the early years of the industry in its U.S. setting, see Sakmar 2011.

28. In terms of geology and exploration, hard rock mining, unlike energy resources (coal and petroleum) extraction, cannot be adequately located through basic geological data; much time and drilling over large areas of land is necessary to find feasible mineral deposits. Petroleum exploration is

considerably more expensive and risky than mineral exploration, particularly when deposits are in offshore waters (Land 1994, 22–23, 99–100). Smaller operations are possible in mining, whereas petroleum production typically requires huge mechanization and capital. The physical properties of petroleum, and the frequent need to divide production in large oil fields, has resulted in more standardized arrangements than compared to mining (Land 1994, 25–32, 102). Regarding economics, petroleum obtains faster and larger returns than minerals, and so the industry is less risk averse than compared with investment in mineral production. The petroleum industry has also been far more profitable than mining (Land 1994, 140–141, 258–264). In petroleum, the government can normally sell the product relatively easily directly to markets, which has traditionally not been the case with minerals (Smith and Wells 1975, 588). The environmental impact of removing the resource is much greater in mining than it is in petroleum (Land 1994, 35). Where petroleum is extracted from the sea, which is often the case, it presents different environmental and social issues than occur with land-based mining. For all of these points, and particularly the impact of technology and recent developments, see the discussion of petroleum and mining in chapter 3 of the *Sourcebook*.

29. And some governments may have contracts with separate companies for the different stages (Barberis 1998, 56).

30. Use of model agreements by educators is common, such as in courses offered by *Sourcebook* partners the Centre for Energy, Petroleum and Mineral Law and Policy and the Columbia Centre for Sustainable Investment.

31. Rocky Mountain Mineral Law Foundation, "Forms and Model Contracts," Westminster, CO, <https://www.rmmlf.org/~link.aspx?id=69EB538B7FD34BB38F7B7E545A86437F&z=z> or the models developed by the Association of International Petroleum Negotiators, <http://www.aipn.org>.

32. AIPN model agreements are available only to its members, but are extensively used in contract negotiations by company negotiators and law firms. More information is available at the website, <http://www.aipn.com>.

33. *Booking* of reserves refers to adding proven reserves of oil and gas to the balance sheet of the company. The reporting could possibly be net of any royalty paid in kind.

34. In the petroleum sector, with few exceptions, the NRC participates in an unincorporated joint venture. In the mining sector, the NRC participates through share ownership in a jointly owned corporation. The unincorporated joint venture is prevalent in petroleum for operational reasons (it offers greater flexibility with respect to transfers of ownership and conduct of operations on an individual or sole-risk basis) and because multiple investor interests are common. Mining operations, in contrast, may involve only one or two investors, which favors an incorporated approach.

35. Law No. 21/2014 entered into force on August 18, 2014.
36. This is called the investor's *production entitlement share*.
37. Iranian RSAs provide for this under the so-called buy-back clause (Nahkle 2010). There are also *pure service contracts*, which are no longer widely used but under which the contractor is paid a fee (usually tied to production) for his services. No element of exploration risk is involved in such agreements.
38. This includes countries such as Mexico and selected countries in the Middle East.
39. For a comprehensive review of the subject in this section, see Duval et al. 2009. The contract variations that can be found between oil and gas, on the one hand, and mining, on the other, are very minor and not important for the level of discussion in this section.
40. Essential infrastructure facilities in the EI sector typically include pipelines, terminals, roads, railways, and/or processing or smelting facilities.
41. Both the good practice note and brief are available at CSMI (2010). <http://www.eisourcebook.org/cms/files/Good%20Practice%20Note%20for%20Granting%20Mineral%20Rights%20%20-%202012%20Oct%209%20v2.pdf>.
42. There are several versions of this model JOA, the most recent dating back to 2012. Its predecessor, the 2002 AIPN Model JOA, was arguably the most influential of all versions elaborated by the AIPN to date, but the 2012 version is likely to gain more significance in the future as the users become familiar with it and use it over a longer period.
43. In the words of a leading textbook on the subject, "Any sale, transfer, or assignment of any interest in an [international petroleum agreement], including to an affiliate, is subject to the prior approval of the [host country]" (Duval et al. 2009, 161).
44. For example, in Kenya the model PSA 2015 provides for assignments to third parties as follows: "The Contractor may assign to a person other than an affiliate part or all of its rights and obligations under this contract with the consent of the Minister, which shall not be unreasonably withheld and which shall be granted or refused within thirty (30) days of receipt by the Minister of the notice from the Contractor that it intends to make such an assignment but the Minister may require such an assignee to provide a guarantee for the performance of the obligations of the Contractor" (article 35(2)). https://www.nationaloil.co.ke/pdf/Model_PSC_2015_-_210115.pdf. An earlier version of this model PSA was used in 2011 when Kenya consented to the purchase by Total E&P of participating interests in five offshore blocks.
45. 2007 Jordan Model Production Sharing Agreement, at art. 31, *Barrows Middle East Supplement* 176, attachment II, at 61. See also 2005 Afghanistan Model Production Sharing Agreement for Hydrocarbons Exploration, Development and Production, January 3, 2005, *Barrows Middle East Supplement* 171, attachment VIII, article XXIX, at 48: "29.1 The Contractor may sell, assign, transfer, convey or otherwise dispose of any part or all of its rights or interests under this Agreement to an Affiliated Entity without Government consent, or to any other entity with the prior written consent of the Government, which consent shall not be unreasonably withheld."
46. There are numerous other examples. The Democratic Republic of Congo introduced a hydrocarbons law in 2015 that imposes a 35–45 percent CGT. Kenya issued guidelines for its EI sector in 2015 through its Revenue Authority, imposing a rate of 30 percent for resident firms and 37.5 percent for nonresident firms. Tanzania will levy a CGT of at least \$258 million on the \$1.3 billion asset sale of Ophir Energy's natural gas fields to a unit of Singapore's Temasek Holdings, and a further large sum from Shell's acquisition of BG Group with which Ophir had partnered in exploring the country's gas reserves. Finally, in South Africa a report by the ANC Policy Institute (2012, 34) stated, "In order to discourage mineral right speculators we must introduce an exploration (prospecting) right transfer capital gains tax of 50%, payable if the right is on-sold or the company changes hands before mining commences. This will encourage genuine mineral property developers rather than speculators ('flippers')."
47. Le Leuch (2011) identifies present and desired good or best practice with respect to natural gas exploration and upstream development activities. It pays particular attention to upstream gas policies, licensing, legal, contractual, regulatory oversight requirements, and fiscal regimes.
48. An exclusive license by definition means that no other exploration or exploitation licenses will be granted on the same piece of land.
49. A scoping study is generally an assessment of environmental impact requiring less comprehensiveness than a full EIA.
50. A bankable feasibility study is the final study prior to launching the mining project and is generally subjected to a fully independent audit.
51. The study contains a comprehensive appendix with specific country regulations and reports that permit comparisons to be made.
52. The independent Columbia Center on Sustainable Investment described the pattern of events as follows: "Rio Tinto purchased all of the shares in Riversdale Mining Limited (an Australian company) on the Australian Stock Exchange, for around US\$4 billion. Riversdale Mining Limited had a subsidiary, Riversdale Energy (Mauritius) Limited (a company registered in Mauritius), which owned the local company, Riversdale Mozambique Limitada (RML). RML held the rights to the coal projects in Mozambique. Through its takeover, Rio Tinto indirectly acquired the rights

to the Mozambique coal projects. The value of Riversdale Mining Limited was due to its rights in the Mozambique coal projects. Mozambique is in the process of amending its laws so as to capture transactions such as this in the future” (Mandelbaum and Toledano 2013, scenario 1).

53. These studies generally include an environmental and social impact assessment, an environmental and social management and mitigation plan, and a preliminary mine closure plan that includes financial assurance provisions.

54. For a detailed study of mining agreements, with case studies of Australia, Chile, Indonesia, and Papua New Guinea, see Barberis 1998.

55. The guidelines draw on the *World Bank Mining Toolkit* (Strongman 2010), an internal World Bank document.

56. Deliberations on the island state of Palau were interesting in this respect. Palau had a dependable source of income based on its unique marine ecology and fully recognized that an invitation to explore for petroleum could threaten this source. In the end, exploration went ahead but not without considerable debate and introduction of appropriate safeguards. Costa Rica is another example of a state that hesitated to develop its hydrocarbons reserves. In August 2011 Presidenta Laura Chinchilla issued a three-year moratorium on exploration and exploitation, although this was suspended by the Constitutional Court in early 2012.

57. Overlapping or multiple licensing has been a problem in mining. This problem is largely attributable to the absence of a professionally maintained mining cadastre. In both mining and petroleum, confirmation of licensing authority has been a problem, especially in federal states where subnational authorities have sought to issue licenses where authority to do so resides at the federal level.

58. Setting only expenditure obligations may result in situations where cost overruns satisfy the investor’s obligations, but where work—on which exploration success depends—is shortchanged.

59. States that have permitted access to subsoil rights without a competitive bidding process in the past appear to be shifting practice toward a more competitive process.

60. PRC Decree No. 240, art. 6 and 8.

61. Generally, however, competent authorities are detailed in the relevant legislation.

62. See, for example, ISO 2004.

63. Goal-setting regulations were developed in the United Kingdom and Norway in response to a string of high-profile offshore oil drilling accidents. This approach has been recommended recently as one of several proposed regulatory reform responses to the 2010 Macondo well disaster in the Gulf of Mexico.

64. The content on stabilization in this section is drawn from Cameron 2010.

65. A very useful start in this process is the website resource organized by the Columbia Center for Sustainable Investment, <http://www.negotiationsupport.org/matrix/columbia-center-sustainable-investment>.

66. Some early examples are recounted by Waelde and Kolo (2000, 14–18).

67. *The Government of the State of Kuwait v. American Independent Oil Co.* (Aminoil), Award, 21 ILM 976 (1982) (“Aminoil”).

68. *Aminoil*, para. 40 et seq.

69. *Aminoil* 1014; but see also Berger’s (2003, 1365–66) list of 19 requirements that should govern the parties’ conduct during a contract renegotiation.

70. Their main aims are to minimize or contain the escalation of disputes that arise between the parties; to preserve the parties’ long-term relationship; to maximize cost efficiency; to ensure that the parties can agree on mechanisms for maintaining the performance of ongoing obligations under the contract, pending resolution of their dispute; and to ensure that there is a notification procedure in place, which allows the parties to be fully aware of the timing of each stage in the dispute process and the transition, or escalation, of the dispute from one stage to the next. Without such a notification procedure, this approach would fail to achieve its function of streamlining and setting the pace to the parties’ dispute.

71. This subject is examined in detail in a number of texts. For example, see Cameron (2010) and Duval et al. (2009, chap. 19).

72. Convention on the Recognition and Enforcement of Foreign Arbitral Awards (New York Convention), 330 UNTS 38; 21 UST 2517; 7 ILM 1046 (1968).

73. South Africa became embroiled in an investor-state dispute and as a result it carried out a review to assess the value of BITs for investment in the country. A review of this process can be found in Carim (2013).

74. Rules Concerning the Adoption of Transit Disputes (‘Rules’), adopted December 1998.

75. “UNCITRAL Arbitration Rules” may be found at http://www.uncitral.org/uncitral/en/uncitral_texts/arbitration/1976Arbitration_rules.html.

REFERENCES

- Al-Kasim, F. 2006. *Managing Petroleum Resources*. Oxford, UK: Oxford Institute of Energy Studies.
- ANC (African National Congress) Policy Institute. 2012. *State Intervention in the Minerals Sector: Southern Africa Report*. Johannesburg, South Africa: ANC.
- Barberis, D. 1998. *Negotiating Mining Agreements: Past, Present and Future Trends*. London: Kluwer Law International.

- Bastida, E., J. Warden-Fernandez, and T. Waelde, eds. 2005. *International and Comparative Mineral Law and Policy*. The Hague: Kluwer International.
- Berger, Klaus-Peter. 2003. "Renegotiation and Adaptation of International Investment Contracts: The Role of Contract Drafters and Arbitrators." *Vanderbilt Journal of Transnational Law* 36: 1347–80.
- Brower, C. N., C. H. Brower II, and J. K. Sharpe. 2003. "The Coming Crisis in the Global Adjudication System." *Arbitration International* 19 (4): 415–40. Oxford, UK: Oxford University Press.
- Cameron, P. 2006. "The Rules of Engagement: Developing Cross-Border Petroleum Deposits in the North Sea and the Caribbean." *International and Comparative Law Quarterly* 55: 559–86.
- Cameron, P. 2010. *International Energy Investment Law: The Pursuit of Stability*. Oxford, UK: Oxford University Press.
- Carim, Xavier. 2013. "Lessons from South Africa's BITs Review." New York: Vale Columbia Center on Sustainable International Development. http://ccsi.columbia.edu/files/2013/10/No_109_-_Carim_-_FINAL.pdf.
- CCSI (Columbia Center for Sustainable Investment) and Humboldt-Viadrina School of Governance. 2012. "Background Paper." Second Workshop on Contract Negotiation Support for Developing Host Countries, New York, July 18–19. <http://ccsi.columbia.edu/files/2013/11/backgroundpaper.pdf>.
- Clark, A., K. Naito, N. Stevens, P. van der Veen, and J. Williams. 2003. *The Potential for Mining Investment in Transition Economy Countries of East and Central Asia*. Marquette, WI: Mining Journal Books.
- Collier, P. 2010. *The Plundered Planet*. Oxford, UK: Oxford University Press.
- Cotula, L. 2010. *Investment Contracts and Sustainable Development: How to Make Contracts for Fairer and More Sustainable Natural Resource Investments*. London: International Institute for Environment and Development.
- CSMI (Centre for Sustainability in Mining and Industry, University of Witwatersrand). 2010. "Granting Mineral Rights: A Good Practice Note." Dundee, UK: University of Dundee. <http://www.eisourcebook.org/cms/files/Good%20Practice%20Note%20for%20Granting%20Mineral%20Rights%20-%202012%20Oct%209%20v2.pdf>.
- . 2010. Granting Mineral Rights: Good Practice Note. Dundee, UK: University of Dundee. http://www.eisourcebook.org/cms/files/3pm_-_granting_mining_rights_good_practice_guide_-_brief.pdf.
- Daintith, T. 2006. *Discretion in the Administration of Offshore Oil and Gas: A Comparative Study*. Melbourne, Australia: AMPLA.
- Daniel, P., S. Gupta, T. Mattina, and A. Segura-Ubiergo. 2013. "Extracting Resource Revenues." *Finance and Development* 50 (3): 19–22.
- Daniel, P., and E. Sunley. 2010. "Contractual Assurances of Fiscal Stability." In *The Taxation of Petroleum and Minerals: Principles, Problems, and Practice*, edited by P. Daniel, M. Keen, and C. McPherson. Oxford, UK: Routledge.
- Date-Bah, S., and M. Rahim. 1987. "Promoting Petroleum Exploration and Development: Issues for Government Action." In *Petroleum Resources and Development: Economic, Legal, and Policy Issues for Developing Countries*, edited by K. Khan. London: Belhaven Press.
- Duval, C., H. Le Leuch, A. Pertuzio, and J. Weaver. 2009. *International Petroleum Exploration and Exploitation Agreements*. New York: Barrows.
- Global Witness. 2008. *Assessment of International Monetary Fund and World Bank Group Extractive Industries Transparency Implementation*. Washington, DC: Global Witness.
- Gylfason, T. 2004. "Natural Resources and Economic Growth: From Dependence to Diversification." Discussion paper, Centre for Economic Policy Research, London.
- Haddow, K. 2014. "Should Mineral Rights for Hard-Rock Minerals Be Awarded by Tender?" *Journal of Energy and Natural Resources Law* 32: 335–46.
- Hood, Alisa Newman. 2012. "We Shale Overcome? A US Court Issues an Unsettling Decision on Marcellus Property Rights." *Journal of World Energy Law and Business* 5 (1): 78–81.
- IBA (International Bar Association). 2011. *Model Mine Development Agreement 1.0*. London: IBA. <http://www.eisourcebook.org/cms/Dec%202012/Model%20Mine%20Development%20Agreement.pdf>.
- ISO (International Organization for Standardization). 2004. "Standard 14001 on Environmental Management Systems." (Revised by ISO 14001: 2015.) <http://documentation.ecowas.int/download/en/publications/Ecowas%20Directive%20and%20policies%20in%20the%20minning%20sector.pdf>.
- Kaplan, Z., P. Kyle, C. Shugart, and A. Moody. 2012. *Developing Public-Private Partnerships in Liberia*. Washington, DC: World Bank.

- Kellas, G. 2010. "Natural Gas: Experience and Issues." In *The Taxation of Petroleum and Minerals: Principles, Problems, and Practice*, edited by P. Daniel, M. Keen, and C. McPherson. Oxford, UK: Routledge.
- Land, Bryan. 1994. "The Similarities and Differences between Mining and Petroleum Investment: A Comparison of Industry Characteristics, Company Decisions and Host Government Regulation." LL M thesis, University of Dundee. Republished in *Oil, Gas, and Energy Law* 5 (April 2007).
- . 2009. "Capturing a Fair Share of Fiscal Benefits in the Extractive Industry." *Transnational Corporations* 18 (1). http://unctad.org/en/Docs/diaeiia20097a7_en.pdf.
- Le Leuch, H. 2011. "Natural Gas Guidance Note: Brief." Dundee, UK: University of Dundee. <http://www.eisourcebook.org/documents.php>.
- . 2012. "Good Practice Note on (Upstream) Natural Gas: A Guidance Note to Complement the EI Sourcebook." Dundee, UK: University of Dundee. <http://www.eisourcebook.org/cms/files/Upstream%20Natural%20Gas%20-%20H%20LeLeuch%20-%20updated%20Sept%202012.pdf>.
- Liebethal, A., R. Michelitsch, and E. Tarazona. 2005. *Extractive Industries and Sustainable Development: An Evaluation of the World Bank Group Experience*. A World Bank Study. Washington, DC: World Bank.
- Mandelbaum, Jackie, and Perrine Toledano. 2013. "Capturing the Benefits of a Transfer of Mineral Rights—Scenarios to Capture by Contract/Legislation/Regulation and Issues to Consider." New York: Vale Columbia Center on Sustainable International Development. http://ccsi.columbia.edu/files/2013/11/CGT__note_-_May_18.pdf.
- Mann, H. 2002. *The Right of States to Regulate and International Investment Law*. Geneva: International Institute for Sustainable Development.
- Martin, Tim, and J. Jay Park. 2010. "Global Petroleum Industry Model Contracts Revisited: Higher, Faster, Stronger." *Journal of World Energy Law and Business* 3 (1): 4–43.
- Masanja, Paul. 2013. "Mining, Minerals, Metals and Sustainable Development, Overview of the Mining Policy Framework." Presentation to the African Mining Indaba Conference, Cape Town, South Africa, February 5.
- Miller, K. 1991. "Piper Alpha and the Cullen Report." *Industrial Law Journal* 20 (3): 176–87.
- Moran, T. 1972. "Politics of Economic Nationalism and the Evolution of Concession Agreements." *American Journal of International Law* 66 (4): 216–19.
- Nahkle, C. 2010. "Petroleum Fiscal Regimes: Evolution and Challenges." In *The Taxation of Petroleum and Minerals: Principles, Problems, and Practice*, edited by P. Daniel, M. Keen, and C. McPherson. Oxford, UK: Routledge.
- Naito, K., F. Remy, and J. Williams. 2001. *Review of Legal and Fiscal Frameworks for Exploration and Mining*. Marquette, WI: Mining Journal Books.
- NMPE (Norwegian Ministry of Petroleum and Energy). 2002. *Oil and Gas Activity: Report No 38 to the Storting (2001–2)* [unofficial English translation]. Oslo: NMPE. <https://www.regjeringen.no/contentassets/6e28af195e184f97940858665c2cebaa/sreportno38.pdf>.
- Onorato, W. 1995. "Legislative Frameworks Used to Foster Petroleum Development." Policy Research Working Paper 1420, World Bank, Washington, DC.
- Onorato, W., P. Fox, and J. Strongman. 1998. *World Bank Group Assistance for Mineral Sector Development and Reforming Member Countries*. Washington, DC: World Bank. <http://documents.worldbank.org/curated/en/167701467980453577/World-Bank-Group-assistance-for-minerals-sector-development-and-reform-in-member-countries>.
- Paulsson, J. 1995. "Arbitration without Privity." *Foreign Investment Law Journal* 10 (2): 232–57.
- Rosenblum, Peter, and Susan Maples. 2009. *Contracts Confidential: Ending Secret Deals in the Extractive Industries*. New York: Revenue Watch Institute.
- Sakmar, Susan L. 2011. "The Global Shale Gas Initiative: Will the United States Be the Role Model for the Development of Shale Gas around the World?" School of Law Research Paper 2011-27, University of San Francisco, CA. <http://ssrn.com/abstract=1927593>.
- Schrijver, N. 1997. *Sovereignty over Natural Resources: Balancing Rights and Duties*. Cambridge, UK: Cambridge University Press.
- Smith, David S., and Louis T. Wells. 1975. *Negotiating Third World Mineral Agreements: Promises as Prologue*. Cambridge, MA: Ballinger.
- Sornarajah, M. 2010. *The International Law on Foreign Investment*. Cambridge, UK: Cambridge University Press.
- Southalan, J. 2012. *Mining Law and Policy: International Perspectives*. Annandale, Australia: Federation Press.
- Stanley, M., and E. Mikhaylova. 2011. *Mineral Resource Tenders and Mining Infrastructure Projects Guiding Principles: Case Study—The Aynak Copper Deposit*. Washington, DC: World Bank.
- Strongman, John. 2010. *World Bank Mining Toolkit* [internal circulation only]. Washington, DC: World Bank.

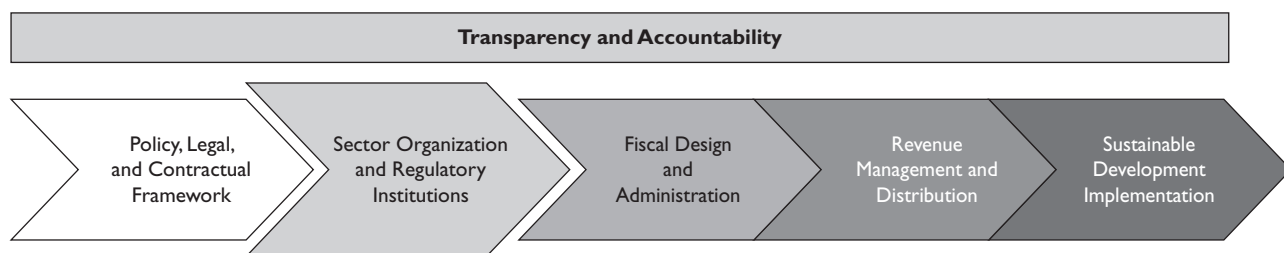
- Tordo, S. 2007. *Fiscal Systems for Hydrocarbons: Design Issues*. Washington, DC: World Bank.
- Tordo, S., D. Johnston, and D. Johnston. 2010. "Petroleum Exploration and Production Rights: Allocation Strategies and Design Issues." Working Paper 179, World Bank, Washington, DC.
- Tordo, S., M. Warner, O. Manzano, and Y. Anouti. 2013. *Local Content Policies in the Oil and Gas Sector*. Washington, DC: World Bank.
- UN (United Nations International Study Group Report on Africa's Mineral Regimes). 2011. *Minerals and Africa's Development*. New York: United Nations. http://www.uneca.org/sites/default/files/publications/mineral_africa_development_report_eng.pdf.
- Waelde, T. W., and A. Kolo. 2000. "Renegotiation and Contract Adaptation in International Investment Projects: Applicable Legal Principles and Industry Practice." *Journal of World Investment and Trade* 1: 5–57.
- Williams, John P. 2005. "Legal Reform in Mining: Past, Present and Future." In *International and Comparative Mineral Law and Policy*, edited by E. Bastista, J. Warden-Fernandez, and T. Waelde. The Hague: Kluwer International.
- World Bank. 2008. *Growth with Governance in the Mining Sector*. Report 43402-ZR. Washington, DC: World Bank.

OTHER RESOURCES

- Bryan, S., and B. Hofmann, eds. 2008. *Transparency and Accountability in Africa's Extractive Industries: The Role of the Legislature*. Washington, DC: National Democratic Institute for International Affairs. http://ndi.org/files/2191_extractive_080807.pdf.
- Bunter, Michael. 2002. *The Promotion and Licensing of Petroleum Prospective Acreage*. The Hague, Netherlands: Kluwer.
- Daintith, T. 2010. *Finders Keepers: How the Law of Capture Shaped the World Oil Industry*. Washington, DC: RFF Press.
- Martin, Tim. 2011. "Dispute Resolution in the International Energy Sector: An Overview." *Journal of World Energy Law and Business* 4: 332–68.
- NRGI (Natural Resource Governance Institute) Reader. 2015. *Contract Transparency: Creating Conditions to Improve Contract Quality*. New York: NRGi. http://www.resourcegovernance.org/sites/default/files/nrgi_Contract-Transparency.pdf.
- Onorato, William, and J. Jay Park. 2001. "World Petroleum Legislation: Frameworks that Foster Oil and Gas Development." *Alberta Law Review* 39: 70–126.
- World Bank, CCSI and NRGi. 2015. www.resourcescontracts.org.

CHAPTER 5

Sector Organization and Regulatory Institutions



5.1 KNOWLEDGE CORE

The second chevron in the EI Value Chain, *sector organization and regulatory institutions*, addresses institutional structures and instruments that enable the transformation of natural resources into wealth. It covers the state's roles as supervisory authority, enforcer, and, in many countries, participant in extractive activities. To those classic roles should be added a new one: the state as facilitator of wide, sustainable development beyond the extractives sector. What are the best roles and responsibilities of government agencies for policy, legislation, and practice to ensure that extractives are developed in the public interest? The involvement of large amounts of private, often foreign capital in oil, gas, and mining activities means that structures and instruments should promote cooperation but also permit understanding by government of the range of relationships between private and state-owned entities.

In recent years, widespread stakeholder discussion about institutional reform, both in countries with mature extractive sectors and in those with emerging extractive activities,

emphasizes that any design requires periodic review considering experience gained and changing circumstances. Yesterday's success can become tomorrow's failure.

Legacies from the past often complicate policy design. Only a very few countries will ever start development from a blank slate; most will inherit structures created earlier and designed with different priorities. As a result, institutional redundancy, overlapping institutional mandates, and poor coordination are common challenges. Some reform, reorganization, or restructuring is almost always required, as is developing a cadre of personnel with specialist skills. Sometimes this transformation leads to dramatic plans to modify existing structures of governance, as has occurred in Brazil and Mexico. Sometimes it involves more modest and focused programs of reform aimed at adapting existing institutions to a more mature stage of resource development, as in Norway and the United Kingdom. Often it is a response to new knowledge and practices, such as those concerning the environment, safety, and transparency.

Specific issues arise in the organization of oil, gas, and mining activities that require special attention. On the basis of the agreements between states and investors (discussed in chapter 4), many other agreements are concluded, covering, for example, joint ventures and subcontracting for services and supplies, for gas sales, and for transportation. The range of agreements goes well beyond the scope of the *Sourcebook*. However, the kind of governance that they establish is often investor led or driven by “industry best practices” developed over time and through experience in many different countries. An example is the widespread use of joint operating agreements in the hydrocarbons sector. Increasingly, the focus of governments on securing wide benefits from oil, gas, and mining makes it necessary for them to understand better these second order agreements and the investor-led governance they establish. Some of the common topics will be examined in the second part of this chapter.

5.2 ORGANIZATION IN THE PUBLIC INTEREST

The challenges of building government institutions are well known. A central theme in much of the literature on development is the importance of capacity building, particularly to equip countries new to oil, gas, or mining development for the specialized tasks of oversight. A wide variety of educational programs has sprung up in centers around the world to meet the need for specialists. Yet if the goal is extractives-led, nationwide development, the kind of knowledge needed by states goes beyond technical information; they need an understanding of the kinds of organizational structures that are typical in the oil, gas, and mining industries and the challenges that such structures present for oversight and partnership. Without sound knowledge of standard approaches to EI governance, and how government interventions can fit into or modify them, government-driven efforts to make the sector work properly to achieve overall social and economic benefits may have limited and disappointing outcomes.

Responding to the challenges of sector organization benefits from knowledge of the ways other governments have designed their sectors for oil, gas, and mining activities. In the hydrocarbons sector, the Norwegian approach has had a strong influence on current thinking.¹ One of its key features is the separation of regulatory and commercial functions. Instead of entrusting both to a state company, this approach places them in separate institutions (table 5.1). A recent example of this from an African country can be found in the regulatory scheme for petroleum activities in Uganda (see table 5.2).

Table 5.1 The Norwegian Approach: Dividing Institutional Governance Tasks and Responsibilities

Task	Responsibility
Policy making	Ministry/parliament
Legal framework	Ministry/parliament
Ownership to resources	Ministry/regulator
Collector of tax or share of production	Ministry/tax regulator/ state-owned company
Regulatory work	Independent regulator or government directorate
Commercial activities	State-owned or private, national companies or international oil companies

Source: Norwegian Petroleum Directorate.

Table 5.2 Ugandan Regulatory and Institutional Framework

Directorate of Petroleum in Ministry of Energy and Mineral Development	Supports policy formulation and licensing of acreage
Petroleum Authority of Uganda	Regulates and monitors compliance of petroleum operations
Uganda National Oil Company Ltd.	Moves the country's commercial interest in production-sharing agreements forward Creates joint ventures across the petroleum value chain

Source: Petroleum Authority of Uganda

In practice, the Norwegian approach has not proved an easy one for many countries to adopt. It argues against a consolidation of domestic sector capacity. That is less attractive when there is a lack of skilled personnel and institutional capacity. (In practice this is a common problem). Where those conditions apply, a consolidated approach may be better able to deliver near-term results. Consolidation may even be a step toward a later separation of functions, although once established a consolidated approach will of course create vested interests that make a later separation difficult. In mining, Botswana and Chile have enjoyed success similar to Norway's in the

development of extractive resources. For reasons that will be discussed, they may offer lessons for optimizing sector organization, but these are well short of a prescriptive template or model for others to follow.

Governance: Who does what?

The roles and responsibilities of different ministries and agencies need to be clearly defined and enforced. This helps to avoid overlapping or conflicting competencies and roles in policy making, rulemaking, and monitoring. At the same time, it prevents gaps in regulatory responsibility. Moreover, if the overall policy objective is to utilize the extractives sector for wider economic development and benefits, it is important to ensure that institutions and agencies are working to this end and not discouraging such development by their actions.

Typically, there are 10 key institutions that share responsibilities in the management of oil, gas, and mining:

1. Executive bodies
2. Legislative bodies
3. Sector ministries
4. Regulatory agencies
5. National resource companies
6. Finance ministry

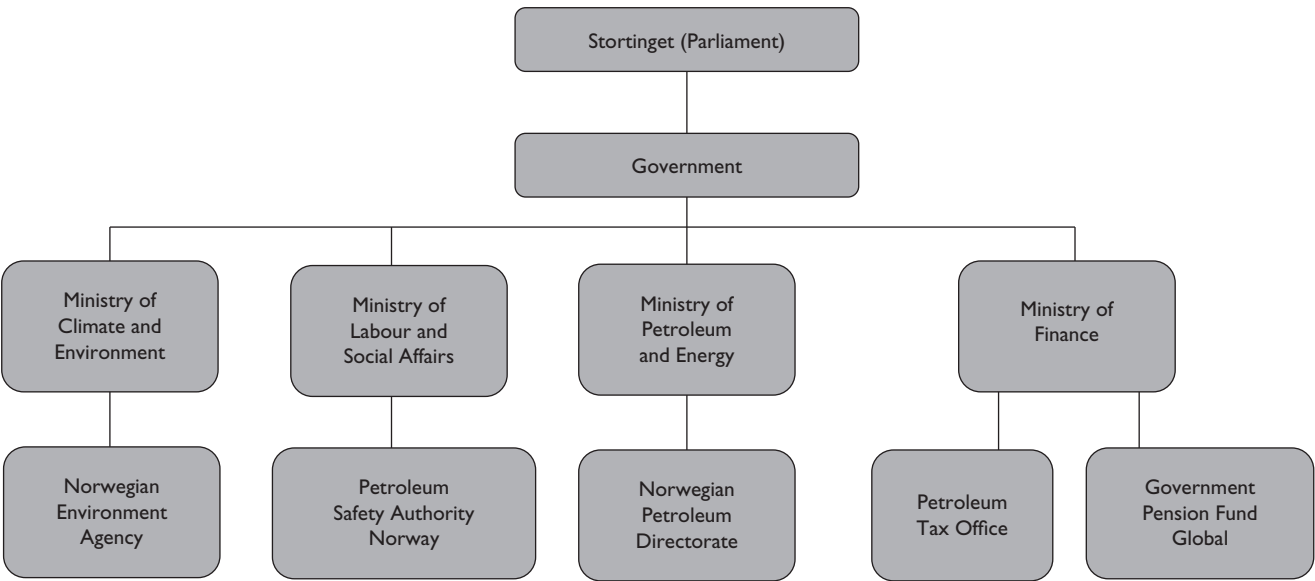
7. Taxation authority
8. Central bank
9. Economic planning ministry
10. Environment ministry

Close coordination among these, while admittedly difficult to achieve, is essential to effective extractives sector management. An illustration of how some of the above institutions are organized in an interrelated and successful way in Norway is provided in figure 5.1. In addition to the entities in the figure, Norway also has two state-owned bodies, Gassco and Petoro, which report to the Ministry of Petroleum and Energy. Gassco has an “architect role” with authority over the further development of the gas infrastructure. Petoro is a 100 percent state-owned enterprise that handles the state’s direct financial interest.

Cohesiveness is highly important since conflicts among the various roles are potentially damaging, both to the achievement of the state’s goals and to the scale and tempo of investment. The challenge of coordination can be particularly daunting in states with federal or decentralized structures. Addressing these challenges effectively requires a high level of capacity in the institutions charged with sector management and regulation.

Each of these institutions needs to have sufficient resources and staff to fulfil its mandate, commensurate with

Figure 5.1 State Organization of the Norwegian Petroleum Sector



Source: Norwegian Petroleum Directorate.

the technical complexities of oil, gas, and mining sectors. More often than not, requisite capacity is lacking. Technical assistance and the engagement of professional advisers can make an important contribution to capacity building. However, capacity requirements will change if activity moves beyond exploration to development and production. A dynamic, evolving approach to the various tasks of government is essential.

EXECUTIVE BODIES. The executive, which typically includes the presidency and executive cabinet, often reserves for itself the final decision on critical EI sector issues such as licensing rounds, state participation, and the establishment of extractives-sector-related funds.

LEGISLATIVE BODIES. Often overlooked and handicapped by weak institutional capacity and more powerful executive bodies, legislatures have the potential to play a major role in effective management of the oil, gas, and mining sectors. Through their core law-making function, legislatures are responsible for reviewing bills and enacting legislation needed to support any sector.

Legislatures also serve an oversight function that allows them, and particularly their committees, to (1) inject

accountability through investigation of oil, gas, and mining sector issues and (2) scrutinize government activities and the allocation of funds. The latter function can extend to the scrutiny of national resource companies, perhaps through a requirement to submit annual reports and audited financial statements. Under Norway's Petroleum Act, the state petroleum company, Statoil, is obliged to report to the legislature on any projects it undertakes that have significant economic and social impacts or costs reaching more than US\$840 million.

Finally, in their representative role, legislatures can ensure public participation in the political process as it relates to these sectors.

SECTOR MINISTRIES. At the center of the network of government agencies involved in extractives sector management is the sector ministry itself (box 5.1). This ministry typically has overall responsibility for the sector, but sometimes its scope is limited to only hydrocarbons or mining. This mandate requires the ministry to oversee sector operations and to set policy and strategic direction of the sector. The ministry's role is usually defined in sector legislation.

Tasks falling within the ministry's mandate and guided by legislation commonly include (1) sector policies and

Box 5.1 Institutional Structure: The Ministry and the Regulatory Agency

The sector ministry and the regulatory agency bear most of the overall responsibility for management of the extractives sector.

A well-designed sector ministry comprises the following:

1. A unit responsible for issuing and overseeing licenses, enforcing license conditions, and maintaining an up-to-date public register of exploration and production licenses that is easily accessible by all interested parties
2. For mining, an artisanal and small-scale mining (ASM) unit (in states with large ASM activity)
3. An inspectorate with a strong presence at sector sites (This office inspects activities to assess compliance with licensing conditions and health, safety, and environmental regulations and performs production and technical audits.)
4. An environmental and social unit that collaborates with and provides support to the environmental and social authorities that oversee the sector
5. An economics unit that analyzes the economics of petroleum and mining companies operating in the sector
6. A unit that promotes the sector at national and international events
7. Highly experienced and skilled staff to oversee large petroleum and mining projects and to put the government on an equal footing with the management and specialist staff of international companies and large investors
8. Employment conditions and salaries sufficient to prevent the most highly skilled and experienced staff from being hired away by international companies

Box 5.1 Institutional Structure: The Ministry and the Regulatory Agency (continued)

A well-designed sector regulatory agency is responsible for the following:

1. Topographical mapping, regional geological mapping, and related work
2. Geological data collection, dissemination, and publication (including the digitization of paper files and records)
3. Setting consultation, consent, and approval requirements at critical stages of operations, including the following:

- Reconnaissance
- Exploration work program implementation

- Drilling
- Discovery
- Appraisal
- Commerciality
- Development planning and any revisions to plans
- Reservoir management and production
- Late field or mine life plans
- Decommissioning plans

planning, including proposed legislation; (2) negotiation and award of contacts or licenses; (3) calculation and collection of royalties; (4) promotion of local benefits; (5) preparation of regulations; (6) oversight and regulatory functions, with authority to delegate this responsibility; (7) coordination with other ministries, especially the ministries of finance and economic planning; (8) governance of national resource companies (NRCs), sometimes in collaboration with the finance ministry; and (9) promotion of the sector at national and international events.

For countries that discover petroleum deposits for the first time, there is likely to be a provisional approach to the design of a ministry's role, relying on an existing ministry until it is clearer what the size of the deposits is likely to be and therefore what sort of organizational commitments are required.

Although environmental and sustainable development issues are usually the responsibility of other ministries, small units charged with coordination of the sector and environmental or social ministries are often found within the extractives sector ministry.

Mining Specifics. The sector ministry will typically include four units that play important roles in mining. The first of these is the Mining Cadastre Office, which is responsible for issuing and overseeing licenses, enforcing license conditions, and suspending, terminating for cause, or accepting relinquishment of licenses. It is also responsible for maintaining an up-to-date and public register of exploration and mining

licenses, to which any interested parties may have access. The second is the Mining Inspectorate Office, which is typically charged with ensuring compliance with licensing conditions and health and safety regulations. It also carries out production and technical audits, which require a strong presence at commercial and artisanal mining sites. Third, also likely to play an important role is the Environmental and Social Unit, which provides support to the environmental and social authorities responsible for the sector; it also takes charge of outreach to local communities and mining companies. This unit can help improve the benefits of mining activities and mitigate the impacts, which often are felt most directly at the community level. Finally, within the sector ministry there may be a unit dedicated to engagement with artisanal and small-scale mining (ASM). This is likely to provide training to assist ASM productivity and health, safety, and environmental performance.

Requirements for Effective Performance. If the sector ministry is to work effectively with other ministries and agencies, there will have to be an alignment of shared objectives; clarification of mandates, competencies, and responsibilities; sharing of knowledge; and a willingness to use memoranda of understanding or similar mechanisms to formalize working relationships and to clarify potentially overlapping mandates, competencies, and responsibilities.

Effective performance in the ministry is likely to be enhanced by attention to five areas: (1) avoiding discretionary

or arbitrary use of power, so that investors have confidence that issues will be addressed in a predictable, transparent, and orderly manner; (2) securing adequate and competent specialist capacity required for monitoring, oversight, and enforcement of regulatory requirements and license and/or contract conditions; (3) securing highly competent, professional, and noncorrupt staff to oversee large hydrocarbon or mining projects, with the capacity to deal with the management of international companies and large investors; (4) offering employment conditions and salaries that prevent the most highly skilled and experienced staff from being hired away by international oil, gas, and mining companies; and (5) using effective, third-party dispute resolution and appeals mechanisms.

REGULATORY AGENCIES. The EI sector ministry should be empowered and expected to delegate regulatory functions to a subordinate and quasi-independent agency. This agency would normally report to the EI sector ministry and have oversight functions for (1) the development of technical specifications and standards; (2) technical supervision of EI sector operations; (3) supervision of company operations in accordance with contracts and legislation; (4) metering and monitoring of production, technical data analysis, and storage; (5) recording of licenses and ownership interests; (6) contributions to economic planning; and (7) protection of social and environmental priorities in coordination with relevant authorities.

Oversight and enforcement of health, safety, and environmental (HSE) requirements is commonly assigned to a regulatory agency. The agency typically has reporting obligations to the EI sector ministry and one or more other ministries or agencies involved in HSE issues. This, however, is not always the case. In Norway, for example, safety matters are vested in a distinct petroleum safety authority within the regulatory agency. This Norwegian approach appears to highlight the importance given to safety considerations; it also provides some autonomy within the regulatory agency itself.

The collection, storage, and analysis of EI sector data and samples, and the preparation and maintenance of records on petroleum and mining rights and agreements, have become critical mandates for regulatory agencies. Good practice provides for an arms-length relationship between the regulatory agency and its ministry in order to safeguard the regulatory agency's objectivity. In a number of states, EI sector regulatory functions, either formally or in practice, have been allocated to the NRC rather than to an independent agency. This choice appears to have been based primarily on the perceived superiority of expertise within the

NRC—but it is a practice that seriously compromises the impartiality of regulation. (See “The State as Participant” in this chapter).

Mining Specifics. For mining, a distinct body usually has important functions covering geological data collection, management, and dissemination. It works closely with the sector ministry and may well be a part of it. The work of a geological survey unit is not likely to be primarily (or at all) regulatory in character, but its work will contribute to the efforts of the main regulatory bodies.

The unit's work includes high-level regional geographical surveying to provide data from which parties can select exploration targets. It entails topographical mapping, which is important for many purposes, including mineral exploration. The collection and management of data includes maintaining all historical data files and maps, including both the unit's own data and those received from license holders carrying out exploration work, and it encompasses the digitalization of paper files and maps. Exportation files have to be kept confidential, but data from them are integrated into the overall database and made publicly available once a license is relinquished. Finally, the geological survey unit is responsible for data publication and dissemination. Interested parties must be provided physical or virtual access to hard copy and digital reports and files. Topographical and geological maps and reports and data must be published at an affordable cost and in suitable map and other formats, ideally including digital formats.

NATIONAL RESOURCE COMPANIES. NRCs play a powerful, and often controversial, role in EI sector management. Normally, NRCs are responsible for commercial operations and the development of a shared national capacity in the EI sector. Sharing competencies, goals, and planning between public and private stakeholders, NRCs often have difficulty in separating their obligations. Since NRCs are charged with responsibilities going far beyond commercial operations and may capture local managerial and technical sector expertise, they often bypass the EI sector ministry to which they usually nominally report.

The importance of NRCs varies greatly between the petroleum and the mining industries. Few countries with petroleum production actually or in prospect would fail to introduce and build an NRC. In the mining sector this is far less common. Largely due to their prominence in the petroleum sector, NRCs are discussed at some length in this chapter's “The State as Participant.”

FINANCE MINISTRY. In almost all states there are certain tasks that fall exclusively within the traditional competence of a ministry of finance. These usually include (1) tax policy and the proposal of tax legislation, (2) resource revenue forecasting, (3) revenue management, and (4) expenditures (budget allocations). In a number of states, mining and petroleum royalties are assessed and collected by the EI sector ministry, especially where there are issues of quantity measurements or price verifications that require specific technical expertise.

All of these functions, however, depend on an accurate understanding of the EI sector and require close coordination among the finance and EI sector ministries and NRCs. Unfortunately, this coordination is typically weak or entirely lacking (Rosenblum and Maples 2009, 26). Good practice would recommend establishment of a small professional unit within the finance ministry that is well grounded or trained in sector economics and operations and able to deal with EI sector agencies on an equal footing and, therefore, ensure coordination.

TAXATION AUTHORITY. In most states, there is a revenue authority responsible for assessing and collecting taxes and undertaking tax audits. Likewise, most states have a customs authority responsible for import duties. The finance ministry is responsible for tax policy and proposing tax legislation for the mining and petroleum sectors. All EI sector ministries and authorities must have strong EI sector knowledge to do their work efficiently and effectively.

In many states, EI sector tax authorities are part of a larger taxpayer unit within the tax authority. Some states may even have a dedicated mining tax unit. For states where petroleum or minerals make up a significant portion of tax revenues, it is important to have high-level systems and capabilities and highly skilled and experienced staff to work on a small number of large EI sector projects. This approach contrasts with tax agency authorities that may be dealing with tens of thousands, or possibly hundreds of thousands, of small retail or other businesses. This may have important implications for staffing and employment policies as well as the provision of fully adequate computer and other systems for the sections of the tax agency that deal with the EI sector.

CENTRAL BANK. While not expected to play a proactive role in EI sector management, the central bank of a resource-rich state does play a pivotal role in the tracking, reporting, and reconciling of fiscal and financial flows in the EI sector. Central banks in these states also likely play a large role in setting monetary and exchange rate policies. However, in

resource-rich states the central bank's major role relates to requirements for repatriation of funds by EI sector investors. The central bank will often set policy concerning the share of export revenues that must be brought onshore and the share that may remain offshore.

ECONOMIC PLANNING MINISTRY. In states where economic dependence on the EI sectors is high, the performance of the sectors is closely tied to overall macroeconomic planning. The ministry charged with economic planning, like the finance ministry, should have a very close relationship with, and a good understanding of, the various EI sector agencies.

ENVIRONMENT MINISTRY. Petroleum and, especially, mining activities are often associated with significant environmental and social footprints. Addressing the issues arising from those footprints may be the responsibility of the EI sector ministry, but good practice recommends that responsibility go to specialized ministries such as the environment ministry and ministries dealing with labor and local community matters. Good practice also recommends that a small unit be established within the EI sector ministry to coordinate with the specialized environmental and social issue ministries.

OTHER AGENCIES. There are a number of other state agencies relevant to the EI sector. These include the health ministry; labor ministry; ministry of foreign affairs; ministry of national parks, wildlife, and tourism; ministry for infrastructure; and the customs and excise tax authority, for imports and exports (Bunter 2002; Duval et al. 2009, ch. 20).

The state as participant

Governments have adopted state participation in many countries and in a variety of forms, according to their aims, their circumstances, and the issues they face. The most common vehicle for participation has been the NRC, but participation can still be effective without it.

On the face of it, NRCs would seem an ideal instrument to tackle the problem of asymmetry of information between governments and foreign investors. They seem to be an obvious vehicle for ensuring and promoting national control over the development of the oil, gas, and mining sectors, although they feature far more prominently in the development of oil and gas than in the mining sector. NRCs are now a typical feature in most if not all petroleum regimes around the world, particularly outside of the countries of the Organisation for Economic Co-operation and

Development (OECD). They control about 90 percent of the world's oil reserves and 75 percent of production, with similar shares for natural gas, and many of the world's major oil and gas infrastructure systems.

The role of NRCs in the mining sector has been less pervasive but significant nonetheless. The largest producer of copper in the world is Codelco (Chile); the leading producer of diamonds is Botswana's partly state-owned Debswana; and OCP (Morocco) is the leading producer of phosphate in the world. This imbalance is reflected in the state of the research, where significant studies have been carried out into the role of NRCs in the hydrocarbons but fewer in their role in mining.² In a comprehensive study of NRCs, the practice in 45 countries was examined, but only 11 of these 45 countries had an NRC in mining (NRGI 2013). Nonetheless, state participation in the mining sector, in any one of a diverse array of forms, is not unusual, even if far from being as common as in the hydrocarbons sector, where Charles McPherson's observation rings true: "Through outright ownership or share participation, either on a mandatory basis or through the exercise of option rights, [it] remains common practice" (McPherson 2010).

Enthusiasm for NRCs has waxed and waned over the years, as experience with them has varied greatly. However, they have proved a durable phenomenon, particularly in resource-rich developing states. They are usually a powerful influence on policy making in developing countries. Some countries have more than one: the Russian Federation has Rosneft (oil) and Gazprom (gas); China has the national oil companies, the China National Petroleum Corporation, and the China National Offshore Oil Corporation (CNOOC); and Trinidad and Tobago has distinct national gas and oil companies.

Often referred to as "national champions," NRCs have been established with a wide range of both commercial and noncommercial objectives. The latter have included, in countries like Nigeria and Angola, the tasks of award of rights, revenue collection, and public expenditures. Their performance in pursuing all these objectives has provoked debate and prompted responses aligned with what is now considered good practice (Marcel 2006; McPherson 2003). Initially, there was a tendency to evaluate them in relation to the kind of objectives that international resource companies (IRCs) set themselves and identify ways in which they could be more effective in value creation (Tordo, Tracy, and Arfaa 2011). More recently, appraisals of their performance have focused on their governance, since often they operate with low levels of oversight and accountability (Heller, Mahdavi, and Schreuder 2014). Indeed, recent research has indicated that no less than 18 out of 45 NRCs are not under any legal

obligation to report information about their operations and 28 fail to provide comprehensive reports on their activities and finances. However, where existing NRCs have accepted remedial reform measures, there is good evidence of their achieving enhanced levels of performance.

The international reach of NRCs has grown in recent years. A number of NRCs have adopted a strategy of diversifying internationally into upstream investments abroad. Examples of companies pursuing this strategy are Petrobras in Brazil; the Chinese National Petroleum Corporation and Sinopec in China; Oil and Natural Gas Corporation Limited in India; Gazprom, LukOil, and Rosneft in Russia; and Petronas in Malaysia. For the Chinese and Indian companies, one of the drivers behind such expansion has been to gain access to energy production that can meet the home state's economic demands (Jiang and Sinton 2011). However, NRCs have over time enjoyed diverse results in their internationalization strategies.

COMMERCIAL OBJECTIVES. Most NRCs have objectives that include a requirement to act in a commercial manner, even if the way in which that is defined and its relationship to other goals vary considerably from one case to the next. In a small number of cases in the past, NRCs in the petroleum industry have been expected to emulate, and have been successful in emulating, their privately owned counterparts in terms of commercial efficiency and the generation of profits. These NRCs have been successful in operating as a counterbalance to the traditional influence of IRCs. In a limited number of cases, these NRCs have been able to replace IRCs completely (Stockman 2011).

NONCOMMERCIAL OBJECTIVES. The more common experience is that NRCs have tended to be the focal point for accomplishing a broad range of national, economic, social, and political objectives. This focus is based on their access to funds and to a lesser extent on perceptions that their technical and managerial skills are superior to local firms. Objectives coming under this heading comprise the following: (1) job creation, (2) development of local capacity, and (3) provision of social and physical infrastructure.

Petroleum NRCs have also had a key role in income redistribution through the supply of products at subsidized prices for domestic consumption. It is important to note that these may not cover the NRC's operating costs. If the NRC tolerates an accrual of arrears by consumers, the de facto subsidies can be even higher.³ As noted, NRCs also act as the petroleum sector regulator and, in the case of petroleum projects under a production-sharing agreement (PSA), the NRCs act as a

fiscal or commercial agent selling the government's share of petroleum on the government's behalf.

Examples of these noncommercial roles allocated to an NRC are many. In Angola, Sonangol, the national oil company, has the duty to use its revenues to manage and service Angola's sovereign debt. In Mexico, PEMEX, the state petroleum company, has directed a program called Gifts and Donations, which aims to promote social development by providing small-scale infrastructure, in-kind goods, and cash transfers. This noncommercial role was one of the company's activities that were targeted by the government for reform in 2013.

It may be argued that the NRC is better suited to provide services to remote communities than the central government: this was an argument made in Angola with respect to Sonangol (IMF 2007, 29n50). The transparency of any such activities would need to be clear however, with reporting requirements put in place. Often they are not.

ISSUES RELATING TO NRC PERFORMANCE. There have been problems and controversy with respect to both assigned functions and the NRCs' performance in carrying out these functions. Meeting commercial objectives has proved difficult; in fact, with few exceptions, NRCs have scored poorly in this area (Tordo, Tracy, and Arfaa 2011). This is attributable to a number of factors, including a lack of competition and weakness in capacity. Funding equity participation in the EI sector has also proved a problem for NRCs. In states where there are urgent competing priorities for the use of public funds, choices not to contribute NRC equity participation in EI sector projects can hold back performance and development of capacity. Other causes have been attributable to political interference (using the NRC as a cash cow, for example, or changing the directors or management arbitrarily) and requirements to carry out noncommercial activities.

By assigning noncommercial objectives to NRCs (sometimes called "nonfiscal goals"), most of which would usually be seen as falling within the proper province of government, the NRCs have the potential to undermine not only their own commercial effectiveness but also the effectiveness of governmental macroeconomic management. In granting these noncommercial functions to NRCs, governments can unnecessarily complicate macroeconomic management and diminish transparency and accountability. An NRC assumption of the role of sector regulator while simultaneously pursuing commercial objectives creates serious conflict of interest issues (Tordo, Tracy, and Arfaa 2011).

Along with the assignment of noncommercial objectives, the other main impediment to commercial performance

relates to a lack of good governance. Primarily, this issue relates to the problem of NRCs becoming captured by a small number of privileged elites who then use the NRC for their own gain rather than for the national interest and poverty alleviation (Tordo, Tracy, and Arfaa 2011). With access to significant financial flows and the ability to exercise considerable influence over economic activity both inside and outside the resource sectors, the NRCs have been natural targets for control by elites interested in pursuing their own political and personal agendas. These elites have an interest in promoting a lack of clarity with respect to NRC operations, in politicizing management, and in ensuring dependency of the NRCs on the elites for funding and other operational prerequisites.

RESPONSES AND GOOD PRACTICE. The debate over NRC performance in the past has prompted a number of positive responses. Commercial performance has been enhanced by the introduction of competition (by partnering with IRCs) and by privatization in varying degrees (by partial listing on stock exchanges). Funding issues have been addressed by adopting flexible contractual formulas (such as carried interests or production sharing) with the private sector, which defers or cancels funding obligations. Efficient modern EI sector tax systems can be relied on to generate revenues for the state comparable to those obtained through equity participation without risking public funds.

As reflected in a number of states, most reform recommendations include the transfer (with suitable transition arrangements) of noncommercial functions to government, leaving the NRC to focus primarily on commercial activities. Most states have avoided giving regulatory roles to NRCs in the mining sector, but in the petroleum sector it is quite common for NRCs to have considerable regulatory obligations in addition to commercial functions. This is usually attributable to capacity issues or overriding political considerations.

A measure of pragmatism is required in addressing the presence of noncommercial functions, however. Probably the only NRC that has eliminated all of these functions from its portfolio is the Norwegian NRC, Statoil. The challenges to exporting the Norwegian model to other countries are significant in this and in most other areas (Thurber, Hults, and Heller 2011). Context is crucial here. For small states that are commencing extractives development, a strict separation of functions may not yet be attainable or even desirable. For states with limited capacity or political constraints, it may also not be feasible, at least in the near term. Indeed, some countries, such as Brazil, Colombia, India, and Indonesia have temporarily

assigned regulatory responsibilities to an NRC during an initial phase of development, only to take them away at a later, more mature phase of operations when commercial behavior appears feasible and when conflicts of interest may create performance costs (Heller, Mahdavi, and Schreuder 2014, 8).

If regulatory functions cannot be separated from the NRC, they can be ring-fenced within it for operational and accounting purposes, and reported in the national budget and accounts. Transfer of regulatory functions out of the NRC is high on all EI sector reform agendas, but internal ring-fencing may be preferable until credible capacity and assurances of good governance can be established in an external agency. Serious commitment to eventual NRC commercialization is also essential.

Without resources, the path to eventual commercialization will prove elusive. If revenue cannot be retained by the NRC, or if flows from the finance ministry cannot be guaranteed, the results are likely to be negative. PEMEX, Petronas, and the Nigerian National Petroleum Corporation (NNPC) have incurred significant losses because revenue flows have proved inadequate to cover operational costs on a regular basis. The experience of Angola's Sonangol illustrates that the opposite: too much autonomy can have damaging effects on revenue flows to central governmental institutions.

Within the NRC, transparency should be accepted as a critical ingredient to good governance. This starts with properly prepared, externally audited, and public accounts. Disclosure of such key data on company finances and activities on a regular basis is critical. One of the ways in which this can be achieved is to partly privatize the NRC, as with Petrochina, Gazprom, Petrobras, KazmunaiGaz E&P (Kazakhstan), and Statoil. This requires the NRCs to demonstrate to prospective investors that they have good commercial prospects,

transparent decision making, and accounts that are clear and meet set objectives. Adherence to the Extractive Industries Transparency Initiative standard of 2016 would require the publication of information on the in-kind sales of oil, gas, and minerals managed by NRCs; on NRC transfers to and from the state finance ministry; on the overall revenues earned by the NRC; and on basic information about quasi-fiscal expenditures on infrastructure, subsidies, and debt relief. Behind this emphasis on transparency is the familiar concern with effective performance rather than transparency as an end in itself. It can play a key contributory role in transforming economic success in oil, gas, and mineral activities into sustainable advances in development.

MINING NRCs. The establishment of NRCs in the mining sector has become more popular in recent years following a period of relatively poor performance. Some of the NRCs in the mining industry had their roots in nationalizations of mining operations, primarily in the 1960s and 1970s, following the independence of many states. Their performance, especially those in Africa and Asia, was hampered by a variety of factors, including mismanagement, poor access to resources, a lack of cost discipline, political intervention, and corruption. Only a few, for example in Zambia, the Democratic Republic of Congo, and Ghana, reversed their nationalization of the mining sector, however. For the most part, state participation remained in one form or another.

When mineral prices began to rise significantly, there was a revival of interest, with plans to establish new mining companies announced (Hall 2013; Bryson 2011). Participation in private sector mining activities could be arranged through shareholder agreements (see box 5.2). Several of the top international mining companies are now to some extent in state

Box 5.2 Mining Participation

Well-designed arrangements for a government to take a minority equity role in private sector mining investments will be based on a shareholder agreement that addresses the following:

1. How the equity is funded (free equity, carried equity, or paid-in equity) for both initial capital expenditures and any subsequent needs (including covering cash flow shortages or funding sustaining capital expenditures or production expansions)
2. The decision-making powers of different shareholders regarding issues such as dividend decisions, budget approvals, senior management appointments and remuneration, investment programs, and raising new capital (including new debt)
3. Conditions under which ownership may change
4. Shareholder responsibilities and obligations at the time of mine closure

hands (see chapter 3). Mining companies with links to the state have emerged as international investors too (see “Mining Dynamics” under section 3.4). A new set of issues is emerging related to Chinese NRCs becoming investors around the world and offering turnkey infrastructure and other investments as part of an overall mining investment package, usually brokered by the respective governments (ECLAC 2010; Davies 2010).

LEGAL STANDING. NRCs should ideally be established as distinct legal entities under the state’s corporate laws and not as units within governmental departments. This legal separation assists in providing a clear profit motive and avoids productive enterprises being used for predominantly social or political purposes. Corporatization can help to avoid operational subsidies being subsumed in the budgets of government departments. It can also help incorporate fiscal discipline principles from the corporate world in terms of capital raising and corporate decision making. Beyond corporatization, a partial stock listing (where the state maintains majority control) can bring the added discipline of meeting stock market listing and reporting requirements.

MARKET DISCIPLINE. The most efficient NRCs are those that have been subject to full market competition, that is, NRCs that gain no advantageous treatment from their own governments compared with privately owned companies. This means

that NRCs should whenever possible be subject to the same fiscal regimes, tax assessments, auditing procedures, and tax payments of a privately held company. The NRC should apply for, and obtain, licenses in the same manner as other companies and should be subject to the same licensing conditions as private companies, with all regulatory activities being undertaken by government regulatory offices.

Like a private company, the NRC should be subject to strong market discipline (Tordo, Tracy, and Arfaa 2011). This means that the NRC should raise capital in the private market place and should set up and maintain a strong balance sheet with debt obligations that do not create any undue pressure or risk for the shareholder. Any debt obligations should be insignificant in terms of their impact on national accounts, sovereign debt, and any debt service of the state.

GOOD GOVERNANCE. Good governance of NRCs requires attention to the role of EI sector or finance ministries in exercising the shareholder role on behalf of the state. Commercially based shareholder roles can lead to companies that compete strongly in the international market place. Examples of companies with a strong commercially based shareholder role include Codelco in Chile, Petronas in Malaysia, and Vale and Petrobras in Brazil. Codelco and Statoil (Norway) are often cited as examples of NRC success stories (see box 5.3).

Box 5.3 NRC Success Stories

Some prominent examples of generally well-managed and highly profitable and competitive NRCs include, in mining, Chile’s Codelco and, in petroleum, Norway’s Statoil.

Codelco was formed in 1976 to take charge of the state’s mining interests. It is 100 percent state owned, with a board appointed by the president of Chile. It accounts for 5 percent of gross domestic product, 25 percent of exports, and 17 percent of the budget. There is limited governmental interference and a high degree of transparency. In spite of its incorporation of several elements of good governance, Codelco has little control over its revenues, and there are tensions between commercial and social functions, leading to inefficiencies.

Norway’s state petroleum company, Statoil, was created in 1972. It was granted preferential status in the licenses awarded to international oil companies,

involving a license share for Statoil that was carried through the exploration phase by the oil company partners, and in the event of a commercial discovery the share rose to 51 percent of the license. It helped Statoil to develop rapidly as a commercial enterprise. The primary goal from the outset was commercial efficiency, and present and future role of Statoil to incoming investors was clear. Extended public discussion of both structure and policies took place. The company’s portfolio was later split in two, and all remaining elements of preferential treatment were removed. In 2001 Statoil was partly privatized. The state had no board participation and the state’s direct participation in licenses was held by a separate entity, the State Direct Financial Interest, in turn managed by another state entity operating on a nonprofit basis. The trend has been for state participation to become much lower to around 20 percent.

Likewise, a misguided or even corrupt shareholder role that is combined with inadequate or corrupt management and large noncommercial roles can lead to the kind of companies that are now producing only a small fraction of their peak production. Examples of companies in the mining sector that have experienced these types of problems in the past include Gecamines in Democratic Republic of Congo, ZCCM Investment Holdings in Zambia, and Comibol in Bolivia. Examples from the petroleum sector might include NNPC in Nigeria and Pertamina in Indonesia, both of which have incurred huge financial losses in the past.

While the management of state-owned enterprises may make recommendations and proposals regarding annual budgets, investments, and raising debt and dividends, good practice is for an NRC to be required to have policies and decisions regarding such matters taken by its board of directors, giving due consideration to the owners' interests, guidance, and instructions.

At the highest level, there are six main aspects related to a strong commercial shareholder role:

1. Shareholding needs to be held in the name of one or more government officials (such as EI sector or finance ministries), which will appoint the board of directors, who act as the shareholders' representatives governing the NRC. The directors should be selected and appointed based on their knowledge about the business and availability to become informed about the company's activities in order to ensure that the shareholders' interests are well served. The directors should be fully independent of management and management influence.
2. The appointment of management should be based on professional qualifications and experience, not political or family affiliations.
3. The board of directors should provide management with a clearly stated mission related to resource development (including mineral or petroleum processing and marketing as appropriate).
4. The board of directors should ensure that management focuses on its core business and does not expand its activities into other noncore business areas. In this regard, the board of directors should approve only those company business and investment plans that are consistent with shareholder objectives. A very important aspect is the scope and focus of the core business and any ancillary business activities. Another important aspect is the employment policy of the company regarding workforce productivity and remuneration.

5. Oversight of the sources and uses of funds with regard to the NRC should be done to raise commercial borrowing of needed debt, meeting the listing requirements of stock markets and the shareholder; that is, the management should not make decisions with regard to cash flow distribution, dividend, and retention for the company. Instead, this should be based on a management recommendation.
6. The NRC, its managers, and directors should be excluded from any regulatory roles or activities.

STATE EQUITY. It is not uncommon for legislation to provide government with the right to take a minority equity holding in a private sector EI operation (see "State Participation" under section 6.4 "Fiscal Instruments" and box 6.1). Such equity can be held directly in the name of the government or it can be held by a government entity that is established as a vehicle to hold equity in other companies.

Minority equity participation can have the advantages of enabling a government to invest in a potentially profitable EI project, while avoiding the costs and risks associated with exploration or other preparatory work (which may not eventually result in a viable investment opportunity). It also gives the government access to information that may not otherwise be available about the project and the partnering private shareholder company. Moreover, it gives government a share in the dividends of the company—although these are generally unpredictable and may take many years to appear, especially if the company is not very profitable or if all the profits should be reinvested.

There are also potential risks and disadvantages to minority equity participation. The government may have a limited decision-making role as a minority shareholder when all major decisions are made by the majority shareholder. If the company plans a major new investment or expansion that requires additional equity from its shareholders, the government may be faced with a dilemma of having to put in additional equity or see its ownership diluted.

In the worst case, if the company is losing money, it may require additional shareholder funds to remain in business. The government may be required to put in new cash to keep the company operating. There can also be a potential or real conflict of interest if a regulator is also given a position on the company's board of directors as one of the government shareholder representatives.

It is important that there is full disclosure of the forms of payment involved for participation shares and the ownership arrangements involved. In some countries, a working interest share may be granted to the "government" but

in fact is held by a group of individuals associated with the government. If this delegation is transparent, its rationale should be fully disclosed (IMF 2007, 25n39).

EQUITY FUNDING. There are two main ways to fund an equity stake: by means of paid-in capital or a carried interest (see section 6.3 and box 6.2). A third but less common approach is to acquire the equity for free. The method of paid-in capital means that the government pays for its equity in cash so that it has the same standing as other shareholders. In this case, the government should make its decision as part of its overall process for determining both the uses and sources of its funds to help ensure that it makes rational decisions regarding any use of its funds for an equity investment.

Carried interests are frequently used for minority government equity participation in EI sector projects. The advantage for the government is that it does not have to provide cash. The disadvantage for the company, and the other shareholders, is that carried interests have the effect of diluting the equity base of the company, which must then raise the cash to cover the government's participation (Kemp 1987, 103). Thus, carried interests are essentially a loan from the company, or the majority shareholder, to the government.

There are instances when governments insist on a minority free equity in a new EI sector project. Free equity is tantamount to taxing the project but is a very different instrument from a tax. An equity holding gives a government the many rights and benefits but also the many obligations and risks of a shareholder. A tax requirement simply gives the government the right to collect a tax payment by the company and the obligation to assess and collect taxes according to the prevailing taxation rules (Sunley, Baunsgaard, and Simard 2003, 164). A mandatory requirement for free equity runs the risk of creating a climate of resentment and distrust. This can result in the private shareholder(s) looking for ways to recoup their investment without using dividends to which all shareholders are entitled.

Key institutional issues

BUILDING CAPACITY. Large-scale EI sector developments can involve very substantial investments relative to many small economies and can require much more technical expertise than other sectors in the domestic economy. They can also involve very experienced and serious international investors, on the one hand, and speculators seeking a short-term advantage from a state's resources, on the other.

Experienced investors can put government officials at a disadvantage when negotiating private participation in a state's EI sector (Cotula 2010, 131). It may be necessary, therefore, to adjust employment and other policies, so that the EI sector agencies can attract and retain competent, non-corrupt, well-qualified, and experienced professional staff in sufficient numbers to administer the EI sector effectively and represent the state interest. It may also be necessary to ensure that the EI sector ministries and agencies, and their counterparts in the tax and finance ministries, have adequate budgets and technical capacity, given the high financial stakes involved for a state with large-scale EI sector operations.

The development of institutional capacity is crucial. Appropriate institutional capacity at each stage in the EI Value Chain is critical to overall EI sector management success. Targeted skills, training, adequate resources and compensation, and insulation from political interference are essential. Resource-rich developing states whose institutional capacity is weak can seek support by directly engaging external expertise or benefiting from donor or international finance institution technical assistance programs. External assistance can be doubly valuable in providing essential training while at the same time addressing current issues on behalf of the state. Good practice would call for this assistance to be discussed and carefully planned with the expected beneficiaries. The petroleum sector technical assistance program, designed jointly by the governments of Norway and South Sudan and the World Bank, provides an excellent example of good practice (see box 5.4).

INTERAGENCY COORDINATION. Perhaps the biggest issue in the development of appropriate institutional capacity relates to interagency coordination. Several different government entities engage with EI sector investors. The key government agencies include (1) the EI sector ministry or government department on exploration and production, (2) the ministry responsible for geological data, (3) the ministry responsible for the environment, (4) the ministry responsible for local community and social issues, (5) the finance ministry, (6) the ministry or administration responsible for taxation, (7) the ministry responsible for economic planning, and (8) the ministry or ministries responsible for rural and small business development. There are also specialist regulatory agencies that have a role from time to time.

As will be noted in the discussion of fiscal administration in chapter 6, all too often expertise regarding EI sector exploration and operation is to be found only in the EI sector ministry. If this expertise is not made available to, or not accepted by, other arms of government, the result can be

Box 5.4 Petroleum Technical Assistance to South Sudan

South Sudan was officially recognized as an independent state in July 2011. Since then, it has become the most petroleum revenue-dependent country in the world (with dependence at 98 percent of its budget).

A grant of US\$ 3.3 million was prepared by the World Bank, working closely with the South Sudanese government and other key donors, such as Norway, to address South Sudan's urgent petroleum sector priorities in three key areas. The grant would do the following:

1. Assist the Ministry of Energy and Mining and Ministry of Finance and Economic Planning

- (MoFEP) in assuming certain core functions related to EI sector management and revenue management
2. Assist MoFEP in establishing a macroeconomic and fiscal policy framework that takes into account the challenges of extreme petroleum dependence
3. Assist relevant committees of the South Sudan Legislative Assembly to begin to carry out their accountability function for the use of petroleum revenues

In all cases, appropriate external expertise has been carefully identified and will be twinned with selected South Sudanese expertise for training and capacity building purposes.

that those other agencies will be seriously disadvantaged in their engagement on EI sector issues.

It is not unusual to find that some ministries or agencies are actively encouraging new investment while, at the same time, others are in effect creating barriers (for example, in their approach to environmental permitting procedures). This can obviously create additional risks for investors and fewer benefits for government. As a practical matter, this can cause problems with issuing visas and work permits and providing customs clearances and releases for goods and equipment. Thus, there is great value in developing well-organized and coordinated EI sector knowledge-sharing and information flows. In particular, it is important that the EI sector ministry coordinates well with other government departments in order to achieve effective oversight, regulation, and risk sharing between government and investors (Alba 2009, 9).

Efforts at institutional reform

An increasing number of countries have engaged in major reforms of their institutional structures responsible for oil, gas, and mining. From Indonesia and Mexico to Nigeria and Algeria, there are examples of countries that have found their institutions inadequate to handle evolving national circumstances, changing resource horizons, or market conditions. As a result, they have initiated, at a minimum, reviews of existing arrangements, and more ambitiously, programs of sweeping institutional change. Some of these have succeeded, at least in part, and others have stalled or failed.

These experiences have generated a growing body of literature, which has relied heavily on case study analysis, sometimes using political economy theory as a tool for analysis (Victor, Hults, and Thurber 2012). Heller and Marcel (2012) have rightly observed that much of the literature on the hydrocarbons sector is heavily biased toward the experiences of large, well-established oil producers, which have geological prospects and institutional capacity levels that are very different from the context of administrative, human, and oil sector capacity constraints that typically characterize the new entrants. To build capacity quickly, the governments concerned face the choice of concentrating resources and responsibilities in a single institution, such as an NRC or sector ministry, or to separate the functions and lay the foundations for good governance.

HYDROCARBONS. Much of the reform effort in the hydrocarbons sector has been influenced by the Norwegian "separation of functions" approach, whereby the commercial, regulatory, and policy functions of government are kept institutionally distinct. Specialist institutions are created for each of these functions and given a limited mandate so that intragovernmental roles are clear. Such an approach appears to have had much success in Norway in resource management, but this provides no guarantee that it can be replicated in countries with very different political systems, population sizes, and institutional structures. A major constraint is often a lack of human capital, but so is a lack of institutional development, such as one might expect to find in a postconflict society. For example, in a study of several oil-producing countries and

their oil governance regimes, a Stanford University research team noted that efforts to establish independent regulatory agencies in Algeria and Nigeria had not only failed but had not even helped to promote the idea that regulatory reform could bring valuable benefits (Thurber, Hults, and Heller 2011). If the wider environment is not conducive to reform, or the political will is lacking, or both, the chances of such a structure being successfully transplanted and leading to greater accountability are very small. São Tomé and Príncipe is another example of a country in which the establishment of a tripartite structure has failed to generate significant improvements in accountability (Heller and Marcel 2012, 31).

The Stanford University team also noted the existence of a group of countries that had never seriously attempted to separate commercial from regulatory and policy functions but which had nevertheless had oil sectors that appeared to

run “reasonably well” (Thurber, Hults, and Heller 2011, 14). Angola is one such example where there is no independent regulatory institution and where in practice the national oil company is sector manager, regulator, and operator all rolled into one. From a transparency point of view this is far from optimal, but it has led to a productive and stable petroleum sector in a country that had the destabilizing effects of a civil war from 1975 to 2002. If a conclusion may be drawn it is that the political economy of the country concerned is of paramount importance to the establishment of a successful regime of governance and that reform plans need to take this into account if they are to be effective.

In recent years, Latin America has taken a number of different approaches to reform in both hydrocarbons and mining (Zamora 2014). In hydrocarbons, Colombia is a leading example (see box 5.5), following on from earlier

Box 5.5 Petroleum Reform in Colombia

After 30 years of resource administration by the Colombian National Oil Company, Ecopetrol, which had been created in 1951 to operate the assets of the De Mares concession after its contractual ending, an institutional reform was adopted by the government using special powers granted by congress in 2003.

Similar to Brazil, the reform separated the administration of the petroleum resources from Ecopetrol and created the National Hydrocarbons Agency (ANH) to undertake this role. The ANH was given sufficient powers to design the most appropriate contractual vehicle(s) to allow the operations of Ecopetrol or any other qualified third parties in exploration and production under equal access.

In December of 2006, Ecopetrol was further transformed into a publicly owned and listed corporation with direct participation of financial investors in its ownership and decision making, with a limit of 20 percent of its shares.

The scope of the resource administration of the ANH is limited to the upstream end of the value chain. The midstream activities continue to be regulated by the Ministry of Mines and Energy, while, since December 2012, the regulation of downstream activities passed from the ministry to the already existing independent regulatory commission for electricity and gas.

The ANH adopted a new contractual vehicle in 2014. It can be described in modern terms as a tax and royalty license with additional state participations at

variable shares of production. The royalty established by the law is variable (5–25 percent) on a sliding scale according to average monthly production volumes by field. The additional contract-based shares of production are two tiered: one that is based on a sliding-scale function of international prices (calculated as a 30–50 percent share of excess price over a base price) and another that is established as a bidding parameter in competitive bidding rounds (*x* factor) as a percentage of the net production of the operator after royalties and price-based production shares.

The new contract could be described as a hybrid between concession and production sharing. Such a design allows for a variable capture of economic rent, as is the case with PSAs but without the complications of a joint administration. The state owns the resource in the ground and transfers title of the operator’s share at the wellhead, while retaining the state’s share through to the point of sale, which can be anywhere from the wellhead onward.

While reaffirming the sovereignty of the state over its resources, the contract allows for a flexible and progressive capture of rent and a clean and simple administration that avoids potential conflicts of interpretation or cumbersome administrative procedures.

Ecopetrol, on the other hand, operates as a fully integrated petroleum company, listed in the Bogotá, New York, and Toronto stock exchanges, with strict and transparent governance and reporting systems.

reforms in Brazil (see box 5.6), with Mexico embarking on an ambitious long-term restructuring starting in 2013. In their approach to the assignment of powers to regulate and oversee the sector, Brazil, Colombia, and Peru have put in place systems with an independent, professional, and transparent administration of the resource and a separate NRC. Mexico is a transitional case but has already separated the resource administration and licensing responsibilities from the NRC into the Ministry of Energy and the National Hydrocarbons Commission.

MINING. Efforts at institutional reform in the mining sector have taken a slightly different direction from those in hydrocarbons, with a strong emphasis on the kinds of reform required to attract inward investment, coupled with measures designed to enable institutions to respond better to the social and environmental footprint of the mining industry (Bastida 2008). However, to achieve these objectives there has been a similar focus on identification and differentiation of roles among government institutions, even if much less on the role of state companies than in the hydrocarbons sector. In many countries, a significant challenge derives from the age of the mining sector. Oftentimes it has a much longer history than hydrocarbons: the institutional and legal frameworks can

readily date from decades earlier and reflect thinking that has long since been superseded. Reform has also had to take into account the differences in scale that are common among mining projects, with small-scale and artisanal miners playing a role that has no parallel in the hydrocarbons sector.

Several examples of mining reform illustrate the special challenges facing reformers in the mining sector. In Argentina in the 1990s, reform targeted legal and policy frameworks that had been established in the 19th century and required the establishment of coordination among the 23 provinces, which owned the mineral resources, and the federal government. The initial emphasis was on licensing and geological survey activities, but this shifted to environmental aspects and social impacts.

Institutionally, the biggest challenge is often what Gary McMahon has called the “Catch 22 of mining sector reform” (McMahon 2010). If reform is successful at attracting investment, “the public institutions cannot hire more staff or even keep their own people due to the large demand from much higher paying private companies.” This problem appeared in other countries such as Mali and Papua New Guinea, which addressed it by earmarking part of the mining revenues for the responsible sector ministries.

Box 5.6 Petroleum Sector Reform in Brazil

Brazil’s organizational reform of its petroleum sector (1997 onward) has provided clarity on roles and responsibilities and enhanced transparency and accountability. The roles for Petrobras (Brazil’s NRC for petroleum exploitation) are divided among the following entities:

- *President:* Approves fiscal targets for Petrobras
- *Congress:* Approves the investment budget for Petrobras
- *Ministry of Mines and Energy:* Develops EI sector policy and the Petrobras budget
- *Agencia Nacional do Petroleo (ANP):* Independent regulatory agency that provides regulatory oversight and royalty administration
- *Ministry of Finance:* Develops EI sector tax design and administration and proposes fiscal targets for Petrobras
 - *Petrobras:* Responsible for commercial petroleum operations

- It is 51 percent state owned with the remaining shares listed on the stock exchange and subject to exchange requirements on transparency. Petrobras provides full disclosure of expenditures and revenues that are held in public, audited accounts. It coexists with more than 70 other upstream operating companies.
- *Private sector:* Authorized to act alone or in joint ventures with Petrobras

Since the large “presalt” discoveries in 2007, a different approach has been adopted. Production-sharing contracts instead of concessions were required for the presalt areas, and Petrobras was made the exclusive operator with a minimum of 30 percent stake in any consortium. Governance indicators for Brazil have deteriorated since.

Box 5.7 Mining Sector Reforms

Botswana, Brazil, Chile, the Democratic Republic of Congo, and Zambia provide different models for both sustained success and reform.

Botswana has a 50/50 ownership of the highly profitable Debswana diamond operation with De Beers and has played an active, commercial shareholder role while leaving management in the hands of De Beers. In addition to its dividends as shareholder, the government has also received substantial tax payments.

CVRD (now called Vale) has been a well-governed and well-managed iron ore mining company in Brazil. It was taken to the stock market by the government and remains one of the world's largest and most profitable iron ore exporters.

Chile has retained control and operation of much of its copper resources through the 100 percent state-owned Codelco. A strong shareholder role, undertaken in large part by the technically competent and well-experienced

Chilean Copper Commission (Cochilco), has enabled Codelco to remain one of the most highly profitable and lowest cost mining companies in the world over many decades.

In the mid-1970s, Gecamines in the Democratic Republic of Congo and ZCCM in Zambia were two of the largest and most profitable copper producers in the world; both were state-controlled. However, a combination of noncommercial roles, mismanagement, and corruption led them to become noncompetitive in their copper and cobalt mining production. Today, they produce one-fifth of their peak production of the 1970s. Both have now been restructured and reformed and have divested much of their noncommercial roles to other government agencies. Most of their mineral reserves have been auctioned to private investors who are now assisting in the rebuilding of the mining sector in the Democratic Republic of Congo and Zambia.

In Papua New Guinea, the sector reforms were triggered by the clear need to rebalance sector organization in favor of community rights, in the face of a perception among the Bougainville islanders that they bore all of the environmental and social costs but saw few of the economic benefits (McMahon 2010, 16–17). Changes were made in the draft standard mining contract to address this, and institutional capacity was expanded. Spinoff businesses and joint ventures between local and foreign companies resulted, formalized in memoranda signed by mining companies and their host communities. Further, both government and mining companies supported the establishment of specific action plans to support women in mining, with a gender desk set up for each large mine. This gender focus led to women playing important roles in the renegotiation of community benefits in memoranda of agreement for two of the most important mining areas, Ok Tedi and Lihir.

Separately, a new mining authority was established in 2006: the Mineral Resource Authority, charged with administering the sector. It raises its own funding from sector levies and fees and is not subject to the kind of funding shortages and staff constraints as its predecessor. Another agency was established to maintain the regulatory framework with substantial institutional capacity.

Another example of mining reform is the program that commenced in Madagascar in the late 1990s

(McMahon 2010, 22–23). The two key planks of the policy were a decentralized administration and a close involvement of affected communities. Programs of capacity building were introduced for local and regional mining administrations. A separate initiative was to establish an institute for the study of gems, since the country has around 500,000 artisanal and small-scale miners.

Box 5.7 summarizes key points about mining sector reform in several other countries.

5.3 SPECIAL ISSUES

Because a growing number of governments desire to secure wide benefits from oil, gas, and mining activities, they have developed an interest in better understanding the kind of sector organization typically required *after* the grant of rights by the host government agreement to the investor(s). Many second order agreements are concluded by investors on this crucial foundation and often establish a kind of investor-led governance, relying on decades of evolving industry practices.

In this operational phase of extractives' activities, the host state still has an important monitoring role and will often be present as a participant. Typically, it will either become a party to arrangements such as a joint venture or it will need to understand them in order to perform its oversight role. Of course, it can do both.

This level of sector organization is relevant to questions about how a domestic industry might be stimulated by oil, gas, or mining projects that have a finite life. Domestic companies may eventually be able to supply goods, works, and services to the operators of extractives activities and related infrastructure projects. Such operators could, of course, be NRCs, like Kazmunaigaz in Kazakhstan or Petrobras in Brazil. Governance of this “service” sector has typically been left largely to the operator, but the growth of local benefit policies has brought it increasingly under the scrutiny of government bodies. In the near term, they could generate a significant boost to employment, and in the long term spin-off activity offers potential for creating new industries with local, perhaps regional, and even international standing. This is the part of the context in which debates about local benefit take place (see chapters 4 and 10).

Four of the more common areas in which governments might benefit from a deep understanding of governance arrangements in oil, gas, and mining sector organization are examined in this section: joint ventures, transportation, natural gas, and mining agreements.

Hydrocarbons: The joint venture approach

Many EI projects are carried out within the framework of a joint venture structure. This can spread risks in high-cost projects and may be attractive for a variety of reasons, not least if there is an exploration risk amid uncertain geology. Irrespective of the form of the host government agreement (HGA), there is likely to be a joint venture structure underlying it. It is common for the state or its agent to be a party to such arrangements, often as a sleeping partner in the initial stages. For governments, this can provide a useful source of information about the progress of a project in addition to any reporting requirements that are based on the contract between the host government and the foreign investors. It can also function as a way of building specialist capacity within the state sector. Indeed, in some cases the contract may be made by the foreign investors and a state company, acting on the government’s behalf.

Commercial structures tend to have some differences between the petroleum and mining sectors. Unincorporated joint ventures have been more common in oil and gas projects for reasons rooted in tax, financing, and technology, with capital separately provided by the partners and production shared. These structures have been much less common in mining, with major companies preferring to own majority stakes in locally incorporated vehicles.

The principal mechanism for the management of joint operations in the petroleum industry is the joint operating

agreement (JOA). The JOA is the typical legal mechanism by which several parties pool their resources to engage in a petroleum project. It assumes an agreement between the parties and the host state such as a PSA, or concession, and cannot exist without such an agreement. Whereas that agreement will set out the rights and obligations of the parties vis-à-vis the host government, the JOA will set out the rights and obligations of the parties among themselves. It will not establish a partnership in the legal sense—it is an unincorporated joint venture structure. An early draft version of it is often seen as a joint bidding agreement (see chapter 4).

The importance of the JOA also lies in its being a starting point for further essential agreements concerning the business of oil and gas production, processing, sales, and transportation and for other agreements that may be concluded among the parties concerning assignment, unit development, and decommissioning. If, for example, one or more of the parties elects to transfer part of its interest in the licence or contract a separate agreement, called a *farm-out agreement*, will normally be used. Its key element is the taking on of an obligation to carry out or to fund the carrying out of works. If, for example, Party A owns 30 percent of the joint venture, it may agree to transfer 15 percent to Party B in return for Party B agreeing to fund Party A’s entire 30 percent share of the cost of drilling a well. Such transactions to transfer assets (and also to sell them through a sale and purchase agreement) are very common in the international oil and gas industry. Similarly, the cooperation among parties to a joint venture may be developed further if petroleum deposits are found that appear to extend from one contract area to another. This will normally require the conclusion of a *unitization agreement*. The latter is briefly examined in the following material. Another important form of agreement that is commonly used in current industry practice concerns decommissioning (see the discussion in chapter 9).

THE JOINT OPERATING AGREEMENT. The union of diverse parties that a JOA entails is analogous to the kind of alliance formed by a marriage, although their number may well be significantly more than two.⁴ They come together by mutual consent and bind themselves legally for richer, for poorer and for better or for worse.⁵ The JOA is designed to last for the life of the project, which may be as much as 30 years, and the parties will remain together unless termination, withdrawal, assignment, or default occur. Unlike most marriages, the parties write down the rules of conduct that they will be subject to. Therefore, the JOA will provide the framework and the detailed rules on which the joint venture will operate throughout its lifetime. It will be in constant use

by the parties during the operations, including their technical, financial, legal, and operational teams, so it needs to be carefully negotiated at the outset. It will usually apply only to a single government concession or contract. Given the JOA's key role and the overall asymmetry of information between host government and foreign or nonstate companies, the absence of the government or its state company from a JOA means it will be at a serious disadvantage in the flow of day-to-day information about a field.

Relationship to the Host Government Agreement. The concession or contract sets out the *vertical* relationship between the government and the consortium of investors. In a production-sharing contract (PSC), the investors are usually referred to simply as "contractor." The JOA itself sets out the *horizontal* relationship among the parties' consortium in which they lay out the rights and liabilities arising under the HGA. The two agreements are inseparable. Four features of the JOA are particularly relevant to the host government:

1. The work obligations in the HGA relating to exploration and appraisal wells to be drilled need to be carried out by the joint venture parties and the JOA has to reflect this paramount consideration. Further work, such as development and production activities, will usually require government consent.
2. The operator of the JOA will become the spokesman of the consortium and main point of contact with the government. It needs to be comfortable with this and confident that the choice is compatible with performance of the work under the HGA.
3. The physical area set out in the HGA will set limits on the scope of the JOA and the rights the parties enjoy over it.
4. The duration of the HGA will set limits on the JOA not least if it makes distinctions between specific phases of activity or requires more than one form of authorization for a defined series of activities.

The HGA will typically provide that the parties in the consortium are jointly and severally liable to the government for performance of the terms of the HGA. A failure by one or more of the parties to fulfill its responsibilities under the HGA could result in the government enforcing the terms of the HGA against the other parties.

Contents of a JOA. The JOA will not constrain the government but as a matter of priority it will be designed to reallocate among the parties the joint and several liabilities imposed in the HGA so that their liability is shared according to the predetermined

interests of each of the parties. This will determine each party's ownership interest and benefits and its liability to costs, expenses, and risk, as well as its right to vote in relation to the management of the joint operations. The sharing of liabilities works between the parties and not against the host government in the grant of rights made through the HGA (although sometimes the government may insist on approval of the JOA). It will be supported by indemnities that will ensure the parties undertake to indemnify and hold harmless each other for claims, liabilities, and so on, up to their percentage share.

In the interest of efficiency, the parties will appoint an operator to run the joint venture on their behalf, with three main tasks: to carry out the joint operations, to represent the joint venture to the host government and third parties, and to manage the group's internal affairs, such as chairing meetings and providing accounts. The operator does this on a no-loss, no-gain basis. As the agent for the other parties, the operator is normally regarded as having a fiduciary duty toward them. What that means and what happens if it is breached are guided by the notion of what a "reasonable and prudent operator" would do in similar circumstances, a standard that is provided in the JOA.

Control over the operations (and the operator) is exercised by means of an operating committee in which each of the parties is represented and which controls the direction of operations by means of *passmark* voting (the aggregate percentage interest required to agree a proposal). These passmarks will differ according to the phase of operations, and voting practices are likely to vary from one JOA to another.

A decision such as the relinquishment of an HGA or dismissal of the operator would normally require a higher passmark than many other decisions. Another way the JOA can control operations is to impose controls on expenditure: all joint operations are funded from a joint account (with its workings set out in an accounting procedure that forms part of the JOA) into which the parties are liable to pay their respective percentage interest share. Procedures are established to agree on programs and budgets, and this is a key area of importance to the parties for control of operations (and the operator) and their exposure to costs. The operating committee has the right to make authorizations for expenditure within the budget over a certain amount. The operator's requirement to keep the operating committee fully informed underlines the value to the host government of a state body presence on this committee. There are also procedures for contracting for certain types of work (competitive tendering requirements, restrictions on use of operator's affiliates, and so on) that are relevant to a local benefit policy, if one exists.

Other provisions protect the parties' interests by providing for insurance, such as is required by law and as desired by the parties; litigation; and sole risk, which allows some parties to proceed with a proposal (drilling, appraisal, or development) that does not meet with majority approval. The JOA does not usually address joint sales of production, which is left to individual participants to arrange, nor will it address any use of infrastructure facilities such as terminals. However, the right to lift a share of production is also matched with an obligation to do so, since the commercial, financial, and technical aspects of a failure to do so would seriously affect the other parties to the JOA. There are also provisions in the JOA on access to, and sharing of, data gathered in JOA operations and on force majeure.

The JOA does not usually contain more than an outline reference to decommissioning (see chapter 9). Its main goal is to assert that the parties remain responsible for their percentage interest share of decommissioning costs.

Over time the standard approach to even these typical JOA clauses will be modified to take into account new developments. An example is the Gulf of Mexico oil spill disaster and subsequent litigation, which is likely to have an impact on clauses dealing with the allocation of liability and insurance. In particular, this will involve a review of the common use of "willful misconduct" in a JOA to apply to intentional or reckless acts and the degree of foresight it requires, and the inclusion of "gross negligence." Other clauses may be adapted if the oil and gas subject matter is unconventional (for example, shale oil or gas). The possible spread of shale gas operations outside the United States should lead to such adaptations.

Ending the JOA Relationship. The JOA parties may separate in one of three ways: (1) due to fault or default; (2) by mutual consent; or (3) a party's decision to transfer its interest. Default may arise as a result of a failure by a party to pay its percentage interest share of cash calls within the time set for payment. Parties in default normally lose their rights under the JOA and ultimately may lose their interest; nondefaulting parties will have to pay pro rata the amounts that are outstanding and may ultimately acquire the defaulting party's interest. Defaults could arise in connection with decommissioning obligations if a party sought to escape this liability, and the JOA should provide for this. It may also arise in connection with liability for significant environmental damage.

If a party wishes to leave the JOA by transferring its interests by a sale, a swap, or some other mechanism, consent by the host government is normal practice but, in addition, the JOA includes provisions on rights to, and limitations on,

assignment. The other parties' consent is required before a transfer can take place, although this must be "reasonable" and may well not apply if the transfer is to an affiliate; and the other parties may limit transfers of interests in the JOA by including rights of preemption, such as a right of first refusal.

Model JOAs. The origins of the JOA lie in practices of an oddly named body, the American Association of Petroleum Landmen (AAPL). The rather simple approach they adopted within the United States was not appropriate to the challenges of international petroleum operations, and more complex JOAs emerged. Attempts to develop a model JOA for international practice have emerged from the Association of International Petroleum Negotiators (AIPN), which has produced successive models, the most recent being in 2012. The aim of these models is to reduce the time spent in drafting a JOA and in negotiating its content. In practice, there is still plenty of scope for negotiation, even if the parties are able to commence with one of these industry-accepted models or a hybrid approach that combines provisions from more than one model of JOA. Any such model will have to be adapted to fit the terms of the HGA in a particular case, as well as the circumstances of the JOA parties and the project itself. Other examples of model JOAs are those provided by Oil & Gas UK, which was intended to reflect common U.K. industry practice at the time (for offshore areas); the Norwegian Petroleum Directorate (available in Norwegian only); the Rocky Mountain Mineral Law Foundation; the Canadian Association of Petroleum Landmen; and the AAPL. While there have been others, those issued by these bodies are the models that have been updated from time to time.

A recent development is the model unconventional resources operating agreement (UROA) developed by the AIPN.⁶ This is the first operating agreement to cover joint operations in shale oil and gas, tight oil and gas, coal-bed methane, and other unconventional production methodologies involving wellbore operations. It is based on an existing model for conventional resources but considers evolving industry practices and issues that are unique to unconventional resources. These unique issues include pilot projects; subarea, multipad drilling and production; and other aspects of horizontal drilling. As an alternative to using an entirely new operating agreement, the UROA includes provisions that would allow an adaptation of existing operating agreements to address the new issues arising from unconventional resources. They affect the standard provisions on the operating committee, work programs and budget, exclusive operations, and disposition of production.

UNITIZATION AGREEMENTS. A subagreement that is very similar to a JOA is called the *unitization agreement*. It arises from special circumstances. Where hydrocarbon resources are found to cross a boundary established by a contract or license, the response is typically to require the parties to develop the resource jointly as a single unit. Unitization is a response to this problem and the potential waste of hydrocarbon resources that unregulated development threatens. It is a program for the development and production of petroleum from a deposit or deposits that aggregates several concession areas (or parts of them) into a single unit, in which all of the parties will take a percentage interest. It is commonly thought to be a more efficient way of developing the deposit, preserving its unity, and limiting damage to the geological structure, which may otherwise reduce the recoverable reserves of petroleum.

The various companies holding rights granted by the government will negotiate a unitization or unit operating agreement. It will aggregate the management of the various JOAs and appoint a unit operator to act on behalf of all of the parties in the unitized area. These two elements of the agreement (the combining of various interests in a unit and the operation of that unit) are distinct but normally managed within the framework of a single agreement. Given the time it usually takes to negotiate a unitization agreement, the parties sometimes agree to a preunitization agreement to allow initial evaluation work to commence. What the parties discover during this process (such as geological and reservoir engineering studies) may lead to a different allocation of interests in the final agreement. The effect of this agreement will be to overlie, but not to replace, the various JOAs; they will remain in operation. However, in its content it will resemble a JOA. The provisions on calculation and sharing of the reserves between the contract holders to the various blocks in a site are found in a unitization agreement but are not present in a typical JOA.

A legal requirement to conclude a unitization agreement in certain circumstances will usually be found in the petroleum law, but also in regulations and in the petroleum agreement itself. Examples follow:

Angola (Production Sharing Agreement, 1997). Art. 27(1): “In the event of there being petroleum deposits, capable of commercially viable development which extends beyond the contract area, and where other entities have agreements for the exploration and production of petroleum with a similar unitization provision, SONANGOL may . . . require that the petroleum in those deposits should be developed and produced in mutual co-operation.”

Somalia (Petroleum Law, 2008, Providing for the Unitization Agreement). Art 32.1: “If and when a Reservoir is discovered to lie partly within a Contract Area, and partly in another Contract Area:

32.1.1.1 the SPA (Somali Petroleum Authority) may require by written notice the Contractors to enter into a unitization agreement with each other for the purpose of securing the more effective and optimized production of Petroleum from the Reservoir, and

32.1.1.2 If no agreement has been reached within a period of eighteen (18) months from receipt of written notice as required in Section 32.1.1.1, the SPA shall decide on the unitization agreement.

32.1.2 If and when a Reservoir is discovered to lie partly within a Contract Area and partly in an area that is not the subject of a Petroleum Agreement:

32.1.2.1 The SPA may require by written notice the Contractor to enter into a unitization agreement with the SPA of the purpose of securing the more effective and optimized production of Petroleum from the Reservoir; and

32.1.2.2 If no agreement has been reached within a period of eighteen (18) months from receipt of written notice as required in Section 32.1.2.1, the PSA shall decide on the unitization agreement, unless otherwise provided in the Production Sharing Agreement.

32.2 Without limiting the matters to be dealt with, the unitization agreement shall define the amount of Petroleum in each area covered by the unitization agreement, and shall appoint the operator responsible for production of the Petroleum covered by the unitization agreement.”

Models. The various terms of a unitization agreement are the subject of a model form published by the AIPN (www.aipn.org), based on two PSCs. Other models have been published by the Petroleum Joint Venture Association of Canada (www.pjva.com), the American Petroleum Institute (www.api.org), and the Rocky Mountain Mineral Law Foundation (www.rmmlf.org).

Cross-Border Units. Unitizations can cross international boundaries. In such cases, where boundaries are already established, the first step to securing investment in

petroleum activity is the conclusion of a bilateral treaty between the relevant states, such as those between the United States and Mexico, the República Bolivariana de Venezuela, and Trinidad and Tobago, and the United Kingdom and Norway.⁷ On this basis, unitizations can be organized across borders by the relevant companies with mechanisms for sharing the revenues among the parties.⁸ A source of uncertainty arises where the deposit lies in off-shore waters and crosses national boundaries. Recognizing and agreeing to these boundaries is a matter for negotiation between the states. Where they are in dispute, states have options nonetheless for peaceful development of the resources concerned (see box 5.8).

Hydrocarbons: Transportation

Oil and gas pipeline networks have been described as “the arteries that bring energy supplies from wellhead to market” (Energy Charter Secretariat 2007, 5). They raise important issues of regulation for governments, which can only be touched upon here. Oil and gas networks have significant differences, and the following section highlights some of the special features of gas transportation.

For landlocked countries, an export pipeline to a seaport is likely to be crucial to the monetization of its produced resources. For all countries, interruptions to flows of oil and gas can quickly cause disruption along the energy chain.

Box 5.8 Unitization in Maritime Waters

Innovation in technique and growing knowledge of EI potential have increased interest in maritime areas. Beyond national land and territorial sea areas, international law plays the key role. The UN Law of the Sea Convention (UNCLOS) confers sovereign rights on coastal states “for the purpose of exploring and exploiting, conserving and managing the natural resources.” A coastal state’s sovereign rights to explore the seabed and exploit its natural resources are treated as both inherent and exclusive in the continental shelf regime. This is stated clearly in article 77(1) and (2) of UNCLOS. No one may undertake activities of exploration or exploitation without the express consent of the coastal state. The exclusive nature of these rights prevents them from being lost to another state in the absence of any express agreement to the contrary. Their exclusive character is reaffirmed by article 81 UNCLOS, which grants the coastal state the exclusive rights to authorize and regulate drilling on the continental shelf for all purposes. They do not, therefore, depend on occupation, either express or notional, or on any express proclamation by the coastal state. The rights cannot be lost through neglect.

Unitization can follow the conclusion of a bilateral treaty between the relevant states. Such treaties frequently include a mineral deposit clause such as the following:

If any single geological structure or petroleum field . . . extends across the delimitation line and the part of such structure or field which is situated

on one side of the delimitation line is exploitable, wholly or in part, from the other side of the said line, the Contracting Parties shall, after holding consultations, seek to reach agreement as to the manner in which the structure or field shall be most effectively exploited and the manner in which the costs and benefits arising from such exploitation shall be apportioned (UK-Norway Boundary Treaty 1965, art 4).

These treaty arrangements are much easier to conclude if there is agreement between the states on the boundary between them. In many maritime areas, however, this is not the case. There are more than 200 maritime disputes ongoing around the world and more boundary disputes on land, creating significant disincentives to investment in prospective oil and gas deposits. As a result, there have been efforts to develop joint development arrangements that are provisional with respect to the boundary dispute but that allow hydrocarbon activities to proceed. Examples of this are in the Joint Development Zone (JDZ) of Timor-Leste and Australia, and that between Nigeria and São Tomé and Príncipe. The governance structure of JDZs differs from that of a unitized development usually in the following manner: in the JDZ, a code is likely to be used with a separate hierarchy and a dedicated administration; in unitized development, there is likely to be a joint operating agreement, with allocation of jurisdiction to existing institutions, and material and procedural rules will govern supervised conduct.

Since such networks often cross multiple national borders and jurisdictions, the legal and diplomatic complexities can be significant, involving international treaties, national laws and regulations, and a barrage of commercial contracts.

A very large quantity of oil and natural gas is transported every day across international borders. For oil, this amounts to around 65 percent of production, usually by ship but also by pipeline, and by rail and road truck if volumes are small. For gas, it amounts to around 31 percent of production, mainly by pipeline but also by liquefied natural gas (LNG) ship. For a number of countries that have recently discovered extractive resources, the issues of transportation and transit have a special significance—they involve the transportation of the resource from a landlocked state and emerging hydrocarbons producer, such as Uganda, to another (Tanzania) with port facilities and LNG terminals.⁹

In terms of sector organization, there are differences between oil and gas pipeline networks, between on-land and offshore pipeline networks, and between main pipelines and gathering pipelines (which gather the crude oil from multiple wells in a production field before initial processing and shipping), and between these and transit pipelines. The states involved can be suppliers, consumer states, or transit states. Apart from operational aspects, oil and gas pipelines “look essentially the same, perform the same service, and obey the same laws of physics. They are installed in largely the same manner and face the same regulatory and social dilemmas” (Miesner and Leffler 2006, 1). However, this does not mean that the terminology governing oil and gas pipelines is the same. It is not. There are also important differences, for example, between crude oil pipelines and refined products pipelines.

OIL AND GAS PIPELINES. While natural gas transmission companies have the same customers as oil companies, they have—instead of refiners—local distribution companies and large volume customers. The former usually enjoy an exclusive right to serve a particular area. In contrast to natural gas, oil does not reach the end user in the same form: it is transformed in refineries before it is suitable for consumption by its various customers.

CONTINENTAL PIPELINE NETWORKS. Some countries have land mass that has permitted or necessitated the construction of continental pipeline networks for oil and/or gas. Examples are Canada, Russia, and the United States. The United States has more than 2.43 million miles of pipelines carrying natural gas and hazardous liquids such as crude oil and refined products (Inkpen and Moffett 2011, 403–4).

They are used for almost 70 percent of the crude oil and refined products that are transported in the United States. Of these networks the pipelines that transport gas make up the largest part, connecting cities to neighborhoods, and addressing the geographic imbalance between producers and consumers.

There are also pipelines that cross continents, such as the Maghreb-Europe gas pipeline. This kind of project can be motivated by the goals of diversifying clients and minimizing transport costs. In the case of the Maghreb-Europe pipeline project, a complex corporate structure was established for the construction and operation of the pipeline. Legal title over the pipeline was vested in a company owned by the Moroccan state.

FINANCING. Organizationally, pipelines are constructed using debt financing, often on the basis of a consortium using project financing. The consortia of organizations usually include government bodies and development banks, such as the International Finance Corporation (IFC), the World Bank, or a regional bank such as the European Bank for Reconstruction and Development (EBRD). These bodies may provide various kinds of support such as ensuring access to land or capital. An example of this is the Baku-Tbilisi-Ceyhan (BTC) pipeline for crude oil transport from Azerbaijan to Turkey across Georgia. The pipeline was financed using a very high level of debt via project financing, and the consortium included the IFC and the EBRD.

PIPELINE AGREEMENTS. The contractual and commercial character of pipeline agreements is driven by some common principles. The pipeline networks are to be organized as low risk and low or moderate profit entities (with most of the profits to be generated at the field) with a regulated rate of return based on cost sharing. The positions of shippers and owners in the transportation system are to be balanced so as to reduce the conflict of interest between the parties involved. Within a single country the ownership models that result are essentially twofold. The first is a joint venture model, which has traditionally been preferred among international oil companies. The second is a joint stock company model (private, state owned, or a mixture). In this model, the rights and obligations of the parties involved will be formalized through a participants’ agreement. As far as operation is concerned, this will usually be undertaken by the participants’ own organization or contracted to third parties under an operating or service agreement. In the BTC case, it is undertaken by one of the shareholders in the pipeline itself.

For transportation, a commercial tariff will be set for the service rendered. This is distinct from a transit fee, which is a charge assessed by a sovereign state. Typically, one of three transportation tariff models will be adopted for cost recovery:

- A throughput-based tariff (The unit tariff will vary according to the throughput, so that a low throughput would lead to a high tariff and vice versa.)
- A fixed-unit tariff (where the unit tariff is independent of the actual throughput)
- A combination of the above (The capital element of the tariff is fixed but the operating element will vary according to throughput; a rebate may be available if more volume is committed.)

Transportation agreements are required to establish the rights and obligations of owners of a transportation system (the transporter) and owners of the product to be transported (the shippers). It will normally contain three kinds of clauses: technical, commercial, and financial and legal. Only a few items in the second category are of importance.¹⁰

In one of the leading works on oil and gas agreements, the writers of the chapter on transportation agreements, Brian Cassidy et al. (2008, 204), state that the provisions dealing with transportation charges or the tariff “are of central importance in a transportation agreement.” Under the subhead “What Would a Transporter Be Expected to Recover?” they state the following:

- The main elements that the transporter would expect to recover through the tariff can be summarized as follows:
 - The pipeline capital costs (e.g., construction related) incurred mostly prior to the start date;
 - The pipeline operating costs (and other variable costs, for example spares), incurred during the life of the transportation agreement; and
 - An element of profit. This assumes that the transportation activity is a profit generating unit of its own, separate from the other segments of a particular project.

The actual tariff structure adopted in a transportation agreement, however, may take several forms, according to the authors. If, for example, it is a cost recovery structure, the charges will be related to the actual costs and in particular the variable ones “incurred by the transporter during the term of the transportation agreement. . . . The purpose of

this structure is to pass through the risk of changes in these costs to the shipper. . . . Most importantly, the tariff should reflect the commercial arrangement reached between the parties.”

These remarks apply to pipeline transportation of oil and/or gas both within national frontiers and across borders. However, the commercial principles are likely to be the same for both. The survey by Cassidy et al. (2008) covers “the issues that need to be dealt with in a typical gas transportation agreement (GTA) or crude oil transportation agreement (COTA)” (150). It is perhaps revealing that when referring to both of these agreements they use the common term *transportation agreement*, suggesting that the commercial arrangements contain many more similarities than differences.

CROSSING BORDERS, TRANSIT, AND LANDLOCKED STATES. There is no single legal model for pipeline ownership when more than one country is involved. The two most common models are for each state to own each section of the pipeline that is placed within its national frontiers: the connected national pipelines model. Alternatively, a pipeline project may be developed as a single unit: the integrated pipeline model. An example of the former is evident in the agreement between Turkey and Iraq on oil transportation:

Each of the two States guarantees to operate, maintain, manage, and finance, and to provide all requirements for the part of the system located within its own territory to transport Crude Oil through the pipeline across Iraqi and Turkish territories and to deliver into Ceyhan terminal on the Mediterranean shore.¹¹

The integrated pipeline model requires an intergovernmental treaty and agreements between the individual states and the pipeline company. The result is a mixture of international law, commercial contracts, and domestic laws. The BTC pipeline is an example of this.

When a pipeline takes a commodity from country A to country B, but transits country C in the process, it is to be expected that country C may levy a fee on the carriage, either as compensation for providing a right-of-way or for services rendered, such as protection or safety. There are no standard rules applicable to transit fees and they tend to be based on negotiation, once the principle of levying a fee has been accepted. Fees are usually the subject of pipeline agreements entered into between the countries concerned and the owners of the pipelines (which may involve the respective states or

their enterprises) or in an intergovernmental treaty. International law plays no role in setting transit fees.

As cross-border pipelines become increasingly important for international trade, public international law is likely to play a growing role in constructing more harmonized and coherent legal regimes for construction and operation (Vinogradov and Mete 2013). The kind of international treaties and conventions that are potentially relevant to a discussion of transit include the Energy Charter Treaty (particularly article 7 on transit), General Agreement on Trade and Tariffs 1947, World Trade Agreement 1994, New York Convention on Transit Trade of Land-Locked States, and UN Law of the Sea Convention, which contains provisions for landlocked states in articles 124–25, 127, and 129. Model agreements for cross-border pipelines have been developed to assist governments in their organization of frameworks for cross-border trade in oil and gas.¹² Important principles that emerge from these treaties are freedom of transit, nondiscrimination, noninterference for political or economic reasons, noninterruption, fair and reasonable tariffs, notification in the event of emergencies, and mutual assistance.

The experience with international transit pipelines for oil and gas has not usually been positive. They have a very checkered history, with frequent disruptions due to government-to-government disputes. This has been very evident in the Middle East and the countries of the former Soviet Union; the acrimonious results have been documented in some detail (Pirani, Stern, and Yafimava 2009; Stevens 2009). In part the source of dispute lies in the various kinds of transit systems that a regulatory regime has to apply to. The kind of transit system that is purest, with no connection to the gas supply system in the transit country, is rare. More likely, the transit pipeline will also be used to supply gas of the same origin to the transit country itself. It may even be integrated into the domestic supply system and owned and operated by the main national transmission operator.¹³

ENVIRONMENTAL AND HUMAN RIGHTS ISSUES. Long-distance, cross-border pipelines usually involve significant environmental and social impacts, whether they are on land or underwater. Proposals may well involve plans to construct pipelines near or through sensitive areas such as rain forest, protected habitats, or the Arctic. This has led to a growing role for international regulation, both global and regional, in addition to the relevant national environmental legal frameworks. These norms can be legally binding but also can take the form of soft law obligations developed by industry associations and international financial institutions. They may impose restrictions on the

choice of route or pipeline design. Among the many international conventions is the Espoo Convention on Environmental Impact Assessment in a Transboundary Context, which provides for extensive consultation procedures prior to the construction of large-diameter transmission pipelines, both on land and offshore.

Pipelines have become significantly safer as well as more efficient as a means of transporting oil and gas over long distances, crossing mountains, valleys, and rivers or going undersea. However, spills and leaks do still occur, and much more commonly than is socially acceptable. Major efforts therefore go into the design and execution of environmental and social impact assessments. Recent debates about the construction of a new North American pipeline, Keystone XL, from Canada to Nebraska in the United States, and about Arctic drilling and related pipeline infrastructure, have underlined the continuing sensitivity of this subject (see chapter 9).

Pipelines can also raise human rights issues, as has been evident in the large cross-border projects, the Chad-Cameroon Pipeline and the BTC Pipeline.¹⁴ To mitigate this, the UN Guiding Principles on Business and Human Rights set out an expectation that pipeline companies shall adopt policies that demonstrate respect for human rights.¹⁵ They are also expected to carry out a due diligence process and ensure that processes are in place to enable remediation of adverse impacts. These principles are to be applied even when the domestic law of a jurisdiction in which the pipeline company operates is silent on international requirements, has not enforced them, or is in conflict with them (United Nations 2011, principles 23–24).

Organizing a natural gas sector

Sector organization for gas development presents a government with very different challenges from oil. Natural gas is distinct from oil in terms of transportation, regulation, and commercial arrangements. This is particularly striking in the kind of agreements typically used in the sector.

The two segments, upstream and downstream, are interconnected, creating a chain of discrete links (often referred to as the “gas chain”) with gas required to be present in sufficient quantities at each link of the chain. For a gas discovery to be commercial, the gas needs to be sold at a fair market price. Yet each of these two segments is, as Le Leuch notes, “covered by specific legal, regulatory, fiscal and contractual regimes as the costs, risks, economics and business models of each . . . are not comparable” (Le Leuch 2011, 13). Once a government has awarded rights to explore for and

exploit gas, it needs to consider the framework for activities beyond the field delivery point. These activities—which follow from production and include transportation, storage, and distribution up to the end user—are essential for the monetization of gas resources. As the *Sourcebook* has emphasized, the close links between upstream and downstream mean that gas activities, in contrast to oil, require significant planning before investment can be made in the development of a gas industry, whether for domestic consumption or for export. Not only that, but the investment is very large and requires coordination among several investors. This means that a gas policy faces a challenge in encouraging timely investments in each segment of the supply chain, from the wellhead to the projects on transmission and distribution.

In these circumstances, a government with significant proven gas deposits may decide to supplement its petroleum law with a dedicated gas law based on a distinct policy for the gas sector. Its focus is likely to be on encouraging the most efficient and economic utilization of the produced gas. The local context is decisive here, because the policy has to establish priorities between the various possible commercial uses of the gas in conjunction with stakeholders such as upstream investors. These could be first the development of domestic gas demand, providing for exports, and establishing a regulatory framework for gas, including a gas regulator. The choice will be strongly influenced by whether the country is limited by its reserves or by its market for gas use. In Egypt, for example, priority was given to the domestic uses of gas and the establishment of a national reserve to secure a long-term supply for local gas requirements, with additional sources of gas available for export if the reserves are identified. A similar approach was adopted in Canada and the United States, with a license requirement for gas export and delivery limited to circumstances in which it can be shown that sufficient gas resources exist to adequately cover the local demand in the long term. Even a country with medium-sized gas reserves, like Côte d'Ivoire, decided to promote development to supply only the local markets, mainly for power generation.¹⁶ By contrast, Qatar has a limited domestic market for its very considerable reserves of gas and priority was therefore set for exports after the supply of the country's limited needs.

Establishing these policy priorities will assist in organizing the timely construction of the necessary processing, transmission, and distribution infrastructure facilities. However, even if a gas law is adopted as a result, most of the connections between upstream and downstream will be established by contract law rather than by statute.

GAS MASTER PLAN. Given the potential for using the discovery of large gas deposits as a vehicle for wider economic development, more and more governments see it as a worthwhile exercise to develop and publish a distinct gas sector policy (or at the very least a petroleum policy that includes gas sector issues). In 2014 Mozambique approved just such a natural gas master plan, including a proposal to construct a pipeline from the location of the gas deposits to the capital, Maputo, which is the main center of population. (For background on the plan, see ICF International 2013.) A year earlier, its neighbor, Tanzania, published a natural gas policy.¹⁷ The overall aim of these East African initiatives is to maximize industrial benefits from the development of gas rather than to rely on benefits from export revenues alone. To ensure that gas development achieves improvements in the quality of life for citizens while at the same time minimizing social and environmental impacts, the Mozambican Plan set five priorities:

1. Growth in domestic public and private sector institutional competencies
2. Growth in domestic industry and businesses, especially small- and medium-scale industries
3. Increased employment throughout the country, especially in the less-developed provinces
4. Infrastructure to support expanded economic activities (port and rail infrastructure, for example), especially in the less-developed provinces
5. Expanded access to training and education

Given the complexity of gas market development and the ambition of a growing number of gas-producing countries for domestic benefits from resource development in addition to revenues, the experience of Mozambique with the gas master plan (GMP) instrument may be instructive. Among the lessons early experience has yielded are the following (Huurdeeman, Chikkatur, and Crook 2014):

- A GMP needs to focus on a strategic analysis of policies, institutions, and regulations in the gas sector, rather than just technical details and specific build-out plans.
- GMP recommendations should contain a hierarchy of decisions so that the government can take specific decisions immediately and then carry out additional analyses over time to inform future decisions. The goal of a GMP should not be to define all decisions about the emerging gas sector, and the GMP should evolve over time according to actual circumstances.
- Government needs to actively plan for implementation of GMP decisions, early on in the planning process. It may

need to seek additional resources for more detailed studies and to plan for policy and regulatory changes, which require legislative measures.

- The development of a GMP needs to include and have the active participation of key government ministries.
- Broader stakeholder groups need to be involved in the GMP development process to foster a consensus-building context.

LEGAL AND REGULATORY FRAMEWORK. Many countries in the developed and developing world have adopted gas laws. Examples include the Gas Code of 30 December 2002 in Cameroon; the Law on Electricity and Gas of 21 May of 1999 in Georgia; and in Latin America the Law on Gas of Brazil supplemented by its decree on application of 2010. Often there is an influence of U.S. and U.K. gas laws, particularly on subjects such as the role of a gas regulator; the regulatory framework for construction and use of transmission pipelines; storage facilities; distribution networks; supply and marketing activities; imports and exports of gas; and gas pricing. There is therefore plenty of scope for drawing on the experience and approaches of other countries in designing a legal framework. However, the scope of a particular gas law will depend very much on a country's specific circumstances, including known gas deposits and policies. In particular, it will be influenced by the priority given to the development of a domestic gas market and to domestic supply over exports.

In establishing an agency for the gas sector, some countries experience capacity constraints. The solution to this is in most cases readily available. If there is an existing petroleum regulatory agency for upstream activities, its role can be expanded to include gas operations downstream. This was the solution adopted by Brazil pursuant to its 2009 gas law. The petroleum agency, Agência Nacional do Petróleo (ANP), was charged with promoting gas activities along the entire gas supply chain by targeted actions. In particular, this involved the promotion of new gas projects, facilitating third-party access to existing gas infrastructure at fair tariffs, and introducing a greater degree of transparency over domestic gas markets and use of infrastructure. To achieve the latter goal, ANP created a dedicated public web-based gas portal.

Example: In the Cameroon Gas Code of 2002, the downstream gas sector is regulated by the minister responsible for petroleum with the option of establishing a regulatory agency in future. Gas transmission and distribution are subject to the grant of a concession awarded for a renewable period of 25 years on the conditions stated in a concession contract defining the rights and obligations of the transporter or distributor. The principles of pricing of services

and gas provide for a cost of service plus reasonable return on equity approach. For activities such as processing, import, export and storage, a license is required rather than a concession.

THE MAIN GAS AGREEMENTS. Long-term contracts play a crucial role in providing the foundations for the sector after commercial deposits of gas have been found. These are not the only kinds of contract in use: shorter term contracts or spot sales are also in use, particularly in well-established regional markets such as Europe and the United States. While these have grown in recent years, long-term gas sales commitments remain fundamental and are likely to remain so until regional and global gas markets become so fully liquid that long-term pricing mechanisms are no longer needed.

Generally, there are three main kinds of contract used in the international gas industry: (1) gas sales agreements (GSAs); (2) gas transportation contracts and (3) gas balancing contracts, used to allocate under-lifted gas among producers (Le Leuch 2012, app. 8).

Gas Sales Agreements. GSAs are signed between producers (sellers) of gas and buyers. Often known as gas sales and purchase agreements, they provide for the long-term sale of certain quantities of gas by the producer at a base gas price on a given date and delivered at a given point of the gas supply chain. They have a duration of between 15 and 25 years, especially when they are related to the sale of LNG or to exports of pipeline gas using a specially built pipeline. With the impact of market liberalization, and unconventional gas supplies, the duration can now be much shorter. The base price is subject to a specific revision formula containing a list of agreed indices such as the quoted prices for a set of crude oils and/or competing fuels to gas as well as indices representative of costs, inflation, and sometimes currency exchange rates. For the *Sourcebook* focus on the extractive phase, this kind of contract is particularly important. Without it being put in place, extraction of the gas deposit will almost certainly not commence. It is also the kind of contractual arrangement that most developing countries prefer, given the absence of high-cost gas infrastructure.

There are two main kinds of GSA, depending on whether or not the future gas production in the agreement is dedicated by the seller to be produced from specific gas/oil reservoirs or fields and supplied at the delivery point. If it is, the agreement provides for a detailed mechanism to adjust the daily and annual quantities to be supplied and purchased relative to the dedicated gas reserves, as they are

periodically reestimated under procedures set out in the GSA. This kind of agreement is often found in developing countries for new projects when the investor seeks to obtain project financing for monetizing the discovered gas resources.

The other type of GSA is a pure supply agreement under which the seller is free to select the source of the gas to be supplied at the delivery point to the buyer. This means that the quantities of gas to be supplied and purchased are equal to the quantities stipulated in the initial agreement without any adjustment on reserves.

The provisions in each type of GSA will number around 30, covering legal, contractual, operational, economic, and fiscal matters. They will typically include provisions on price determination and possibly a price review, contract quantities and gas quality, and a take-or-pay obligation for the buyer to accept on an annual basis the minimum quantities specified in the GSA. In the event of a failure to do so (and it may amount to up to 80 percent of the total amount), the buyer will compensate the seller by paying for the gas not taken up to a certain agreed amount. These are high-value contracts that tend to have complex dispute resolution procedures to cope with any disagreements. Examples of model text are available in the Model Form for Gas Sales Agreement developed by the AIPN, along with guidance notes.

It should be emphasized that price is a crucial variable. Without a price, there will not be a contract. The price is also determined on principles quite different from those governing the sale of oil in international markets. Gas prices will depend on its uses and will differ between different regional markets. This means that a gas valuation clause has to be inserted in the contract to ensure the gas is sold at a fair market value. This will hold for the price of sales to third parties as well as sales to domestic users and for export. It is often the case that the gas sales contracts must be approved by the government, including approval of the gas pricing clause. It may be noted that some governments impose a gas price that is lower than the fair market value in order to support domestic consumption. This is likely to have negative effects on the economics of gas projects and the long-term interests of the country.

The contract gas price typically consists of a base price that is adjusted from time to time according to several indices, each one having a specific percentage weight in the price adjustment formula. Most of the gas traded in Europe and Asia has prices linked to oil through a formula. The index will set a floor price and a ceiling price to limit the range of gas price variations over a given period. This protects the

seller for its investment in the upstream project and the buyer by ensuring that the purchased gas does not become noncompetitive with alternative sources of energy or feedstock. A price review or reopener clause is often included to allow a revision of the price in certain defined circumstances. It will typically identify a trigger event that permits the review procedure to be invoked immediately or at some date; a procedure for negotiation and dispute resolution and some criteria against which possible revisions to the price formula can be assessed; and provision for accounting adjustments once the new price has been determined (Mildon 2012).

Gas Transportation Agreements. These agreements deal with the use of existing pipelines, usually treated as distinct projects from the upstream activities, owned and operated by a separate legal entity. Long-term gas transportation agreements are concluded between the company owning the pipeline and each of the users of the pipeline (the shippers), the shareholders of the pipeline company, and/or third parties.

They provide for the annual contractual quantities to be transported, quality of gas, the capacity reservation, and the determination of the tariffs along with a ship-or-pay obligation for the shippers. Model gas transportation agreements have been produced by the AIPN with guidance notes.

Gas Balancing Contracts. These serve to allocate the balance between gas taken up and not taken (lifted) by the producers of a gas field in circumstances where joint selling is not possible or desirable for commercial or legal reasons (it might breach antitrust law).

When a pipeline route is designed to cross borders between two or more countries, the contract structure will require a treaty to be put in place between the countries concerned. There are many examples of such treaties, from the North Sea to east-west pipeline routes into Europe.

LIQUEFIED NATURAL GAS. An LNG project will usually be considered as part of the downstream (or midstream) sector or as a distinct sector in its own right. There are 17 countries around the world with more than 30 such projects (Le Leuch 2012, 53).¹⁸ Of these, no less than 14 are from outside the OECD area. Developing countries have 92 percent of the LNG capacity already built. In Africa, these are Algeria, Egypt, Equatorial Guinea, and Nigeria. In Latin America, there is Trinidad and Tobago, while in the Middle East there are Abu Dhabi, Oman, and Qatar. In Asia and the Commonwealth of Independent States are Brunei, Indonesia,

Malaysia, Papua New Guinea, and Russia. The only OECD countries on the list are Australia and Norway, with the United States a long way behind them.

The transportation solution LNG offers to countries seeking to export gas is the reason why there is such a preponderance of developing countries in the LNG business. It suits those countries facing a distance between the producing fields and the consuming markets, sometimes a distance of, say, over 4,000 kilometers. As Le Leuch (2012, 53) notes, “LNG represents for developing countries a cost-benefit solution to unlock stranded gas resources and monetize them when the local gas demand is insufficient.” Papua New Guinea illustrates this point. For decades, several large and medium-sized gas and condensate discoveries were stranded for economic reasons due to the difficulties in finding domestic and international markets for them. Eventually, a project was developed to export LNG and liquid petroleum gas under long-term purchase contracts to three Asian countries: China, Japan, and Taiwan, China.

The fiscal regime is usually distinct from that which applies to the upstream sector. An LNG plant may have a fiscal regime that is more favorable to the investor than the upstream fiscal one, including, for example, temporary tax holidays. The kind of legal, contractual, and fiscal framework that is applied to LNG plants can be classified into one of three types. In the first two nonintegrated models the gas production and the LNG plant have different stakeholders. This is not surprising since the length of time required to develop an LNG project after a discovery of a gas field can be very long. Another reason is that governments and national oil and gas companies usually have a stake in the upstream activity but will have to collaborate with international investors to establish a joint venture to secure access to the technology, finance, and marketing that is required when developing an LNG project.

Mining agreements

Sector organization by contract in the mining sector bears many similarities to the hydrocarbons sector. Common industry agreements in mining are preliminary agreements such as exclusivity or confidentiality agreements at the bidding stage; project evaluation and development agreements; joint operating agreements; supply agreements; acquisition agreements; financing agreements; consulting service agreements; community agreements; marketing and sales agreements; and reclamation.

However, commercial structures between the sectors show some differences. For example, unincorporated joint

ventures have been more common in oil and gas projects. The reasons for this popularity are rooted in tax, financing, and technology, with capital separately provided by the partners and production shared. In the mining sector, these structures have been much less common, with major companies owning majority stakes in locally incorporated vehicles. Where joint ventures are formed, they also present a contrast in tending to be formed *after* the discovery and appraisal of a mineral deposit to facilitate commercial development.

Models are available for some of the agreements. For example, the Australian Mineral Law Association (AMPLA) has a Model Exploration Joint Venture Agreement (Minerals).¹⁹ The U.S. Rocky Mountain Mineral Law Foundation (RMMLF) has standard forms called Forms 5, 5A, and 5A LLC, and Canadian forms of agreement also exist. Given that the country of origin of many internationally operating companies is one of the above countries, the models are worthy of note.

The AMPLA Model Exploration JVA (Minerals) has separate versions for two-party and three-party ventures. They cover only the exploration phase, through the preparation of a bankable feasibility study, and use an unincorporated entity. These are designed for noncomplex projects. Only a majority vote is required to proceed to development. If a venture declines to participate in approved development, its ownership interest is subject to a forced sale at fair value.

The RMMLF Form 5 creates a common law joint venture, while Form 5A is a model for establishing an operating agreement (no legal entity) and Form 5A LLC creates a Delaware-based limited liability company. It is important to understand that these documents are useful mainly as a checklist and not to be used as off-the-shelf forms of agreement. Form 5 was published in 1984 and is widely used in the United States and Canada for exploration projects. It contains complicated procedures for approving and adopting annual programs and budgets. It does not adequately address liability for environmental compliance for a withdrawing party. Form 5A is an exploration, development, and mine-operating agreement and was created to address a number of issues that junior mining companies identified in Form 5, including issues relating to financing. Again, the structure created is a complex one, with a multistep approach to the decision to develop a mine. Ongoing liability is imposed on parties after termination or withdrawal for environmental liabilities arising from conditions as of the date of termination or withdrawal. Important substantive terms are included in the exhibits (tax arrangements and net proceeds calculations, for example). Form 5A LLC is a model agreement that envisages the establishment of a limited liability company, with

pass-through tax treatment and limited liability. It has become the starting point for many U.S. and Canadian joint ventures. This model eliminates some of the complexities of the Form 5A.

There is no standard form or model agreement in Canada. Form 5A is often used as a starting point for drafting and negotiations.

5.4 SUMMARY AND RECOMMENDATIONS

A key element in well-designed sector organization is clarity of the roles and responsibilities of sector agencies in policy, rulemaking, and monitoring. This includes clarity in relations with agencies in other, nonextractive sectors.

There are four essential actions necessary to achieve this clarity: (1) ensuring that appropriate institutional capacity is available at each stage in the EI Value Chain; (2) ensuring that capabilities are available, in the sense of specialist skills, training, adequate resources, and compensation, and insulated from political interference; (3) setting nonoverlapping mandates so that each ministry or agency has a mandate with clearly defined competencies and responsibilities and the resources and staff to fulfil the mandate; and (4) having consistency of approach, so that all government bodies are working to achieve extractives development in a sustainable manner.

The organizational neatness and practical effectiveness of the Norwegian approach to sector organization has been influential in the hydrocarbons sector as an aspiration. The remarkable success of Norway in resource management justifies this influence. However, attempts to follow its main features have so far underlined the challenges of institutional reform in established resource-rich countries.

By contrast, the mining sector has led the field in exploring ways of adapting institutions to community needs, gender issues, and small-scale activities.

A convention has developed in the hydrocarbons sector that an NRC is an essential tool in sector organization. The assumptions on which this is based may be challenged. However, if an NRC is necessary, there is a body of good practice or at least good guidance for states seeking to take this route.

At key points in sector organization the importance of transparency is evident. The *Sourcebook* has noted the prevalence of model contracts that are publicly available. Openness in the operations of NRCs is widely regarded as desirable even if not always observed, and publication of reports and data by government bodies is closely linked to efficiency in performance.

Appropriate institutional capacity at each stage in the EI Value Chain is critical to overall EI sector management success. Targeted skills, training, adequate resources and compensation, and insulation from political interference are essential. Technical assistance and the engagement of professional advisers can contribute significantly to capacity building.

In petroleum-producing states, where government petroleum sector income can come from a variety of different and often unrelated sources (including PSCs, bonus payments, NRC dividends, and income taxes), all petroleum sector payments to the government should ideally flow into a single treasury account at the central bank.

In mineral-producing states, where government income from the mining sector is often much smaller relative to the size of the economy than petroleum sector income, the main income is generally from income taxes, employment taxes, and dividend withholding taxes. General good practice is for such payments to go directly into the state's general revenue account unless there are special provisions for windfall profits taxes because of price volatility.

The aspirations of governments to become involved in key aspects of hydrocarbons operations is often linked to their goals of enhancing local benefits. Without an understanding of the typical joint venture arrangements—and ideally some participation in them—the aspirations are likely to be constrained. However, an introduction to much of the detail about joint venture arrangements is possible through the publicly available model contracts.

The organization of pipeline networks raises special issues of governance. These networks often have an international aspect and require the conclusion of state-to-state agreements or treaties. They also raise important questions about regulation that differ between oil and gas networks. Many forms of model agreement are available to assist governments in meeting the challenges.

In contrast to oil, the producer of gas has to worry about a much longer chain in which each successive link is connected by physically fixed investments. Any one of these links may turn into a bottleneck and act to limit the capacity to provide and acquire gas. Any major break in one of the links will have potentially serious consequences for the entire chain, with the links down the line experiencing supply problems and the links upstream experiencing cash problems. At the end of the chain, gas has to compete with substitute fuels, limiting the price that consumers are willing to pay for it. The successful financing of a gas project requires an assurance that all of the links are sound and secure. Without such assurance, it is unlikely

that the large amounts of finance required to develop a gas field will become available. Yet where gas is used in the domestic market instead of or as well as for export, the dominant position of the gas network owner requires a government to ensure that a regulatory regime is in place to prevent any abuse of that position, such as in pricing to end users.

An important caveat about natural gas markets is their evolving character in recent years. Due in part to the impact of shale gas commercialization in the United States and the liberalization of gas markets in Europe, gas pricing and the duration of gas contracts have changed. The impact of these changes is still being felt in international gas markets.

5.5 PRACTICAL TOOLS

Much of the content of this chapter has been concerned with knowledge that is—at least in model or standardized form—available in the public domain. The real challenge for a government lies in identifying the kind of education or training opportunities to ensure that it possesses a cadre of staff able to utilize this knowledge to the country's benefit. To this end, the various kinds of courses offered by *Sourcebook* partners offer a way forward.

For example, the Columbia Center on Sustainable Investment (CCSI) offers online training, executive development and capacity building programs, and specialist support products like its Tanzania Oil and Gas Capacity-Development Program, which is a CCSI partnership with the International Senior Lawyers Project and Tanzania's UONGOZI Institute to provide tailored support to Tanzania's Oil and Gas Negotiation Team. More can be learned about CCSI at its website, <http://ccsi.columbia.edu/our-focus/investments-in-extractive-industries/>.

The Centre for Energy, Petroleum and Mineral Law and Policy, University of Dundee, offers a range of practical masters and continuing professional development courses relating to both mining and petroleum and covering diverse topics such as mineral economics, stakeholder management, the minerals sector of Latin America, negotiation skills, petroleum regulation and licensing, managing contracts and agreements, arbitration, and dispute management skills. More can be learned at <http://www.dundee.ac.uk/cepmpl/>.

Finally, in a further note on what *Sourcebook* partners offer, the Centre for Social Responsibility in Mining, University of Queensland, provides practical training across a range of relevant topics, including grievance mechanisms,

community engagement strategies for the facilitation of genuine participation and the fostering of civil society empowerment, respect for human rights, and mining in postconflict situations. More can be learned at <https://www.csr.m.uq.edu.au>.

NOTES

1. The classic exposition of this is Farouk Al-Kasim's (2006) book, *Managing Petroleum Resources: The "Norwegian Model" in a Broad Perspective*. However, the limits to the Norwegian approach as a model are clear enough from the title to one of Al-Kasim's chapters, "The Unique Circumstances of Norway as a Petroleum Nation."

2. On hydrocarbons, the principal studies are Victor, Hults, and Thurber 2012; Heller, Mahdavi, and Schreuder 2014; Tordo, Tracy, and Arfaa 2011; McPherson 2010; and Marcel 2006. On mining, examples would include RMG 2011; and Humphreys 2009. See also the Natural Resource Governance Institute website, <http://www.resourcegovernance.org/rgi/soc>, particularly its posting of Copper Giants: Lessons from State-Owned Mining Companies in the Democratic Republic of Congo and Zambia (Manly and Wake 2015).

3. Another way open to governments to achieve this goal, with respect to hydrocarbons pricing, is to require the foreign oil company to accept a domestic market obligation. This commonly requires the foreign company to sell a proportion of crude oil production to the domestic market at below the market price.

4. For a comprehensive survey of this subject see Roberts (2012), *Joint Operating Agreements: A Practical Guide*.

5. The analogy appears to have been first used by Sandy Shaw (1996), a leading oil and gas lawyer in the United Kingdom.

6. The UROA includes guidance notes and takes into account differences between common law and civil law jurisdictions. The process of drafting the model involved more than 160 industry representatives from 26 countries across five continents.

7. US-Mexico Transboundary Hydrocarbons Agreement (2012); Unitization Agreement for the Exploitation and Development of Hydrocarbons Reservoirs of the Loran-Manatee Field That Extends across the Delimitation Line between the Republic of Trinidad and Tobago and the Bolivarian Republic of Venezuela (2010); Framework Agreement between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of the Kingdom of Norway Concerning Cross-Boundary Petroleum Co-operation (2005).

8. The issues are extensively discussed by Asmus and Weaver (2006) and Cameron (2006, 2016).

9. There are 44 landlocked countries in the world and 10 are hydrocarbons producers or have reserves waiting to come into production: Bolivia, Chad, Uganda, Kazakhstan, Azerbaijan, Turkmenistan, Uzbekistan and the Republic of South Sudan are examples. See Dimitroff 2014, 295–98.
10. Typically, the contents of a transportation agreement include a description of the system; points of delivery and redelivery; operating conditions, quality requirements, and control; measurements and allocation; delivery and transportation commitment; priority, curtailment, and shut off; tariff, billing, and reports; liens and warranty; termination; assignment; liabilities and insurance; force majeure; and applicable law. In the appendices that accompany a typical agreement there is usually a description of the structure and operation of the tariff calculation methodology and operations manual.
11. Crude Oil Pipeline Agreement dated August 27, 1973 between the Government of the Republic of Turkey and the Government of the Republic of Iraq, as amended September 19, 2010: article 2. The South Stream gas pipeline project (<http://www.south-stream-offshore.com>) in Southeastern Europe is the most recent example of this model.
12. The Intergovernmental Pipeline Model Agreement and Host Government Pipeline Model Agreement were developed within the framework of the Energy Charter Secretariat (2008) for, respectively, agreements between states and between individual states and project investors.
13. For a discussion of transit systems and many case studies see *Bringing Gas to the Market: Gas Transit and Transmission Tariffs in Energy Charter Treaty Countries, Regulatory Aspects and Tariff Methodologies* (Energy Charter Secretariat 2012).
14. See the discussion of these pipeline investments in *International Energy Investment Law: The Pursuit of Stability* (Cameron 2010), 398–401 and 402–7, respectively.
15. See Guiding Principle 4: (United Nations 2011). See the discussion in Dimitroff (2014), especially the table at page 332.
16. For an examination of six countries' gas policies, see Le Leuch 2011, appendix 5.
17. The National Natural Gas Policy of Tanzania can be found on the government website. http://www.tanzania.go.tz/egov_uploads/documents/Natural_Gas_Policy_-_Approved_sw.pdf
18. For an accessible overview of LNG trade practices with country studies, see Energy Charter Secretariat 2008. Some of these projects may be shelved as a result of the fall in gas prices since this study was undertaken.
19. AMPLA model agreements are produced by working groups and owned by AMPLA, Melbourne, Victoria, Australia. See "Model Documents," <http://www.ampla.org/modeldocuments/documents-2>. The Model Exploration JVA for Mining was produced in 2010.

REFERENCES

- Al-Kasim, Farouk. 2006. *Managing Petroleum Resources: The "Norwegian Model" in a Broad Perspective*. Oxford, UK: Oxford Institute for Energy Studies.
- Alba, E. 2009. "Extractive Industries Value Chain: A Comprehensive Approach to Developing Extractive Industries." Working Paper of the Oil, Gas, and Mining Policy Division, World Bank, Washington, DC.
- Asmus, D., and J. L. Weaver. 2006. "Unitizing Oil and Gas Fields around the World: A Comparative Analysis of National Laws and Private Contracts." *Houston Journal of International Law* 28 (3): 3–19.
- Bastida, E. 2008. "Mining Law in the Context of Development: An Overview." In *International Competition for Resources: The Role of Law, the State and of Markets*, edited by P. Andrews-Speed, 101–36. UK: University of Dundee Press.
- Bryson, Donna. 2011. "SA Launches State Mining Company." *Mail and Guardian*, February 25. <http://mg.co.za/article/2011-02-25-sa-launches-state-mining-company>.
- Bunter, M. 2002. *The Promotion and Licensing of Petroleum Prospective Acreage*. London: Kluwer International.
- Cameron, P. 2006. "The Rules of Engagement: Developing Cross-Border Petroleum Deposits in the North Sea and the Caribbean." *International and Comparative Law Quarterly* 55 (3): 559–86.
- . 2010. *International Energy Investment Law: The Pursuit of Stability*. UK: Oxford University Press.
- . 2016. "The Design of Joint Development Zone Treaties and International Unitization Agreements." In *International Taxation and the Extractive Industries*, edited by P. Daniel, M. Keen and A. Swistak, 242–63. Abingdon, UK: Routledge.
- Cassidy, Brian, David Roper, Shannon Urquhart, Peter Ward, Heike Trischmann, Lucille De Silva, Justyna Bremen, David Tennant, and Jeremy Chang. 2008. "Contracts with Other Joint Ventures for Services." In *Oil and Gas Production Contracts*, edited by Anthony Jennings, 127–269. London: Sweet & Maxwell.
- Cotula, L. 2010. "Investment Contracts and Sustainable Development: How to Make Contracts for Fairer and More Sustainable Natural Resource Investments." International Institute for Environment and Development, London.
- Davies, M. 2010. "How China Is Influencing Africa's Development." Background Paper for the conference "Perspectives on Global Development 2010: Shifting Wealth." Paris: Organisation for Economic Co-operation and Development (OECD).

- Dimitroff, T. J. 2014. "Cross-border Oil and Gas Pipeline Risk and Sustainable Mitigations." *Journal of World Energy Law and Business* 7 (4): 287–339.
- Duval, C., H. Le Leuch, A. Pertuzio, and J. Weaver. 2009. *International Petroleum Exploration and Exploitation Agreements*. New York: Barrows.
- ECLAC (UN Economic Commission for Latin America and the Caribbean). 2010. "Direct Investment by China in Latin America and the Caribbean." In ECLAC, *Foreign Direct Investment in Latin America and the Caribbean*. Santiago: ECLAC. http://www.eclac.cl/publicaciones/xml/0/43290/Chapter_III._Direct_investment_by_China_in_Latin_America_and_the_Caribbean.pdf.
- Energy Charter Secretariat. 2007. *From Wellhead to Market: Oil Pipeline Tariffs and Tariff Methodologies in Selected Energy Charter Member Countries*. Brussels: Energy Charter Secretariat. <http://www.energycharter.org/what-we-do/trade-and-transit/trade-and-transit-thematic-reports/from-wellhead-to-market-oil-pipeline-tariffs-and-tariff-methodologies-in-selected-energy-charter-member-countries-2007/>.
- . 2008. *Fostering LNG Trade: Role of the Energy Charter*. Brussels: Energy Charter Secretariat. <http://www.energycharter.org/what-we-do/trade-and-transit/trade-and-transit-thematic-reports/fostering-lng-trade-developments-in-lng-trade-and-pricing-2009/>.
- . 2012. *Bringing Gas to the Market: Gas Transit and Transmission Tariffs in Energy Charter Treaty Countries, Regulatory Aspects and Tariff Methodologies*. Brussels: Energy Charter Secretariat. <http://www.energycharter.org/what-we-do/trade-and-transit/trade-and-transit-thematic-reports/bringing-gas-to-the-market-gas-transit-and-transmission-tariffs-in-energy-charter-treaty-countries-regulatory-aspects-and-tariff-methodologies-2012/>.
- Hall, Terry. 2013. "Kenya to Form State-Owned Mining Company." *Mining.com*. May 27. <http://www.mining.com/kenya-to-form-state-owned-mining-company-73500/>.
- Heller, P. R. P., P. Mahdavi, and J. Schreuder. 2014. "Reforming National Oil Companies: Nine Recommendations." Natural Resource Governance Institute, New York.
- Heller, P. R. P., and V. Marcel. 2012. *Institutional Design in Low-Capacity Oil Hotspots*. London: Revenue Watch Institute. <http://www.resourcegovernance.org/sites/default/files/Institutional%20Design%20in%20Low%20Capacity%20Oil%20Hotspots.pdf>
- Humphreys, D. 2009. *Emerging Players in Global Mining*. Washington, DC: World Bank.
- Huurdeman, L., A. Chikatur, and L. Crook. 2014. "Planning and Modeling under Uncertainty: Development of the Mozambique Natural Gas Master Plan." Presented at the 37th International Association for Energy Economics Conference "Energy and the Economy," New York, June 15–18. http://www.usaee.org/usaee2014/submissions/OnlineProceedings/Chikatur_ASEE_OnlineProceedings.pdf.
- ICF International. 2013. "The Future of Natural Gas in Mozambique: Towards a Natural Gas Master Plan." Final Report submitted to the World Bank and the Government of Mozambique. <http://www.ppiaf.org/sites/ppiaf.org/files/publication/Mozambique-Gas-Master-Plan-executive-summary.pdf>.
- IMF (International Monetary Fund). 2007. *Guide on Resource Revenue Transparency*. Washington, DC: IMF. <http://www.imf.org/external/np/pp/2007/eng/051507g.pdf>.
- Inkpen, A., and M. H. Moffett. 2011. *The Global Oil and Gas Industry*. Tulsa, OK: PennWell.
- Jiang, J., and Sinton J. 2011. "Overseas Investments by Chinese National Oil Companies: Assessing the Drivers and Impacts." Information Paper, OECD and International Energy Agency, Paris. http://www.iea.org/papers/2011/overseas_china.pdf.
- Kemp, A. 1987. *Petroleum Rent Collection around the World*. Quebec: Institute for Research on Public Policy.
- Le Leuch, H. 2011. "Natural Gas Guidance Note: Brief." Washington, DC: World Bank. <http://www.eisourcebook.org/documents.php>.
- . 2012. "Good Practice Note on (Upstream) Natural Gas: A Guidance Note to Complement the *EISourcebook*." Washington, DC: World Bank. <http://www.eisourcebook.org/documents.php>.
- Manley, David, and Webby Wake. 2015. *Copper Giants: Lessons from State-Owned Mining Companies in the DRC and Zambia*. London: Natural Resource Governance Institute. <http://www.resourcegovernance.org/analysis-tools/publications/copper-giants-lessons-state-owned-mining-companies-drc-and-zambia-0>.
- Marcel, V. 2006. *Oil Titans: National Oil Companies in the Middle East*. Washington, DC: Brookings Institution Press.
- McMahon, G. 2010. *The World Bank's Evolutionary Approach to Mining Sector Reform*. Washington DC: World Bank.
- McPherson, C. 2003. "National Oil Companies: Evolution, Issues, Outlook." In *Fiscal Policy Formulation and Implementation in Oil-Producing Countries*, edited by J. Davis, R. Ossowski, and A. Fedilino, chap 7. Washington, DC: IMF.
- . 2010. "State Participation in the Natural Resource Sectors: Evolution, Issues and Outlook." In *The Taxation of Petroleum and Minerals: Principles, Problems and Practice*, edited by P. Daniel, M. Keen, and C. McPherson, 263–88. Oxford, UK: Routledge.

- Miesner, Thomas O., and William L. Leffler. 2006. *Oil & Gas Pipelines in Non-Technical Language*. Tulsa, OK: PennWell.
- Mildon, David. 2012. *Gas Pricing Disputes*. Washington, DC: World Bank. <http://www.eisourcebook.org/cms/Gas%20Pricing%20Disputes.pdf>.
- NRGI (Natural Resource Governance Institute). 2013. *Resource Governance Index: State-Owned Companies*. Washington, DC: NRGI. <http://www.resourcegovernance.org/resource-governance-index/report/state-owned-companies>.
- Pirani, S., J. Stern, and K. Yafimava. 2009. *The Russo-Ukrainian Gas Dispute of January 2009: A Comprehensive Assessment*. Oxford, UK: Oxford Institute of Energy Studies.
- RMG (Raw Materials Group). 2011. *Overview of State Ownership in the Global Minerals Industry*. Washington, DC: World Bank.
- Roberts, P. 2012. *Joint Operating Agreements: A Practical Guide*. London: Globe Business.
- Rosenblum, Peter, and Susan Maples. 2009. *Contracts Confidential: Ending Secret Deals in the Extractive Industries*. New York: Revenue Watch Institute.
- Shaw, Sandy. 1996. "Joint Operating Agreements." In *Upstream Oil and Gas Agreements*, edited by Martyn R. David, 13–31. London: Sweet & Maxwell.
- Southalan, J. 2012. *Mining Law and Policy: International Perspectives*. Annandale, Australia: Federation Press.
- Stevens, P. 2009. *Transit Troubles: Pipelines, a Source of Conflict*. London: Chatham House.
- Stockman, L. 2011. *Reserves Replacement Ratio in a Marginal Oil World: Adequate Indicator or Subprime Statistic?* Washington, DC: Oil Change International. <http://priceofoil.org/educate/resources/reserves-replacement-ratio-in-a-marginal-oil-world/>.
- Sunley, E., T. Baunsgaard, and D. Simard. 2003. "Revenue from the Oil and Gas Sector: Issues and Country Experience." In *Fiscal Policy Formulation and Implementation in Oil-Producing Countries*, edited by J. Davis, R. Ossowski, and A. Fedilino. Washington, DC: IMF.
- Thurber, M., D. Hults, and P. Heller. 2011. "Exporting the 'Norwegian Model': The Effect of Administrative Design on Oil Sector Performance." *Energy Policy* 39 (9): 5366–78.
- Tordo, S., B. S. Tracy, and N. Arfaa. 2011. *National Oil Companies and Value Creation*. Vols. 1–3 Washington, DC: World Bank.
- United Nations (Office of the Commissioner: Human Rights). 2011. *Guiding Principles on Business and Human Rights: Implementing the 'Protect, Respect and Remedy' Framework*. New York and Geneva: United Nations.
- Victor, D. G., D. R. Hults, and M. Thurber, eds. 2012. *Oil and Governance: State-Owned Enterprises and the World Energy Supply*. Cambridge, UK: Cambridge University Press.
- Vinogradov, S., and G. Mete. 2013. "Cross-Border Oil and Gas Pipelines in International Law." *German Yearbook of International Law* vol. 56. Berlin: Duncker & Humblot.
- Zamora, A. 2014. "Strategic Implications of Emerging Market-Oriented Latin American Petroleum Policies." *Energy Strategy Reviews* 3: 55–62.

OTHER RESOURCES

National Resource Companies

Kellas, G. 2010. "Natural Gas." In *The Taxation of Petroleum and Minerals*, edited by Philip Daniel, Michael Keen, and Charles McPherson. Oxford: Routledge.

Natural Resource Governance Institute: <http://www.resourcegovernance.org/>.

Organization by Contract

Griffin, P., ed. 2012. *The Law and Business of Liquefied Natural Gas*. London: Globe Law and Business.

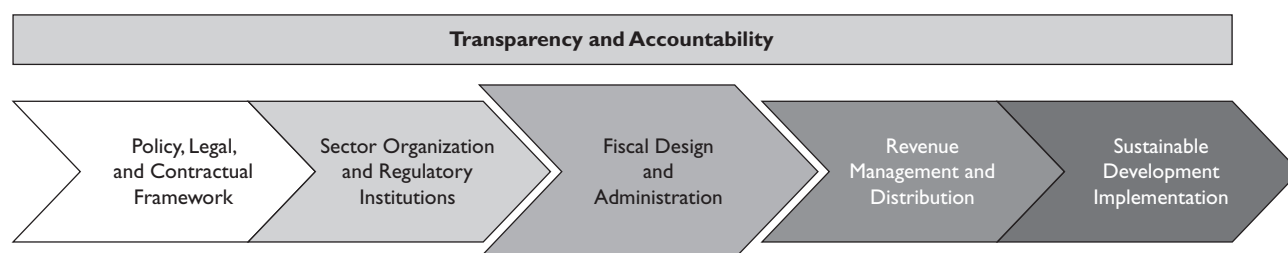
Roberts, P. 2008. *Gas Sales and Gas Transportation Agreements*. London: Thomson and Sweet & Maxwell.

———. 2016. *Oil and Gas Contracts*. London: Sweet & Maxwell.

Picton-Turbervill, Geoffrey, ed. 2009. *Oil and Gas: A Practical Handbook*. London: Globe Law and Business. This contains several good chapters by various authors on key subjects, JOAs, unitization, and decommissioning, among them.

CHAPTER 6

Fiscal Design and Administration



6.1 KNOWLEDGE CORE

Policy decisions about the fiscal regime and careful drafting and administration of the fiscal rules are critical to the success of extractive industry (EI) sector management. Yet the design of a fiscal regime requires governments to choose from various fiscal devices and their respective fiscal rules, each one having pros and cons, and to arrange them into what is sometimes called a “fiscal package.” Given the wide diversity in country objectives, policies, resource potential, and relative development of the extractives industry, it comes as no surprise that a fiscal package suitable for one country will not be transferable to another. In every case, there will be a need to make choices.

A key feature of any fiscal package is its ability to moderate the effects of the “boom and bust” price cycles that are typical of the oil, gas, and mining sectors. This chapter examines the principal devices found in fiscal packages and their pros and cons and then turns to the subject of fiscal administration.

Clarity and simplicity of the fiscal regime

The effectiveness of an EI sector fiscal regime depends on its objectives, on the fiscal instruments selected to achieve those objectives, on the clarity of the fiscal rules, and on the quality of fiscal administration. Common criticisms of fiscal design hold that governments choose complex regimes and fiscal rules subject to misinterpretations, uncertainties, and loopholes. They can be difficult to implement and/or insufficiently robust to remain stable over time and therefore likely to lose credibility. They can be characterized by fragmented responsibilities, and they can be adversely affected by capacity constraints and the impact of international taxation (Barma et al. 2012, ch.4; IMF 2012, 6). Even otherwise simple fiscal instruments, such as a royalty on production, may become difficult to administer if the rules are incomplete or improperly designed and therefore subject to interpretation.

Governments face challenges greater than ever, despite—or sometimes because of—the current body of

knowledge and the instruments it offers. Even if a single fiscal instrument could be described as “simple,” the fact is that at the extraction phase, oil, gas, and mining tend to be subject to a variety of fiscal terms that can include royalties, corporate income tax, windfall or additional profits taxes, production sharing (although not in mining) when selected, bonuses, fees or other contributions, and indirect taxes. Having too many different tax instruments under a given tax regime gives a wrong signal to potential investors on the effective tax severity and prevents a clear understanding of the interaction between the various taxes. A basic fiscal design rule is to try to minimize the number of fiscal instruments and to focus on the most important ones in terms of revenue capability.

Rewards and risk sharing derived from a fair fiscal regime

Designing a tax on rents from the extractive sector requires appreciation of some basic facts of EI life. In the vast majority of cases, foreign investment will be required (see chapters 1 and 3). The drivers to attract such investment are well established. Governments provide mineral or petroleum rights to private sector companies, with the expectation that the state will subsequently benefit from tax payments if commercial mines or fields are exploited. By receiving tax revenue, the government converts a resource in the ground into both social and economic capital (Sunley, Baunsgaard, and Simard 2003, 153). Correspondingly, private companies invest in exploration and development projects when a fair fiscal regime applies, with the expectation of making a profit commensurate with the risks involved and their cost of capital.

For both parties, there are potential rewards and risks, and the balancing of those will determine ultimately what EI sector development takes place and how beneficial it is to the government, the investor, and the local community (Stiglitz 2007; Date-Bah and Rahim 1987, 133n35). The fiscal regime is a key determinant of how EI sector income is shared between the investor and the government. There is no model that would immediately lead one to conclude what is a “fair” or “reasonable” share. However, there are recognized guidelines and best practices to be followed when a country designs a fiscal regime and selects its terms in hopes of establishing a regime considered fair by the parties. Even after initial agreement, there is no guarantee that this sharing of benefits will be sustainable over the long term, given the volatile and inherently uncertain investment life-cycle revenues.

Credibility and predictability of a fiscal regime

A recurring theme in the literature on fiscal design concerns the credibility of a fiscal regime.¹ A fiscal regime must be credible to attract investment, but it also must be credible to the citizens of the country applying it. If not, it is likely to be challenged over the medium to long term. Linked to this credibility theme are the pressures on governments to demonstrate returns on publicly owned resources: they can act as a powerful incentive to adopt fiscal instruments that deliver early revenues from resource development. Reducing the frequency of changes to extractive fiscal legislation and other mining and petroleum legislation will increase their credibility for investors, who value stability. The fiscal regimes will also be considered more predictable for effective decision making.

Impact of different activities and contexts on fiscal regimes

Differences of approach and in fiscal regimes arise depending on whether the activity is oil, gas, or mining, even if they share similarities as “extractives.” Differences will also emerge according to the context in which a fiscal regime is designed (or updated). For some countries, the existence of active contracts inherited from the past will constrain the scope for change and force it to be incremental. (Examples can be found from mining in Guinea, Lao People’s Democratic Republic, Sierra Leone, and Tanzania.) These differences are highlighted in this chapter, along with the fiscal solutions to them.

Some understanding of comparable country settings and their tax regimes is also required, due to the number of areas and conditions in which exploration and production can take place and to the fact that investors favor those offering the more attractive tax treatment. Tax competition is a fact of life in the extractives sector, as in any sector. International tax issues can also be expected to play a part in other ways, even if many of these are not peculiar to the extractives sector.² Treaty shopping and transfer pricing can have significant impacts, especially in the context of resource-rich economies.

Several web-based tools have been designed that have the potential to assist governments in addressing these fiscal design challenges. Some are mentioned at the end of this chapter.

6.2 KEY FISCAL OBJECTIVES

Ideally, the design of an EI sector fiscal regime should reflect objectives stated in a government policy document that sets

out the overall strategic objectives for development and management of the sector. The proposed elements of any new fiscal regime or proposed changes to an existing fiscal regime should be presented clearly in that public document, offering stakeholders an opportunity to comment. Once a final decision is reached, it should be reflected in any resulting legislation. In practice, it is not usually the case that a fiscal regime can be designed with a clean slate, and some treatment of its predecessor in the policy document is likely to be necessary.

From the government's perspective, the core objectives are likely to be focused on revenue raising: maximizing the estimated present value of net government revenues from EI. This is a goal best served by taxes, which are explicitly targeted on *rents*—defined as the excess of revenues over all costs of production, including those of discovery and development, as well as the normal return to capital, rather than on gross incomes (IMF 2012). There are, of course, various policy objectives that have implications for fiscal regime design, such as having broad-based sector development, ensuring that revenue arrives early and is dependable, limiting exposure to the risk of uncertainty and volatility in fiscal flows by designing a tax regime that is sufficiently progressive, ensuring the international competitiveness of the fiscal regime, minimizing opportunities for tax evasion, and having an administrative simplicity that is in line with the institutional capacity of the tax authority regarding the EI sector.³

The precise weight attached to these objectives will vary according to country-specific characteristics. These can include varying degrees of reliance (actual and potential) on extractive industry revenues as well as development needs, capital scarcity, and absorptive and institutional capacity. In many developing countries, capital stock is low, partly because investment has been low but also because there has been limited institutional capacity to transform investment into capital. Standards of governance vary considerably. Moreover, a change in resource reserves estimates could well extend the number of years during which natural resources can be expected to generate revenues (the resource horizon) and even the fiscal objectives themselves. Technological changes can also affect the market value of natural resources, making them easier to extract or increasing the portion that can be recovered. Different constraints can arise from past agreements made for existing projects, which make changes in fiscal objectives for those projects slow to implement—and further slowed by requiring mutual agreement.

From the investor's perspective, key objectives are the maximization of profits and an early return on investment. Also important will be a positive indication that the fiscal

regime remains stable over time. In resource-rich countries that have weak governance or that are perceived as having a low level of predictability, this consideration is likely to have a greater priority for investors.

Progressive rent capture

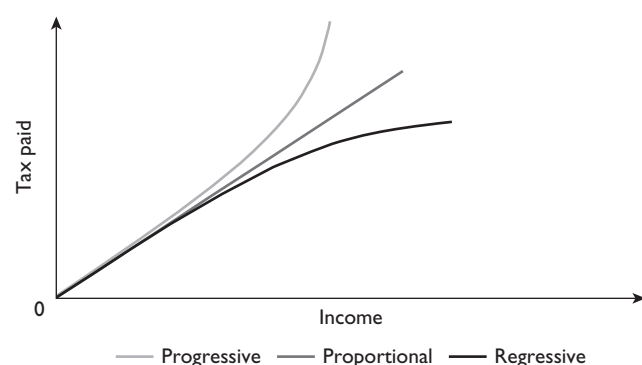
Rents are the excess returns from EI sector projects over and above what is required to justify investment, arising from the relative fixity in supply of the underlying resource, at least once it is discovered.⁴ Most governments take the view that the major share of these rents should go to the state, the owner of the resource—particularly for petroleum projects, but less commonly for mining. It is also widely accepted, and has increasingly become a political imperative, that as underlying project profitability increases, a state's percentage share in rents or profits should also rise. However, the government share in the rents must leave private investors with an adequate incentive to explore, develop, and produce. An International Monetary Fund study concluded that in mining, governments commonly retained one-third or more of the rents, while in petroleum the share was higher at around 65 to 85 percent (IMF 2012, 6).

An increase in underlying project profitability is the result of an increase in market prices and production and/or a decrease in project costs. A fiscal system that produces these results—the share in rents rises as profitability rises—is called *progressive*.⁵ It is positively responsive to changes in circumstances affecting underlying project profitability. So, a system with a zero share when profitability is low and a low share when profitability is high is progressive, as is a system with a high share where profitability is low and an even higher share when profitability is high. A system that produces the opposite result (a regime where a government's share or “take” decreases as profitability increases) is called *regressive*. It is inversely responsive to changes in underlying profitability (see figure 6.1).

Promoting broad-based sector development and tax neutrality

While understandably interested in a high (but fair) rate of take from any one petroleum or mining project, governments are, at the same time, interested in their global take from the EI sector as a whole. This means that they are willing to promote exploration and development of mines and fields of different sizes and also are interested in maintaining a broad tax base. A government can maximize the tax base by, as far as possible, ensuring that new EI sector

Figure 6.1 Progressive, Proportional, and Regressive Fiscal Regimes



Source: 11cresma 2010.

projects or ongoing resource-producing operations that are profitable before tax remain profitable after tax. A fiscal regime that accomplishes this is going to make the more profitable before-tax project less profitable but still attractive on an after-tax basis, in the sense that it does not impact or distort the decision to invest or produce (such a system never takes more than 100 percent of the rent or profit available before tax) (Tordo 2007, 14). Those neutral fiscal regimes can be expected to encourage new investment across a wide range of opportunities and extend the producing life of existing operations.⁶ Fiscal neutrality is achieved when the fiscal system does not distort investment decisions for a project evaluated on either a before- or after-tax basis.

Getting early and dependable revenue from a project

In the EI sector it is the prospect of substantial rents that makes these resources an especially attractive source of revenue. Particularly where their petroleum or mining sectors are either new or only narrowly developed, governments will place a premium (often politically driven) on early and dependable income from the EI sector. The emphasis on early revenue may be driven by urgent needs or may simply be driven by public expectation of revenues once a petroleum field starts production or a mine is opened. Dependable revenue (such as revenue that is ensured as long as a project is in operation) is clearly beneficial to budgetary planning, but it is subject to price volatility and other uncertainties. However, once an EI sector becomes more fully developed and a regular and steady stream of fiscal revenues is being generated from a variety of projects, this objective becomes less important.

International competitiveness of a country's fiscal regime

Petroleum and mining companies operate on a global scale and compare fiscal terms among country projects when deciding, after a careful economic study of their portfolio of EI projects and opportunities, where to invest (Tordo 2007, 2). Governments, therefore, are greatly interested in how competitive their fiscal regimes are. At the same time, governments are mindful about not being more generous than the terms offered in comparable states. Such states are those with similar geological potential, cost and operating environments, track records, institutional capacity, and perceived and actual political risk. These elements can be as, or even more, important than fiscal regimes in determining the level of investor interest.

Fiscal competitiveness may depend on matters such as the level and behavior of the government take. This is normally measured by government revenues; rates of government take (see figure 6.2 for an example of a hypothetical project); responsiveness to production, price, and cost changes; the time and risk profile of the investor; and the investor's internal rate of return.

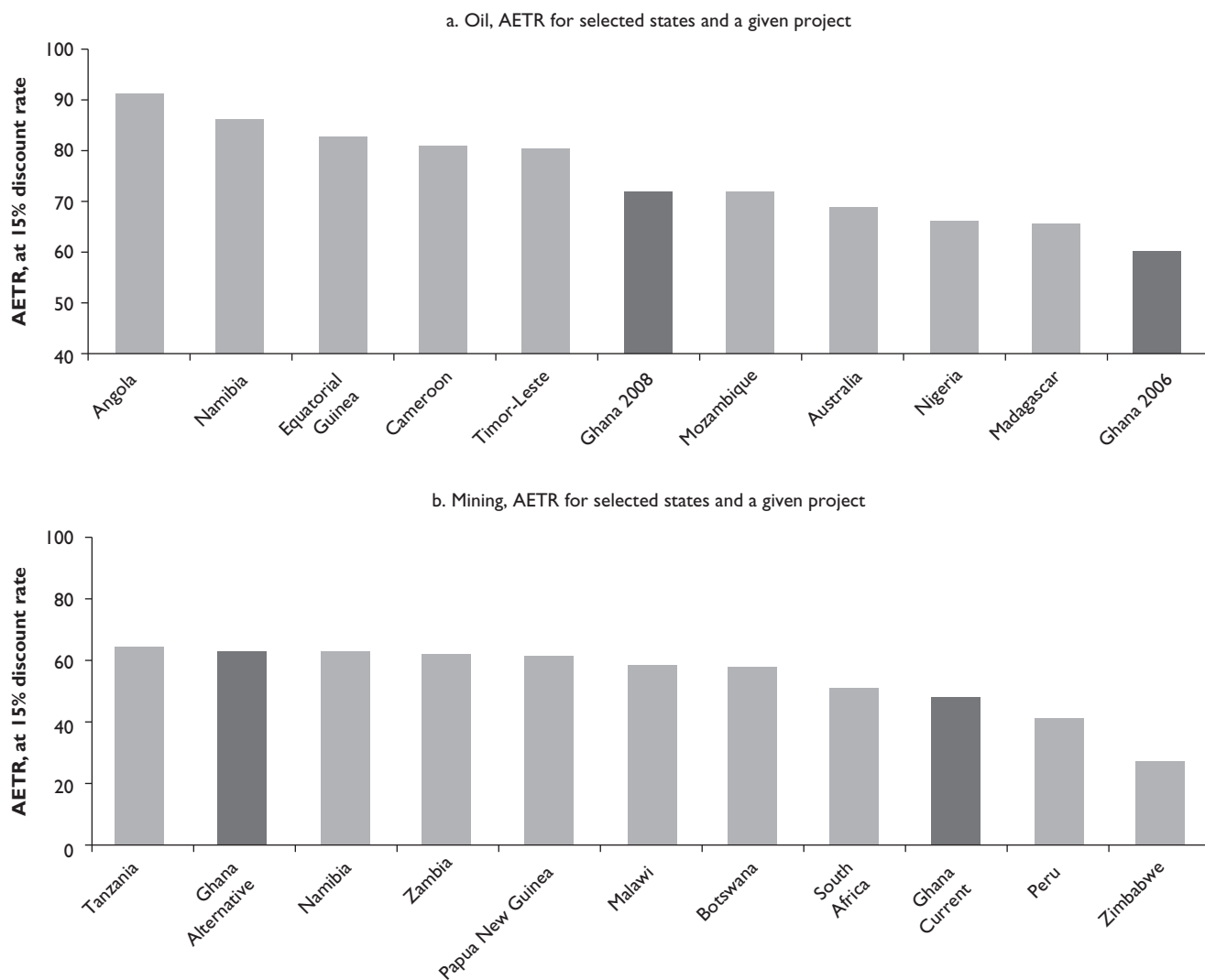
Administrative clarity and simplicity

Administrative capacity is an issue in most developing states. Fiscal design in the EI sectors, often supplemented by insufficiently detailed fiscal rules, is not always tailored to a state's capacity to administer a fiscal regime. This is one of the reasons that many states struggle to administer their regimes. There is an argument to be made in favor of simplicity in the design of a fiscal regime (Rio Tinto 2012). Above all, it is of paramount importance that the general tax rules applicable in the country be sufficiently tailored to the EI sector. Most difficulties in tax administration derive from the absence of sufficiently clear tax rules and guidance notes applicable to EI activities. Such rules should be incorporated in a specific part of the tax legislation or, alternatively, in sector-specific tax legislation, provided that it is made fully consistent with the general tax legislation.

Trade-offs among the objectives

In practice, it is not possible to achieve all of these objectives simultaneously. Trade-offs are almost always required. Many of these trade-offs will become more apparent when fiscal instruments are discussed in the following sections.

Figure 6.2 International Fiscal Competitiveness



Source: IMF fiscal analysis of resource industries (FARI) model hypothetical simulations (IMF/Ghana Ministry of Finance Seminar 2010.) The use of 2006 and 2008 for oil for Ghana refers to fiscal terms at the time of the Jubilee discovery (2006), and terms suggested as more appropriate to the reduced geological risk following that discovery (2008). Similarly, for mining in (b), “current” refers to what was applicable at the time of the IMF review, and “alternative” suggests how terms might be improved.

Note: AETR = average effective tax rate, the government’s share of the before-tax net present value, usually measured at the government’s assumed discount rate. IMF (2012, 26) research on 16 petroleum and 11 mining regimes for a given project suggests that most petroleum regimes have a higher AETR and include more progressive elements than do mining regimes. Panels (a) and (b) show standard international comparisons of AETR or “government take” for a hypothetical oil and mining project only. Ranking may differ with other projects.

The trade-offs that governments face derive not only from inherent conflicts among the state’s different objectives but also from the fact that investor objectives—in any fiscal regime—may be at odds with the government’s. For example, an investor will always want to maximize its return and minimize its risk, but the government may also be trying to do just that for itself. Fortunately, both parties are now beginning to recognize what constitutes a fair

fiscal regime and that a well-designed regime can address each party’s concerns.

Stability of fiscal regime

An investor concern or objective that deserves particular attention is the stability of the government’s fiscal regime. A long-standing investor fear is that at the end of a long and

expensive exploration period, and after the expenditure of very significant sums on development, the investor will become vulnerable to unilateral, unfavorable revision of fiscal terms, especially when circumstances have unexpectedly changed in the investor's favor through resource price increases or the discovery of unanticipated large reserves (Tordo 2007, 2). The overall process in which this can occur has been described as the "obsolescing bargain."⁷ This investor objective of stability can be and often has been addressed through legal or contractual assurances of stability, but recent writing on this topic suggests that contractual assurances are unlikely to be entirely effective in addressing this concern (Daniel and Sunley 2010; Osmundsen 2010). The government needs to be careful when accepting stability clauses or dedicated stability agreements. A modern approach to increasing fiscal stability is through the design of the fiscal regime: a progressive fiscal system that automatically adjusts the government take to actually achieved profitability would reduce pressures to renegotiate or unilaterally change fiscal terms. (For more information, see the section on "Fiscal Stability" under section 6.5, "Special EI Fiscal Topics and Provisions.") Stability can become especially fragile in the context of price volatility. See figure 2.1 and figure 2.2 (chapter 2 of *Oil, Gas, and Mining: A Sourcebook for Understanding the Extractive Industries*) for an illustration of price volatility for hydrocarbons.

6.3 THE MAIN TYPES OF EI FISCAL SYSTEMS

Given the multiple objectives of fiscal design and the use of several categories of EI contracts, fiscal regimes invariably are constructed to include, for each category of contracts, several fiscal instruments under a "fiscal package." (See the discussion of contractual forms in chapter 5.) The principal classifications that have typically resulted from this are (1) the tax and royalty system with licensing of areas, and (2) contractual systems, such as production-sharing contracts (PSCs) or risk-service contracts (RSCs). Each category may include state equity participation. Tax and royalty systems are dominant in mining. The alternative fiscal systems can be designed so that economic outcomes are virtually similar, but the respective legal, fiscal, commercial, and operational structures differ. The overriding consideration here is that any fiscal regime must be analyzed as a whole, not instrument by instrument, because of the economic interaction between those fiscal instruments. It is important to note that the production-sharing and risk-service agreements are characteristic of the hydrocarbons sector and absent from mining, where the fiscal regime comprises taxation and royalties.

Tax and royalty systems

Tax and royalty fiscal regimes may primarily involve a corporate income tax on profits, a royalty on production, and an additional charge on profits or rents (often called "additional profits tax" or "resource rent tax") to achieve progressivity and capture rent objectives. Other taxes or fees may be also payable, but their weight is generally secondary. Typically, these have been popular in North America and Europe, and in the hydrocarbons sector, at least, they are becoming less common in developing countries.

Production-sharing contract systems

Production-sharing contract fiscal regimes may include many of the same types of fiscal instruments used under tax and royalty systems. The major difference between the two packages is that production-sharing packages typically give the state a percentage of actual production in addition to any taxes or royalties that may be collected (see chapter 4). This is not the case under a tax and royalty system, in which all the production is taken by the investor. Since the state receives a percentage of production, the package of taxes, royalties, and fees will typically be lower than under a tax and royalty system. These PSC fiscal systems are common in the upstream hydrocarbons sector. Usually they are found in developing countries where the host government retains a strong interest in attracting foreign investment but where there is a preference for sovereignty over natural resources, expressed in the form of a contractual regime and getting access to a share of production.

Risk-service contract systems

A third contractual system, less common and confined to the hydrocarbons upstream sector, involves payments by government to the contractor in lieu of access to production. Under these RSCs, companies perform upstream activities at their risk in exchange for an agreed service fee, generally expressed per unit of production and defined so as to allow the contractor to achieve a predetermined, fixed return on its investment. RSCs are far from widespread (Baunsgaard 2001, 12). They are typically found in countries with large known reserve and production bases and low geological risk, such as the República Bolivariana de Venezuela and in certain Middle Eastern states, such as Iraq, where upstream activities were fully nationalized in the 1970s. Governments using RSCs see them as transferring maximum rents to the state.

There are several downsides associated with RSCs. They transfer substantial risk to the state and, given the lack of performance incentives for a contractor resulting from the embedded service fee mechanism, they may result in significant efficiency losses. RSCs are not popular with investors because of the limited upside return allowed. This may explain why they are found only in states with resource bases that are substantial enough to offset the perceived disadvantages of the arrangement (Johnston 2003, 41, 61).

Fiscal regimes applicable to other EI activities and ring-fencing

Other activities related to oil, gas, and mining—apart from the upstream EI activities related to exploration and exploitation of mines and petroleum fields, which are subject to the specific fiscal systems already described—are liable to the general tax legislation applicable in the jurisdiction at tax rates often lower than for upstream activities. These activities may deal, for example, with pipeline or railway transportation, gas-treating plants, oil storage and terminal facilities for export, liquefaction of natural gas plants, and refineries. The differences in taxation depending on the nature of activities explain why the upstream EI sector is in most countries ring-fenced from the other activities a company may have.

Selecting an appropriate EI fiscal system

In practice, the choice of a fiscal system will turn on contextual considerations such as tradition, political preferences, and existing institutions. Experience suggests that many companies are willing to work with the mentioned systems, whatever their types. There is, however, less enthusiasm for those contractual systems that do not permit them to book reserves under stock exchange rules, such as RCSs, or only a fraction of the bookable reserves under tax-royalty systems, as under PSCs.

A crucial policy consideration is for the government to make sure that the complexity of the design of specific tax rules under a fiscal regime does not outstrip the state's assessment, collection, and audit capabilities. It is also important that the rules are clear. Three broad approaches are possible. The first is to grow domestic capacity. The second is to limit the complexity of design to the capacity of the tax authority. Third, the country's own tax staff may be supplemented with experienced international professionals and advisors who are fully able to administer a complex regime. The tax audit capacity is all too often the Achilles

heel of the tax administration. Above all, clear and detailed fiscal rules dealing with the specificities of the EI sector must be issued to limit fiscal uncertainties and facilitate smooth implementation of the regime.

6.4 MAIN FISCAL INSTRUMENTS UNDER A FISCAL REGIME

A wide range of fiscal instruments exists and can be found in fiscal regimes applied to mining or hydrocarbons projects. Some are common to all sectors in the economy, such as corporate income tax (CIT), customs duties, value-added tax (VAT), dividend or interest withholding taxes (WHT), employment taxes, income taxes, and capital gains taxation. Others are specific to the EI sector, such as mining or petroleum royalties, resource rent taxes or additional profits taxes, petroleum production-sharing mechanisms, bonus payments, and state participation schemes. In addition, specific EI tax rules may be necessary for each of the above-mentioned instruments, such as for tax ring-fencing, CIT rate and depreciation, transfer pricing, carry-forward of losses, currency for tax returns, and so forth. For the investor, the overall tax structure and burden will be critical and more important than the particular tax instruments and rules a government chooses. For the individual government, the various instruments must be selected and combined in ways that fit the context or combination of circumstances. If, for example, there is low capacity or a record of poor governance, a combination of easy-to-administer instruments and limited discretionary power might be warranted. No two countries tax the extractive industries in the same way, which leaves plenty of scope for a researcher to differ on which is best among this “diverse and potentially confusing array of distinct fiscal regimes” (Smith 2012, 3). However, the primary mission of any trusted advisor when assisting a country in its policy is to explain and recommend the recognized best practice and help in designing the most appropriate fiscal package and terms for that country.

Fiscal instruments can be individually evaluated against fiscal objectives, taking into consideration differences among the EI sectors, specific state circumstances, and institutional capacity. However, a fiscal regime uses several fiscal instruments in a combination constituting a fiscal package. The fiscal instruments in a regime interact, meaning that a piecemeal evaluation of individual instruments has limited value. For example, royalties may be a regressive instrument but may well have an important place as part of an overall tax and royalty system. The combination of all the instruments

and provisions a fiscal regime contains is ultimately decisive in assessing the regime's likely performance.

With that important caveat in mind, this section reviews the individual fiscal instruments that are typically used. Section 6.5 addresses several related special EI fiscal topics and provisions; it also addresses possible incentives such as tax holidays and accelerated depreciation provisions, illustrating their drawbacks.

Royalty on production

Royalty payments are specific to resource extraction and represent one of the possible means by which the resource owner (the state) is compensated for the permanent loss of valuable, nonrenewable resources. This is the classic rationale for the use of royalties, and the reason why they are not, strictly speaking, a tax. However, the rationale is more likely to be based on the political reassurance that derives from a regular payment and the predictability it adds to government revenue flows. In the literature on royalties, the application of the royalty instrument is, however, surrounded by controversy for both hydrocarbons and mining projects.⁸

The main type of royalty is the *ad valorem* royalty (that is, related to the price of the extracted product); in exceptional cases, a unit-of-production royalty (for example, per ton) may apply. Royalties for many metal minerals are generally calculated as a net smelter return royalty. The net smelter return is based on the refined metal price less smelting and refining costs. Payments are received earlier in the life of a project than with other fiscal tools based on profits. They are also relatively easy to monitor and administer. Different approaches to royalty design exist: it may be based on the value of ore at the mine head, on the net smelter return, or on the value of exports after netback for transport and other costs. Royalties for coal or bulk minerals, such as iron ore, are often charged on the basis of the mine-head sales price. These are relatively straightforward to calculate. *Ad valorem* royalty rates are often in the range of 3 to 5 percent for metals and 5 to 10 percent for diamonds (Hogan 2008). Royalty rates are often significantly higher for petroleum production.

Royalties have the advantage for a government in that they are relatively predictable—with the restriction that they are subject to price volatility and production uncertainties—and can help to ensure that companies make some payments to government even in times of low mineral prices and low revenues. The appeal of royalties on gross revenues lies in the early dependable revenue they produce and in their apparent simplicity of administration (Tordo 2007, 37–38).

From the start of the producing life of a project, revenue will continue to the end of the life of the field or mine.

The company feels a disadvantage in that the royalties are calculated on production, not profits; a high level of production does not necessarily equate to a high level of profit. A project with high costs could pay as much as one with low cost if the production is the same. The company may have an incentive to prematurely end an ongoing project and not take on one that has marginal production.

The biggest drawback of these two kinds of royalty is in their lack of sensitivity to profit, which makes them regressive rather than progressive and distortionary rather than neutral in a fiscal sense. Where *ad valorem* or per-unit royalties feature prominently in a fiscal regime, their insensitivity to profit may unduly limit the range of investment projects undertaken and/or cause premature abandonment of production as costs rise and margins fall.

Another drawback is that they are not as easy to administer as is sometimes thought. For example, the valuation of sales can be technically demanding, especially in mining, if the aim is to use benchmarks to reduce the risk of transfer pricing. The establishment of market value at the mine gate or export point can also be difficult, because it involves “net-backing” of costs arising from processing and transportation—for example, from benchmark-refined mineral prices. It may be that no international benchmark prices exist on which to base valuation.⁹ The most controversial valuation basis for royalty is when the petroleum royalty is assessed on a wellhead value, as in the United States or Australia, and not on an ex-field basis or other agreed point of delivery beyond that location, because there is no way to determine a certain wellhead value, leading to many litigation cases when a wellhead reference is applicable.

The mix of pros and cons regarding royalty has resulted in wide application of royalties in the EI sector but at relatively modest levels. Their importance has been greater in the mining sector than the petroleum sector, where additional profits taxes and PSCs may have been introduced. Some countries such as Chile and South Africa have not used royalties for mining for many years, and in oil and gas production, royalties were favored in North Sea states such as Denmark, Norway, and the United Kingdom but then abolished or reduced to a zero rating where additional profits taxes are in effect. Moreover, many PSCs do not provide for royalty payments.

To better respond to profitability, many countries, such as Armenia, Canada, and Ghana, have introduced more sophisticated forms of royalty, such as a sliding-scale royalty, where the rate is linked positively to production.

Depending on how rates and triggers are set, these sliding-scale tax instruments, common in the hydrocarbons sector but much less so in mining, can be designed to have a progressive tax take. A sliding-scale royalty can also be linked to location. For example, Nigeria has used different rates of royalty, according to whether hydrocarbons production came from land, offshore, or deepwater areas. Other countries have linked progressive royalties to production and price (as in Canada, where the petroleum royalty framework has become quite complex); the date of discovery (existing oil fields and projects or new fields and projects); the nature of petroleum (oil or gas); or some measure of profitability. South Africa uses a profits-based royalty, and so do Peru and New South Wales in Australia. Some countries have also included royalty rates as a bidding item in auctions of rights. Sliding-scale royalties can nevertheless be more difficult to administer, requiring multiple parameters for each mineral. They can also be distortionary, having different effects on different projects.

Corporate income tax: rate and allowable deductions

The application of CIT in the extractive sector is common practice and is a core element in any fiscal system for the sector. However, this is a tax on net income and not directly a tax on effective extractive rents. It is attributable not specifically to the oil, gas, and mining activities but to doing business in the country itself. It ensures that the normal return to equity is taxed at the corporate level in the way that it is in nonextractive sectors. Several countries use a CIT rate for the extractives sector higher than for other activities. Indonesia does this for mining, while Nigeria, Trinidad and Tobago, and many other countries take this approach for the applied CIT rate in their petroleum sectors, in order to stabilize the petroleum CIT rate and avoid being subject to a general CIT rate decreasing periodically, as globally observed in the past two decades. The United Kingdom recently adopted that approach by selecting a petroleum CIT rate of 30 percent while the general CIT rate is lower and set to fall to 17 percent by 2020. Moreover, in many countries the practice is also to design a tailored CIT regime for dealing with issues specific to the oil, gas, and mining sectors. It is better when such a regime remains as consistent as possible with the general tax code rules, with the exception of those fiscal rules specific to the EI sector, which in any case must always be introduced for a smooth implementation of the EI fiscal regime.¹⁰

For the government, the appropriate CIT rate for the extractives sector is determined by various, wider objectives. These include whether the government intends to reduce the general rate over time; whether it seeks to obtain a higher CIT rate for this sector than for others; and how it links to other taxes under the fiscal package, such as any additional profits or rent taxation. For the corporate investor, CIT will be assessed in relation to the aggregate tax impact, and especially the effect of tax on its internal rate of return or net present value at a threshold discount rate.

Valuation of production sales for CIT purposes can present problems. Across the spectrum of extractive resources, there are significant differences in identifying a reference price. For bulk minerals, such as bauxite, rutile, and iron ore, and for natural gas, valuation is often hampered by the lack of readily available reference gas prices close to the field. This contrasts with the situation a government faces with the price of oil, gold, and copper, for example. Minerals are sometimes sold on a contract basis, and arm's length pricing may not apply. The risk that this creates for governments may be mitigated by providing for a detailed EI valuation clause, including determination of arm's length sales and selection of reference prices, quality, and transport cost differentials.

CIT will usually be applied to the resources sector accompanied by provisions related to the tax base provided for in the legislation. This will typically include a ring-fencing of operations at the project or license level or for the concerned EI sector, precise definition of taxable revenues—value of production and other revenues such as ancillary income, financial income, gains on the disposal of license, or contract interests—and allowable deductions such as depreciation rules, interest, and decommissioning provisions. (See section 6.5, “Special EI Fiscal Topics and Provisions.”)

Signature and production bonuses

Bonuses are one-off (or sometimes staged) payments that may be fixed, bid on, or negotiated and are linked to events such as license or contract award or signature, or to the attainment of a particular level of production. They can be part of any fiscal scheme, provide early revenue, and be easily administered.

Signature bonuses, especially when competitively bid, can be sizeable, and as a result have attracted considerable attention in recent years.¹¹ In 2013 the Liberian National Oil Company announced it had agreed on a signature bonus from Exxon Mobil of US\$21.25 million, its largest bonus to date. By comparison, high amounts are common

in bidding for acreage off the shores of the United States. Much larger amounts can be obtained, however. In 2007 a consortium of Chinese mining companies (CMCC and Jiangxi Copper) agreed to pay the government of Afghanistan a signature bonus of US\$808 million and a further US\$566 million upon commencement of commercial production. In 2006, Angola received more than US\$1 billion as a top bid in its award of petroleum rights.

Bonuses boost the government's take in situations where there is a concern that other dimensions of the fiscal regime may leave money on the table: that is, collect less than the investor is willing to pay. However, they should not be seen as an add-on to an otherwise comprehensive fiscal regime. While that may be the case, it is more general for investors to seek some offset to the bonus through other elements of the fiscal regime. Essentially, the choice of a specific fiscal tool, such as bonuses, involves trade-offs. Once paid, bonuses are neutral in that they have no effect on investment or production decisions going forward. They provide early revenue, and they are certainly easy to administer.

Investor doubts about the value of signature bonuses in a fiscal regime relate primarily to issues of risk. Where there are concerns about a government's commitment to honoring fiscal terms, investors will tend to be very wary about paying large sums of money up front on bonuses. This is a sunk cost for companies, recoverable as an allowable CIT tax deduction in the event of successful development of the

project only. The fact that it is sunk may increase the political risk if the project turns out to be especially profitable. In practice, many governments continue to rely principally on other, contingent fiscal instruments: that is, instruments linked to actual project outcomes while including up-front signature bonuses as a useful complement.

Additional profits tax or resource rent tax to achieve progressivity

CIT is by nature a tax on assessable annual profits measured as revenues, mostly related to production and price, minus allowable deduction, mainly costs. However, many countries have considered that CIT, although based on profits, does not sufficiently consider their key objective of progressivity in the government take in relation to the achieved rent. For that reason, they have introduced in tax and royalty systems a tax supplementary to royalty and CIT, which is often named *additional profits tax* (APT), *cash flow tax*, or *resource rent tax* or *rate of return tax* (RRT) and may be triggered by various mechanisms.

Many attempts have indeed been made to link such progressive profit or rent tax to a technical indicator or, better, an economic indicator (see table 6.1). For example, production is an incomplete measure of profitability because it ignores the influence of prices and costs. Price is also an incomplete measure of profitability, because it ignores

Table 6.1 Possible Fiscal Mechanisms in Relation to Government Fiscal Progressivity Objective

Government take is linked to:	Government take is responsive to:				
	Reserves/ production	Oil price change	Costs	Timing of cash flows	Cost of capital
Production (daily or cumulative)	Yes	No	No	Partly	No
Price (price caps or base prices)	No	Yes	No	Partly	No
Revenue (price and production)	Yes	Yes	No	Partly	No
Cost recovery (uplifts and write-off rates)	No	No	Yes	Partly	Partly
Simple indicators (location, vintage, etc.)	Partly	Partly	Partly	No	No
Rate of return	Yes	Yes	Yes	Yes	Yes

Source: McPherson 2009.

production and costs, and both indicators ignore the influence of time on profitability. Field or mine location at best may be a very crude indicator of cost and therefore of profitability, but it is likely to be very inaccurate and, furthermore, misses out on the influence of price and production.

Profits taxes, such as CIT, are appealing on neutrality grounds, explaining why they are included in EI fiscal regimes. A project that is profitable before tax will tend to be profitable after tax, because, as long as the rate applied is less than 100 percent, some profit in nominal terms is always left after tax (Tordo, Johnston, and Johnston 2010; RWI 2010). In comparison with other fiscal instruments, profits taxes as CIT also contribute to international competitiveness, since the application of a profits tax is, in critical investor home states such as the United States and the United Kingdom, a prerequisite to obtaining a foreign tax credit (for example, a home country credit for those qualifying taxes paid to the host country).

Profits taxes are sometimes faulted, however, for the following reasons: deferring fiscal revenues to allow for investor cost recovery through depreciation if those are accelerated; being less predictable in outcomes than alternatives such as royalties; increasing the volatility of government revenues (increasing government risk);¹² having greater administrative burden related to the need for careful audits of investor costs; and creating incentives for companies to minimize reported profits.

In the extractives sector, several different instruments have been used to capture rent, sometimes with limited success. Natural resource rent has been defined as the excess of revenues over all costs of production, including those of discovery and development, as well as the normal return to capital (IMF 2012). A challenge is to design instruments that capture rent without making projects unsustainable when profitability declines. Governments have therefore developed instruments that are progressive in the sense that they capture an increasing share of revenues as profitability rises. These instruments usually are additional to other baseline instruments such as CIT (and therefore often referred to as “additional profits” taxes). Such flexible instruments to capture rent are more common in the hydrocarbons sector than in mining, but that imbalance is becoming less marked, as mineral-rich countries seek ways of capturing a larger share of the rent without overtaxing the industry during periods of lower profitability.

One way of achieving this is by means of the RRT,¹³ which “targets the returns made on investments that exceed the minimum reward necessary for capital to be deployed” (Land 2010, 241). It gives an investor relief from RRT

taxation until a satisfactory rate of return has been achieved, and after that point, it shares profits with the host government on an ex post basis. Dramatic swings in commodity prices have made the RRT topical as a possible means of collecting what are commonly referred to as “windfall profits tax” or APT. In their favor, it is argued that such taxes do not apply to the normal return in projects, since the government effectively contributes to costs at the same rate as it shares in receipts from production of the resource. As the Henry Report stated, “The government is a silent partner whose share in the project is determined by the tax rate. However, each partner contributes something additional to the partnership—private firms contribute rents associated with their expertise and the government contributes rents associated with the rights to the community’s non-renewable resources. These rents are also shared according to the tax rate” (Henry Report 2010, Ch.1–3).

This resource rent tax based on rate of return was first pioneered in Papua New Guinea in the 1970s but has not yet generated significant revenues to the country. Such schemes have attracted widely varying responses since then. Some reviews are highly favorable, others not so much, deeming the scheme inappropriate and unworkable. It is more common today in oil than in mining, and when used it mainly applies to simplified schemes. Typically, it is assessed on cash flow, a different base than that used for CIT. These bases are quite different: depreciation and finance costs, for example, are not included in the resource rent tax base. In the resource rent tax, when a hurdle rate is passed (on either a before-CIT basis or an after-CIT basis, depending on the structure used), a percentage of cash flow is collected as the resource rent tax. An important consideration for a government in its assessment of any resource rent tax option is the timing of tax payments, because by design the allowances permitted greatly to postpone payments until costs have been fully recovered and the specified internal rate of return on the investment achieved.

Controversy has followed the adoption of some taxes: recent attempts to introduce a windfall profits tax in Mongolia and Zambia were withdrawn in the face of strong resistance from the mining industry. Australia’s first attempt to introduce a resource rent tax in mining brought about the demise of the prime minister. The proposed tax was developed after a government report (Henry Report 2010) called for the introduction of a uniform resource rent tax using an allowance for corporate capital system. This involved a cash-flow-equivalent tax levied on profit measured as net income minus an allowance. The latter was designed to compensate investors for the delay in the government’s

contribution to the cost of investment due to the slower recognition of expense through depreciation and the lack of an immediate refund for losses.

A simplified APT scheme, not using the RRT already mentioned, has been increasingly implemented with success, generating supplementary revenue to the state when the profitability of projects becomes higher than predefined thresholds. The special tax in Norway, the surcharge tax in the United Kingdom, and the variable CIT rate in several African countries are illustrative.

If properly designed, and when the applicable tax rules are clearly worded with the necessary guidance note, the administration of an APT or a rent-based tax can be not much more demanding than, say, a royalty or an income-based tax system. It does require the calculation of a specific profit base that measures rent, profits, or cash flows over time, but these data are normally available. As with any tax, detailed accounting procedures need to be agreed on by the parties to ensure that any loopholes or uncertainties in tax administration are eliminated. For countries with limited capacity in their administrations, this is an important consideration, which may encourage them to shift their attention to less ideal but more practical APT instruments. For example, simpler cash flow taxes (such as the special tax in Norway), or APT or production sharing triggered by the economic R-factor indicator (see the subsection “Government’s Share and Taxes under a

Production-Sharing Contract” for its definition) are increasingly being applied (Duval et al. 2009, 223–52).

State participation

State participation in EI sector projects may be motivated by nonfiscal objectives, such as knowledge transfer, as discussed in chapter 5. However, as typically structured, state participation in EI sector projects will have a fiscal motivation or tax dimension as well. The motivation is participation in production and profits, especially in their upside potential. The tax dimension depends on how participation is structured. Several forms of state participation can be found in the EI sectors: (1) full participation interest, (2) carried participation interest, and (3) free equity participation (see box 6.1).

With the exception of free equity participation, these forms of participation, full equity participation included, may add little to government revenues relative to the application of an efficient tax regime except when the state interest is high, although they may add considerably to risk by the obligation to contribute to future costs. They usually entail some form of offsetting reduction elsewhere in the fiscal regime, resulting in some equivalence between state participation and tax instruments. (See the discussion of NRCs in chapter 5.)

In each case in figure 6.3, government revenues come overwhelmingly from taxation rather than returns to

Box 6.1 Forms of State Participation

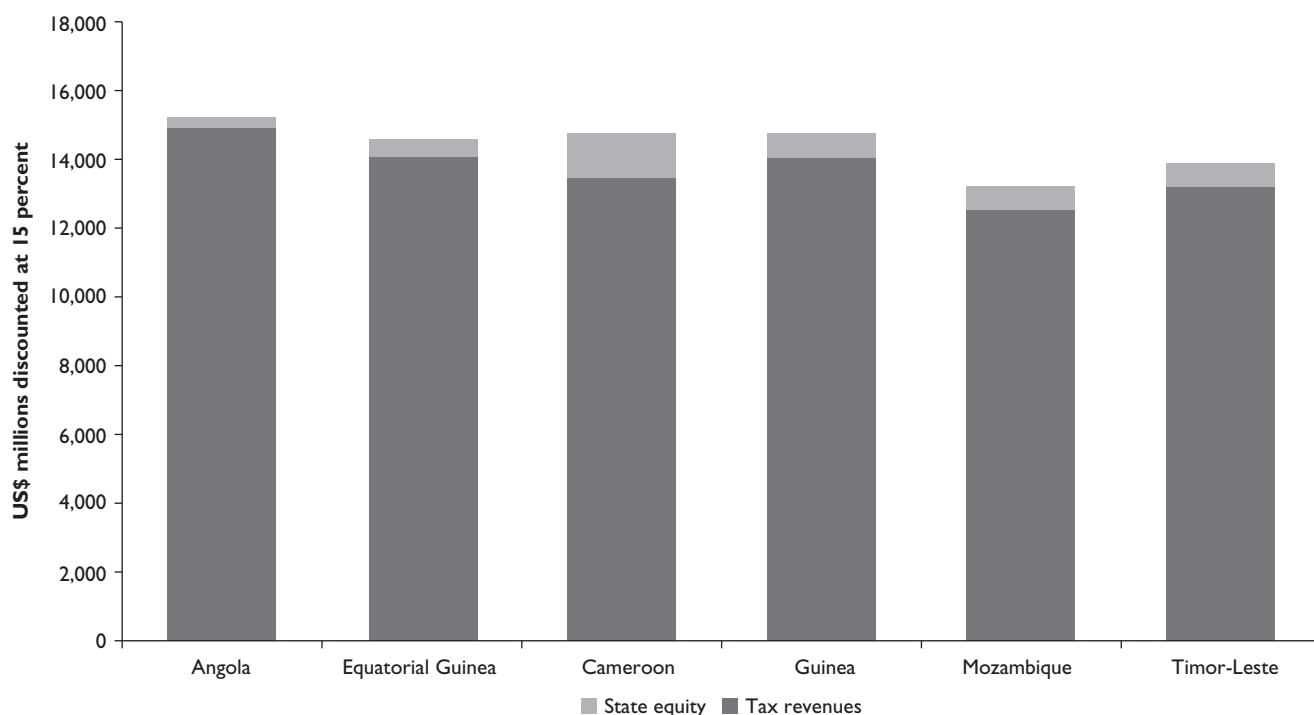
Governments have embraced state participation in their EI sectors in a variety of forms.

1. *Full participation interest.* The state or its designated national resource company (NRC) invests *pari passu* with the private sector from the start of operations, by acquiring either an equity share in an incorporated joint enterprise (common in mining) or a participation interest in an unincorporated joint venture (common in petroleum).
2. *Carried participation interest.* This may take several forms. The most frequently encountered is the so-called partial carry during the early stages of a project. Under this approach, the private investor “carries” or advances the costs of its NRC

partner’s interest through specified stages of a project—exploration, appraisal, and possibly even development—after which the NRC spends *pari passu* with the private investor as under full participation interest. The private investor may or may not be reimbursed for the funds advanced on behalf of the state, with or without interest or a risk premium. Where compensation does occur, it is typically paid out of the state’s interest in the project revenue.

3. *Free equity participation.* This option is a simple grant of an equity interest in an incorporated joint enterprise to the state without any financial obligation or compensation to the private investor. The state, however, receives a share in the joint enterprise’s dividends pro rata to its equity interest.

Figure 6.3 State Participation and Efficient Taxation Compared



Source: McPherson 2010, 271.

state participation. Nevertheless, the robust enthusiasm of many governments for state participation, particularly in the hydrocarbons sector, is unlikely to be affected by such considerations. Some investors will continue to favor it too, because participation may help to develop a closer, long-term cooperation with the country.

Withholding taxes on dividends, interest, or foreign subcontractors fees

Given the typical financing requirements of petroleum and mining projects, and their requirements for special expertise and services not customarily available in the host state, dividend and interest payments and subcontractor payments to nonresidents are common and usually significant. Withholding taxes on these payments—amounts that the company is required to withhold from the noted payments and hand over to the state on account of actual or projected tax liabilities of the payees—allows host states to effectively tax this income as there is no practical way to force nonresidents to file returns and account for their incomes. Beyond revenue generation, withholding taxes has the additional

advantage of discouraging excessive payments to nonresidents as a means of shifting profits to lower tax jurisdictions (see section 6.5). Withholding tax rates on payments to subcontractors are typically set at relatively low levels, reflecting the fact that they are levied on gross income.¹⁴ Treaties may also cap withholding rates in some cases, which is now a major area of base erosion.

Import and export duties

Since there is rarely domestic production of the equipment imported for petroleum or mining operations, the main purpose of import duties in the EI sectors is revenue raising rather than protection of domestic industries. This may be appealing in that it produces early revenues (even before project start-up), but it can also raise costs in the EI sector, lower the profitability of projects for investors, and consequently reduce ultimate tax revenues from EI sector production. Nonetheless, even though duties may be included in costs and therefore result in lower taxes paid, the state still receives more as the deduction is worth only a fraction of the duty paid. Recognizing this, most

states exempt imports used in an exploration and petroleum field or mine development from duties, either on a specific list or blanket basis, as an incentive to investors. However, inputs at the production stage may or may not be duty exempt.

Both import and export duties are becoming less important as a source of revenue for most countries due to trade liberalization. Most countries have removed export duties altogether; only a few others, such as Malaysia, the Russian Federation and South Africa, impose them on nonrenewable mineral and energy resources. This practice has been driven as much by industrial policy as by any of the fiscal objectives listed, although revenue generation has played a role as well. In a few states, governments introduced export duties with the intention of encouraging investment in domestic processing and smelting capacity. In some cases, where local downstream industry did develop, the duty was probably unnecessary: the high cost of transporting raw minerals usually provided adequate incentive to domestic processing (OECD 2010a). Export duties need to be dealt with carefully because they represent another royalty and as such (1) can be distortive and (2) rather than adding value, may (on a net basis) subtract from it. A legitimate application of export duties will go in pair with an analysis of the competitiveness of the country in the value chain of the downstream processing.

Value-added tax: How to have a workable VAT system for EI activities

VAT is a consumption tax levied as a percentage of the value of goods and services, with VAT paid on inputs credited against VAT paid during the same tax period on domestic outputs. Since the EI sectors are largely export-oriented, they have no domestic output VAT against which they can credit their VAT payments on inputs. Relief for EI sector products when exported must come instead from refunds paid by domestic tax authorities during the same tax period. Given the heavy up-front costs and long lead times characteristic of the EI sectors (including the delays experienced in obtaining refunds in countries with weak administrative capacity), this can pose a serious problem (Boadway and Keen 2010).

Many states, in particular those with a legacy of British influence, have resolved this problem expediently by simply zero-rating (as is the practice for export sectors) the VAT from domestic purchases destined for EI projects (Boadway and Keen 2010). However, care should be taken to avoid creating a perverse incentive whereby imports are duty free and local inputs are taxed to the detriment of local producers.

Since the overall economic development aim is to see EI sector development stimulating other parts of the local economy (including the provision of local goods and services where feasible and where this is economic), it is important that these types of perverse incentives are avoided.

Other countries, in particular those with a legacy of French influence, have adopted an alternative approach: to provide VAT exemptions for imported capital goods, specialized services, and sometimes imported inputs. This approach, in Mullins's (2010, 397) view, is "not considered good tax policy as such exemptions are prone to abuse, complicate administration, and of course, may cost revenue which often has to be recouped from elsewhere in the tax system." Nevertheless, a specific sector exemption for imported capital goods may be necessary if the tax administration lacks the capacity to administer a refund-based system without any delay. It could be limited by project and in time, and to those goods and services that are necessary to the extractives sector. The overall guideline is that where alternatives to VAT are adopted, these should mimic the correct operation of VAT as far as possible, along with the introduction of appropriate surveillance measures.

Government's share and taxes under a production-sharing contract

The production-sharing scheme is very commonly applied to oil and gas operations in the developing world, although only very rarely to mining operations.¹⁵ In their simplest form, these regimes allow the investor to recover eligible costs through an allocation of production named "cost oil/gas (or cost petroleum)" and share the remaining profit oil/gas (or profit petroleum) production with the government. The government's share in the profit petroleum is a fiscal revenue scheme for the state similar to sharing profits that can be taken either in kind or in cash, in conformity with the PSC.

There are four main variants of profit-petroleum-sharing mechanisms, each of which is aimed at increasing the government's profit share on the more profitable projects (IMF 2012, 17b1) to align with the fiscal progressivity objective of the state:

1. *Daily rate of production*: in which the government share of profit petroleum increases with the daily rate of production from the field or license, often using several tiers. Sometimes this is blended with a scale of prices. Its main weakness is that it is not progressive with respect to oil costs (and prices, except when provided for).

2. *Cumulative production from a project*: in which the government share of profit petroleum increases as total cumulative production increases. This is not commonly used.
3. *R-factor*: in which the government profit petroleum share increases with the ratio of contractor's cumulative net revenues to contractor's cumulative investments (or costs in some countries), from the award of the license or contract until the period of sharing (the R-factor). This variant is increasingly used, even if it does not recognize the time value of money, because that mechanism is easier to understand by all the stakeholders than the following rate-of-return approach.
4. *Rate of return*: in which the government's profit petroleum share is set by reference to the cumulative contractor rate of return achieved from the award of the license or contract until the period of sharing.

In addition to taking the government's share in the profit petroleum, the state under any PSC may receive, if so provided, CIT and any other taxes listed in this section, including royalty if applicable and benefits from state participation. Royalty on production is not mandatory under a PSC (Duval et al. 2009, 72): indeed, many PSCs do not provide for payment of a distinct royalty. The reason is that, by design, under any PSC there is already an implicit payable royalty because from the first year of production the state always receives annually a certain government share in the profit petroleum. This results from the applicability of a ceiling percentage rule limiting the portion of production—often significantly lower than 100 percent—that can be allocated under the PSC to annual petroleum cost-recovery purposes. Such a restriction on annual cost recovery does not apply under a tax and royalty fiscal system, in which tax deductions for CIT may reach 100 percent of the taxable revenues, justifying under such system a royalty as a minimum annual payment to the state.

By contrast, CIT is always payable under PSCs as under a tax royalty system, but two alternatives for CIT payment may apply, depending on the PSC wording: (1) either the CIT is directly paid by the contractor or (2) the CIT liability is deemed included in the government's share in the profit petroleum, which in that case is higher in order to allow the CIT payment by the state on behalf of the contractor (Duval et al. 2009, 246–47). To prevent difficulties and loopholes in assessing CIT liability under a PSC, the country tax legislation must provide for a specific section dealing with the clear determination of the assessable profit under a PSC.

In particular, the definition of the eligible recoverable costs and allowable CIT deductions as well as their depreciation rules may be different for the respective determination of petroleum cost recovery and CIT base. Such differences must be clearly stated, as must be the adjustments to be made to the costs jointly recovered by a contractor, to get the CIT deductions of each individual entity constituting a contractor.

Production-sharing regimes share to some extent the pluses and minuses of profit taxes when measured against fiscal objectives. At the same time, some elements of production-sharing regimes, such as the annual petroleum cost recovery limitation, function more like royalties, as explained. Payment of CIT in addition to production sharing allows investors to qualify for a foreign tax credit in their home country.¹⁶ The combination of fiscal instruments under a PSC is illustrated schematically in figure 6.4. This overlay of fiscal instruments can create administrative difficulties, which are discussed in section 6.6, “EI Fiscal Administration.”

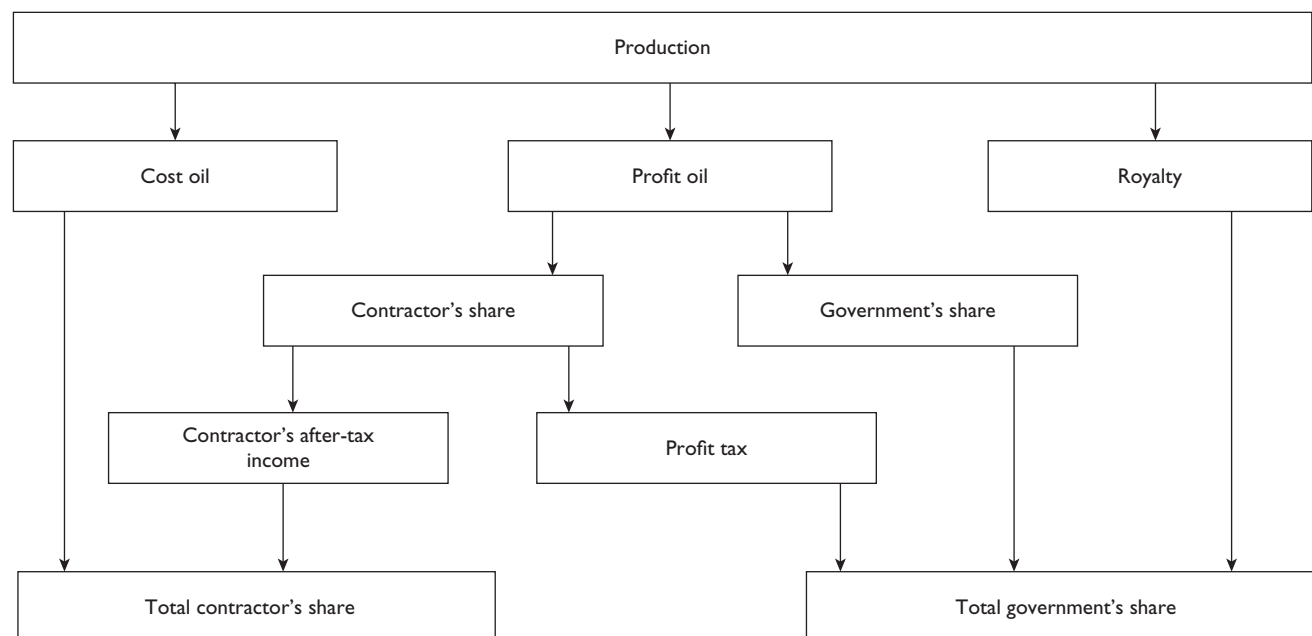
Angola provides an example of a fiscal package that includes cost recovery, profit petroleum sharing, and CIT liability and excludes royalty payment by the contractor. (See box 6.2.)

Capital gains taxation for transfers of EI interest

Mining and petroleum license, concession, or contract interests and related rights often change hands; they are often sold from one investor to another. This can serve a very useful function. For example, small companies with an appetite for risk may take on EI projects with little appeal to major investors. In the event of success, these small companies (often called “independents” in the petroleum industry and “juniors” in the mining industry) will look for their reward through transfers or sales of their interest and rights to majors with the financial and technical muscle to exploit the discovery. The transaction often involves the sale of shares in companies that hold mineral rights (*indirect transfer*), rather than a sale of the rights themselves (*direct transfer*). Such companies are often part of a complex web of cross-border ownership chains. Any capital gain may be made by a nonresident and be protected by a tax treaty.

A large part of the premium, or gains, that independents or juniors achieve on such sales (which may be substantial) is rent; nevertheless, depending on the legislation and regulations in place, the investor may be able to structure the sale so that taxation is limited (for example, by transferring

Figure 6.4 Example of a Production-Sharing Contract in Oil Production



Source: IMF 2011.

Note: The figure assumes that a distinct royalty and corporate income tax is payable, which is not always the case in PSCs.

Box 6.2 Angola's PSC Fiscal Package for Petroleum

Angola's fiscal regime for petroleum has gone through several iterations since oil activity began. Tax-royalty systems are still applied on renewed concessions, but production-sharing contracts (PSCs)—or in some cases risk-service contracts (RSCs)—have been applied to new contracts. The PSC package that has now emerged is generally regarded as representing good practice and includes the following components:

1. *Signature bonus.* Signature bonuses are included as bid items in competitive licensing rounds. Angola's positive track record in honoring contracts and its oil prospectivity have resulted in significant bonuses in recent years.
2. *Production sharing.* Investors are permitted allowable cost recovery of up to 50 to 65 percent of production. Remaining profit oil is split for deepwater projects according to a scale that escalates from 20 percent to 85 percent (or from 30 to 90 percent in recent contracts) in the government's favor as a function of the investor's actual achieved profitability.

3. *Corporate income tax (CIT) per project.* A 50 percent tax is levied on the investor's adjusted profit oil share ring-fenced per development project. Capital gains resulting from transfers are subject to CIT.
4. *State participation.* Sonangol (Angola's national resource company) equity participation varies from 0 to 20 percent (or a higher percentage) depending on the contract.
5. *No royalty payable by the international oil company.*

Under these terms, the state's share in benefits is decidedly progressive, while still allowing the investor to share in the upside. The resulting range of government take is consistent with Angola's prospectivity and take obtained in comparable states. Emphasis on profits-based taxation provides an incentive to extended, broad-based development.

Application of the corporate tax allows investors to claim foreign tax credits. Sonangol's participation interest has been kept at relatively modest levels, but a higher rate may be provided for in the bidding terms. Angola's decision to seek external audit support has provided protection of its interests in fiscal administration.

interests offshore rather than by a sale of in-country assets when the tax rules are incomplete or unclear). The gains observed in the past few years have exceeded expectations considerably as a result of dramatically increased prices for petroleum and minerals, and have understandably encouraged reexamination of their fiscal treatment (Nahkle 2007). Much media coverage has been given to the way the issue has arisen, for example, in Ghana, Mozambique, and Uganda in recent years in both hydrocarbons and mining sectors. The main issues center on these questions: Should these gains be taxed, and if so, who should or who can tax the gain? Best practice in the design and enforcement of a response is still evolving. A comprehensive review of taxing gains in transfer of interest in a mining or petroleum right is available (Burns, Le Leuch, and Sunley 2016).

Taxing gains on transfer of interest is becoming more important and more controversial for at least two reasons. First, gains have been typically much higher due to price increases. Second, taxing gains is extensively addressed in developed countries, and the basic principle is that gains are taxable as an ordinary income subject to CIT. In contrast, in many resource-rich countries outside the Organisation for Economic Co-operation and Development (OECD) area, either taxing gains is not addressed at all or the tax rules contain so many loopholes that international oil companies (IOCs) easily find ways of mitigating taxation on transfers of interest. In addition, tax-treaty-shopping strategies using tax havens are often used by IOCs when dealing with developing countries to obtain exemption from taxation of gains.

Recent examples of very large capital gains in the extractives sector of developing countries raise an ethical question: Why should such profits not be taxable in such countries when they are taxed in most OECD countries? Is it fair to exempt them from taxing of gains? Moreover, the issue of taxing gains is usually treated on the basis of concession agreements and CIT only, not on the interaction with any additional profits tax when applicable—except in a very few countries such as the United Kingdom and Australia, where the applicability of APT in the event of gains has been cleared. Similarly, the treatment of transfers is still rarely provided for under production-sharing contracts, where two issues must be addressed: the tax treatment of gains and their cost recovery treatment. In practice, taxing gains on transfers of interest must be treated differently for mining than from oil and gas.

An alternative view of good practice would be to recommend that IOCs usually be subject to taxation of gains on transfer of interest, except in some specific cases (such as under so-called farm-outs, when the consideration is not cash but only the performance of work obligations).¹⁷ This is, however, possible only if the tax legislation so provides specifically for exploration and production. Guidance to governments of such an alternative approach is contained in box 6.3. In terms of fitting such good practice to a particular context, a government may, in revising its current tax regime, choose to distinguish current or existing investors from future ones in order to ensure that such revisions do not trigger negative perceptions about the stability of its investment climate.

Box 6.3 Elements for Action on Taxation of Transfer of EI Interest

1. Define the different ways of transferring interests in licenses and contracts (because gains result from direct or indirect transfers of interests). These are:
 - i. Farm-in/out in a block or contract
 - ii. Only a work commitment as compensation
 - iii. Cash compensation plus work commitment
 - iv. Sale of a participating interest in a block for a cash consideration
 - v. Sale combining shares in a subsidiary (a direct subsidiary or a subsidiary in a chain of controlled subsidiaries) plus working interest in blocks
 - vi. Swaps of interest in licenses
 - vii. Other forms of transfers: initial public offering and so forth
2. Address the administrative approval of any proposed transfer, direct or indirect, in particular in cases where the transfer involves a predefined change of control in a subsidiary. Why does such approval require an assessment of the tax consequences of the transfer?

(Box continues on the following page)

Box 6.3 Elements for Action on Taxation of Transfer of EI Interest (continued)

3. Define the gain or profit/loss related to a transfer and the ways to tax such gain or profit, taking into account the following six considerations:
 - i. Is the gain considered to be ordinary income subject to normal corporate income tax (CIT) or at a different rate applicable to capital gains? What rate is applicable when activity is subject to an additional profits tax? How should one allocate the transaction cost between several blocks?
 - ii. Why should gain be taxed? Why should the value of the transaction take into account the applicable taxation on gain?
 - iii. Does the petroleum tax legislation define a special gain taxation regime for the oil and gas exploration and production sector? This should normally be the case, especially to deal with farm-in, swap of licenses, reinvestment in the country, and so on.
 - iv. What are the accounting issues for the transferor and the transferee regarding acquisition costs?
 - v. Is there an impact of the cost of acquisition on cost recovery under production-sharing contracts? Should the acquisition cost not be a recoverable cost even when the transfer is subject to CIT?
 - vi. How should the impact of favorable double taxation treaties and international oil companies' tax planning strategies be mitigated?

6.5 SPECIAL EI FISCAL TOPICS AND PROVISIONS

Extractives fiscal prices

Price determination for fiscal purposes can be complicated in the EI sectors. In all cases, the goal in tax administration is to set or agree to a fair price for tax purposes as close as possible to that which would be realized in a genuine third-party, arms-length market sale. This is important for several reasons:

1. To avoid fiscal revenue loss by underpricing of the resource (see the section on Transfer Pricing below).
2. To avoid government overpricing of the resource to raise revenues.
3. To help ensure the availability of foreign tax credits to investors (see the subsection "Foreign Tax Credits in Home Country").

The goal is most easily accomplished in the case of oil, where well-established international markets exist and reference price quotes, together with price adjustments for crude oil quality and transport differentials, are almost continuously available. The *fiscalization point* (at the point of export, ex-field, or another agreed point of delivery) must be agreed to by the parties but need not present particular difficulties as long as associated taxes or royalties are adjusted to reflect the choice made. Establishing fiscal prices for mining and natural gas is more problematic, because their market prices may be harder to identify or observe.

In the case of gas, competitive markets currently exist only in the United States, the United Kingdom, and a few other countries; readily observable prices for fiscal purposes do not exist outside those markets and are often set on a project-by-project basis. Further, the marketing of natural gas and some minerals may be integrated all the way from the petroleum field gate or agreed delivery point or mine mouth through processing or smelting and transport all the way to final consumer with different tax regimes along the integrated chain. Setting the value of the resource along that chain will, as a result, have significant implications for total fiscal revenues and their sharing among fiscal jurisdictions. Good practice generally calls for "netting" the price paid by the final consumer back to the agreed field gate or delivery point or mine mouth in such a way that fiscal valuation accrues at those points.

Transfer pricing and interest deductibility

Transfer pricing refers to the pricing of sales to, or purchases from, parties affiliated with the EI sector investor (Daniel et al. 2016, 42–110). It applies not only to the sale of products and goods but also to the supply of services and the terms and pricing of loans or credit instruments such as prefinancing arrangements. More than one half of all cross-border transactions carried out are likely to be between companies that are affiliated, so the importance of this subject should not be underestimated (RWI et al. 2013, 96). Transfer pricing is considered abusive when underpricing a sale or overpricing a purchase results in shifting profits

from a host state resource extraction jurisdiction to a lower tax jurisdiction outside the EI host state—with the result that the tax payments to the host state are reduced (Sunley, Baunsgaard, and Simard 2003, 157–58).

Vulnerability to abusive transfer pricing is not unique to the extractives sector. However, very high taxes on exploration and production increase the risk of abuse and are compounded by the fact that many of the investors in the extractives sector are integrated international companies and often use tax havens as corporate locations. Activities such as production, refining, marketing, and distribution of the resource could occur in several tax jurisdictions, creating opportunities for transfer pricing. Similarly, excessive fees could be claimed for managerial and technical services shared by a company's international operations.

Monitoring and policing interaffiliate transactions can be difficult, but very far from impossible. Three features of extractive industries contribute to assist government authorities in their tasks (IMF 2012, 37):

1. There are observable physical operations and outputs.
2. There are standard measurements and benchmark international prices that can produce a comparable uncontrolled price with which to value transactions.
3. In the hydrocarbons sector, at least, there is commonly a joint venture structure that triggers conflicting interests that work in the favor of public authorities in controlling costs.

Tax authorities are well advised to set clear, transparent rules and procedures for tax treatment of interaffiliate transactions.¹⁸ Abuses with respect to both sales and purchases (interest costs or subcontractor goods and services) can be mitigated by the following:

1. Preparing tax returns, for tax assessment, using either an advance pricing agreement for any interaffiliate transactions, agreed ex ante prices, or arm's length market prices with benchmarking by reference to observable markets (as suggested in the preceding paragraph for pricing of sales).
2. Requiring investors to provide both advance notification each year and an annual projection of the value (in terms of price and quantities) of any planned interaffiliate transactions and then, based on the information provided, setting a ceiling for such transactions beyond which they will not be eligible to be deducted for tax purposes.

3. Requiring investors to identify all affiliated and nonaffiliate transactions and justify their pricing (this can be an important tool in building up data for the enforcement of transfer pricing rules).
4. Referencing or incorporating into local legislation the OECD (2010b) guidelines on transfer pricing.

Companies sometimes attempt to reduce tax assessments by having highly leveraged capital investment programs with as much as 95 percent debt financing, a percentage that is considered much higher than prudent (Sunley, Baunsgaard, and Simard 2003). This can happen especially where a subsidiary company takes on excessive debt while the parent company maintains more prudent debt levels. The problem here, however, is more than having a subsidiary taking on imprudent debt. It is rather that they are characterizing parent contributions as debt rather than equity simply to minimize taxes (and equity payments to other, including state, shareholders). In many cases, this is not real debt but related party debt that is simply characterized as debt.

In the case of interest costs, extra protection may be provided by not only benchmarking rates against observable market rates but also by limiting the total debt allowed for purposes of tax calculations in the host state to a set a debt-to-equity ratio ceiling (for example, a three-to-one ratio when the EI project is carried out by an incorporated project company, which is not common for petroleum). Other, simpler approaches are receiving increasing attention and use, such as limiting interest deductions to a set share of income. In addition, more and more countries are crafting limitations to interest deductions for CIT purposes on petroleum projects by imposing specific sectoral debt limitations, such as (1) restricting debt to a maximum specified percentage of development capital expenditure and (2) excluding exploration costs.

Under good practice, the burden should be on the taxpayer to use the rules and to demonstrate that it has done so. Published benchmark prices should be used where they are available. Tax authorities need robust data collection programs to support a coherent audit strategy.

Special ring-fencing rules for CIT and other taxes

EI ring-fencing rules may be required for several fiscal purposes. The most common is the ring-fencing for CIT purposes that aims to limit the consolidation of income and deductions for CIT purposes across different activities or projects carried out by the same taxpayer in a country.

This is a critical, necessary tax rule for EI activities, because under general tax laws an entire CIT consolidation rule applies. A frequent EI tax rule is a restricted sectorwide ring-fence for the EI sector in the country, not allowing nonsector activities to be deductible from the extraction sector and vice versa. Norway and the United Kingdom, for example, have a more restrictive rule allowing a ring-fencing only for the petroleum offshore activities. If deferral of effective revenue is a concern, it could be done on a license basis. This has the advantage of ensuring earlier government revenues by not authorizing immediate deduction of exploration or development expenditures from each new project against the income from a project that is already generating taxable income.

The selected rule regarding ring-fencing for CIT may, however, have consequences for both the pace of exploration and development activities and the timing of government revenues. Ring-fencing per project or license limits tax deductions and depreciation allowances from the revenues of a producing petroleum or mining project to costs incurred in the same project or license area. This has two consequences. The first is positive: ring-fencing avoids the delays in government revenues that might otherwise result if investors can deduct for CIT purposes depreciation allowances for new expenditures or investments made outside the producing area against producing-area income. The second may be viewed as negative to the investor: the ring-fencing does not permit the right to consolidate new costs with existing income for fiscal purposes, eliminating an incentive to spend on new exploration and development outside the producing area. If the government were to allow costs to cross, or be consolidated across, a ring-fence it may, in effect, be indirectly subsidizing unsuccessful operations by allowing deductibility of those costs. However, this eliminates only the incentive with respect to existing producers. In contrast, many states want to encourage new investors to come in, and here project ring-fencing may help create a level playing field. New entrants have no in-country income against which to offset exploration costs, so they are at a disadvantage vis-à-vis existing producers, which will face lower costs for exploration; this is another argument for limited CIT ring-fencing.

Policy makers face a trade-off between early revenue with deferred activity and accelerated activity with delayed revenue. How the trade-off is resolved will depend on both country context and country priorities.

Certain fiscal instruments other than CIT also require ring-fencing if they are to make sense. This may concern a resource rent tax or an additional profits tax ring-fenced per

project; state participation; royalty when the rate depends on production tranches; and petroleum cost recovery and profit petroleum sharing under PSCs.

Depreciation of capital expenditure for CIT purposes

The tax rules under the CIT legislation, supplemented by specific rules for the EI sector, clarify the definition of the *allowable deductible costs* and their allocation between (1) expenses immediately deductible, when incurred (or when production starts, if later), and (2) capital expenditure, to be depreciated under a specific method and duration. Some countries may grant accelerated depreciation, while others prefer to impose a longer depreciation duration, which is the most common practice. Indeed, the annual rate of depreciation of capital expenditure for CIT purposes is a key tax rule with economic impact, as it may significantly delay government revenue when accelerated depreciation applies. Depreciation provisions (also sometimes called *cost recovery* or *capital allowances* for CIT) are deductible from the CIT base. They are the means by which the investor recovers from gross revenues the costs of exploration, development, and operations. They also directly control the schedule of actual receipts by the government of CIT, depending on the pace of depreciation.

The definition of *deductible costs* for CIT can generate considerable debate unless clear rules apply. Issues arising include the deduction of (1) overseas headquarters costs (usually limited as a percentage of project costs); (2) interest costs (subject to limits on debt and the application of market benchmarks on interest); (3) costs related to purchases from affiliated parties (addressed by applying OECD rules on transfer pricing or requiring demonstration of third-party pricing equivalence); and (4) costs incurred beyond the vicinity of the revenue-generating project.¹⁹ The definition of deductible costs will affect the pace and the size of government revenues.

Under PSCs, the contract and its special accounting procedure clarify the definition of the eligible petroleum costs for PSC recovery purposes and how they are recoverable. Their definition and the pace of recovery may be different for cost recovery purposes under the PSC and CIT purposes, provided that such differences are clearly stated and understood by each party. Normally, a PSC will cap the amount of annual production allocated to cost recovery purposes—while under CIT there is no such ceiling on cost deductibility—and will allow unrecovered costs to be carried forward and recovered in successive years.

Decommissioning costs and provisions

Petroleum and mining investors are now almost universally required to decommission their site once operations cease, although allocation of costs varies greatly from one country to another (see chapter 9, sections 9.5 and 9.6). Decommissioning requires the investor to close the mine and the wells, rehabilitate the site, and restore or remove any causes of danger or injury to the environment (World Bank 2010). Since there is no income against which to recover decommissioning costs once operations cease, detailed rules need to be made providing for plans and budgets and cost deduction for CIT purposes. It is now common to require investors to establish from a predetermined date a decommissioning fund or mine reclamation fund in advance of termination. This may be carried out under specific rules through payments made ahead of closure based on estimates of future decommissioning costs and placed in an escrow account at an approved bank. Under good practice, those payments are considered authorized tax provisions and become cost recoverable under a PSC and tax deductible for CIT when incurred. Mining differs from oil and gas in that decommissioning takes place in phases during mine operations, not only after the mine is closed. Decommissioning costs incurred in advance of closure are normally allowed as deductible expenses.

Specific fiscal issues related to natural gas

Petroleum tax laws usually provide specific clauses on natural gas to enable more favorable fiscal terms for gas operations, since the profitability of upstream gas projects is often lower than in oil projects.²⁰ The reasons are twofold: upstream gas operations are often more costly, and gas is sold at a lower equivalent calorific value than oil.²¹ However, the appropriate gas incentives vary according to the kind of fiscal system and petroleum contract that is adopted. If adjustments are required under the existing fiscal regime, the following tools may apply:

- Under tax and royalty systems, reduced royalty rates for gas (for example, in Nigeria, Tunisia, and Vietnam).
- Under PSCs, where most of the fiscal differences between oil and gas are of a contractual nature, through more favorable cost recovery and production-sharing terms applicable to the investor in relation with gas production, for example, in Egypt, Indonesia, and Malaysia. (Thus, in an Indonesian PSC, the contractor may often have a share of 25–35 percent in the profit oil split on an after-tax basis, while for gas the contractor's share may rise to as much as 30–40 percent.)

- Lower CIT rates (for example, in Nigeria, Papua New Guinea, and Tunisia).
- Exemption from certain petroleum taxes (for example, in Trinidad and Tobago, where there is an exemption from the Supplementary Petroleum Tax).

Both tax-and-royalty and production-sharing contract regimes have recently introduced more progressive fiscal devices, as explained in section 6.4. Indeed, these are designed to automatically take into account, among other things, the differences in economics between oil and gas. They consist of either the additional profits tax instrument under a tax-and-royalty system or a progressive petroleum profit-sharing scheme triggered by an economic criterion (such as the achieved rate of return of the project or, more frequently, a multiple of the investment incurred—the R-factor). That approach is becoming more common, by relating rent sharing to the effective profitability reached by a project and allowing a country to address upstream oil and gas activities using the same terms.

The specific fiscal regime applied to the upstream oil and gas sector contrasts with the typical tax regime regarding gas downstream activities, which generally consists of the general tax code of the country applicable in the same way as to any other sector of the economy. Downstream gas operations tend to be treated as general industrial projects and subject only to standard CIT.

Two contractual and fiscal approaches are suboptimal for fostering the development of the upstream natural gas activities. First, the solution of postponing stipulation of detailed fiscal terms for future gas discoveries after they are made can prove unwise; it assumes that they can be left to be negotiated at a later stage, if and when a potentially viable discovery has been proved. This creates a disincentive to the investor to search for gas and appraise a gas discovery: if commercial quantities of gas are found, the government may regard the investor as having no rights at all to that gas and even “invite” it to negotiate for a role in competition with other potential investors. Second, the solution under a PSC of using the same terms for oil and gas, when the progressive profit-petroleum sharing is based on a scale of daily oil production tranches creates a problem: it only converts the respective levels of the oil production tranches into gas production tranches on the basis of a simple calorific equivalence.²² The strong likelihood that the expected price of gas will remain lower than that of oil is not taken into account in that purely calorific equivalence approach without any price adjustment.

Specific fiscal issues related to small-scale mining activity

The operations of artisanal and small-scale miners have attracted considerable attention (see chapter 9 for discussion of legal and environmental issues), not least because of their numbers in countries like Brazil, Ghana, Sierra Leone, Suriname, Tanzania, Thailand, and Zambia. The fiscal issues arising from this sector are few and are comparable to small-scale agriculture rather than large-scale mining. Emerging good practice, as in Ghana, for example, is to levy royalties on traders by requiring them to withhold and pay taxes—instead of attempting to tax miners directly, except perhaps for a small license fee, and ensuring that consumption taxes are levied.

Tax treatment of infrastructure obligations

Investors may sometimes be obligated to provide the host state with social or physical infrastructure as part of their contractual undertakings (see chapter 9). This is tantamount to earmarking government revenues. The motivations behind the requirement may have to do with lack of government capacity or with political expediency. Whatever the motivations, except where the expenditure is allowed as a full credit or offset against the investor's tax obligation, the requirement is analogous to an explicit tax on the investor. The scale of such a tax depends on (1) whether the infrastructure expenditure is deductible, (2) the actual cost of the infrastructure to the investor, and (3) continuing upkeep obligations. Further, since some infrastructure may be used in servicing the mine, it would represent a business expense rather than full taxes. Shared use by other operators (such as railways or ports) will further complicate any such analysis.

Tax treatment of discounted domestic sales prices

In the past, some governments in petroleum-producing states (such as Nigeria and Indonesia) have required the sale of at least part of oil production to domestic market refiners at discounted, below-market prices. This is essentially equivalent to a royalty and suffers from the same drawbacks as royalties but without the benefits. The benefits of discounted sales prices flow directly to the domestic refiner, not the government, and represent an opportunity cost loss to the budget. Further, the discounts can be expected to distort domestic investment and consumption decisions with resulting economic losses. The practice of discounted sales at the level of upstream production is now very rare.²³

Tax holidays for EI projects: their drawbacks

As their name suggests, tax holidays provide the investor with a temporary reduction or exemption from taxes and duties for a period of years, possibly as long as 5 to 10 years. When applied, often in conformity with the country investment code, they are used to promote investment based on zero taxation for a specific period. Profits are exempt from tax regardless of their size. Once a common feature in mining sector fiscal regimes, tax holidays are still found in the EIs but are much less well regarded now and are nearly inapplicable to petroleum projects. Recent research has been highly critical of their effects, noting that there is little evidence that they have actually encouraged investments and have generally served to reduce taxes on investments that would have been made anyway without such an incentive. The result is a net loss to the host state and a distortion for international competition. An Oxfam study of taxation among developing countries described this as “one of the most damaging tax incentives” (Itriago 2011, 15). The study noted the potential for abuse: companies that are not eligible for a tax holiday may engage in financial transactions with exempted companies solely to transfer profits from the former to the latter and thereby avoid paying taxes on that profit. The study continues:

Tax holidays do not encourage a company whose project is long-term to settle in a developing country. It is companies with short-term projects who are attracted by tax holidays, because they are confident that in their first years they will obtain profits, and the tax holiday incentive will exempt them from paying any tax on these. When the incentive ends, they pack up and leave (74).

Given mining's long exploration and development periods, high costs, low margins, and long payback periods, tax holidays were originally promoted and introduced as essential incentives to investment. However, their use in practice has exposed serious investment and operating distortions. Among other things, these relate to the practice of “high-grading.”²⁴ Investors were found to be unduly accelerating mine production, focusing only on high margin ores, in an effort to extract as much value as possible before the tax holiday ended. Tax holidays considerably reduced total tax revenues, and in the very worst case may have resulted in no taxes being paid at all (even though production was highly profitable). Tax holidays have been largely discontinued in favor of less distorting incentives,

such as rapid depreciation rates (ICCM 2009, 47). That said, many countries, including Australia and Canada, provide generous incentives for exploration, including carry-forward allowances. This can be justified by the fact that the investor will receive only a part (and perhaps a modest part) of the rent once production commences.

Provisions related to expensing and depreciation rates have significant implications for the timing of those revenues. The importance of depreciation is that it is an expense deducted from income for tax purposes. Tax depreciation provisions need careful consideration because of their implications for the time profile of tax payments, as discussed above in this section.

In lieu of granting pure tax holidays, governments may decide to use accelerated depreciation for tax purposes—but only when justified in special circumstances—to allow accelerated capital recovery, which reduces financial risks for investors, but not for the government. There are risks, indeed, in allowing investors to achieve rapid cost recovery. In using this depreciation strategy, governments must fully appreciate that if profits increase sharply due to a mineral price boom, tax payments may not increase until the permitted annual depreciation has been fully utilized. It is possible that annual tax payments could increase in response to price rises, however, even in the presence of accelerated depreciation. Interactions with loss carry-forward rules, for instance, can mean that some share of annual windfalls accrues to government even if assets are not fully depreciated.

Fiscal stabilization

A major concern of investors, noted elsewhere in the *Sourcebook* (chapter 4, for example), is the possibility that the host state will introduce adverse terms—especially, but not exclusively, fiscal terms—once risks have been borne and major expenditures sunk. This is sometimes called the “obsolescing bargain” or “time inconsistency” problem by economists. These concerns have been at least partially addressed by introducing stability clauses in legislation or, more commonly, in licenses or contracts. In some countries, this may take the form of a specific agreement on tax stability. In Ghana, for example, such agreements are made between the government and the mining company, then submitted to the parliament for approval.

In practice, among the many forms of contract stability, the most common are the *freezing* formulation and the *rebalancing* formulation (see chapter 4, section 4.9). Under the former, one version is for the laws in force when the agreement was signed to be frozen for the life of the

contract or for a period of years (Cameron 2006). Under the second approach (now thought to be more common), one version is for the parties to the contract to agree to negotiate in good faith to maintain the original economic equilibrium of the contract by introducing compensating changes to any adverse revisions to law or to the contract itself (Cameron 2006; Cotula 2010, 69).

A growing reluctance to accept stability clauses is emerging on the part of governments (Cotula 2010, 16–17). However, in the absence of a country’s track record of broad-based improvements in governance, it seems likely that such provisions will continue to be sought by investors and granted by states as a way of improving their competitive position.²⁵ At the same time, it is increasingly recognized that good fiscal design (by providing for automatic responsiveness of terms to changed circumstances under the fiscal progressivity objective) can reduce pressures to renegotiate or revise agreements, making it less likely that stability clauses will be invoked.

Renegotiating and updating tax regimes

While mature states may be able to ensure stable tax regimes, some states have trouble achieving this. States with new EI sector industries, states privatizing loss-making companies, or states recovering from civil war may make certain tax concessions or provide certain tax incentives in order to attract early investors. If this is the case, there is a risk that a successor government will demand a renegotiation of the fiscal package if the state’s track record in the EI sector becomes more established or stable. In the latter event, a government seeking a change will typically carry out a comparative analysis with peer countries, review its tax regime through a transparent process, introduce flexibility mechanisms such as a progressive tax regime, and increase its tax rates so that its tax take moves closer to that of states with similar prospectivity. This subject is discussed in some detail in chapter 4 and in section 6.2.

In practice, many countries have changed the terms on which their extractive industries operate: Australia, Canada, and the United Kingdom are examples from the developed economies. Much depends on the price of the relevant commodity. When prices are high, the tendency is to increase state control and take; when prices are low, the tendency is to reduce them. The resulting uncertainty diminishes the value that investors are willing to pay, motivating a progressive regime. However, if terms have moved out of line with international practice or those practices in comparable settings, the way is open for a government to consult with investors

and attempt to secure change by means of mutual agreement, with a view to strengthening the investment climate.

The issue is not so much whether a regime is in general “stable,” but whether a particular regime applying to existing investments is stable or not. For future investments, governments may of course change the applicable terms as they deem appropriate. A second issue is the continuing value to investors of stability clauses in agreements as a defense against unilateral changes or mitigation of their effects. This is discussed in other parts of the *Sourcebook* (in particular, chapter 4, section 4.9).

Foreign tax credits in home country

Whether a credit is available in an investor’s home state for income taxes paid to the host state is an important consideration for investors whose home states apply a system of worldwide income taxation (for example, states that tax foreign source income in the home state).²⁶ However, this constraint is less common today. Most host states are aware of this issue and adjust their resource tax regimes to ensure the availability of foreign tax credits. This can be done without prejudice to host state tax revenues and has the benefit of encouraging inward international investment. Criteria for foreign tax creditability include the following:

1. A host-state tax based on net income (ideally closely resembling the income tax applied in the investor’s home state)
2. Use of actual third-party market prices or equivalent benchmarks in the calculation of host state taxable income
3. Allowable deduction of all significant costs attributable to the taxed operation

Some specialized resource taxes, such as resource rent taxes, additional profits taxes, or payments under PSCs, may be considered different in nature from a standard corporate tax and face difficulties in qualifying for a credit. The treatment of these taxes can be clarified in a double tax treaty (see the following subsection, “Interaction between Tax Treaties and Country Legislation”). Home states limit the total credit available to what would have been paid in the home state absent a credit. Host states may want to package their EI sector taxes, including for the selection of applicable income tax rate, to maximize the home state credit available to investors and thus avoid any leakage of potential tax revenue to the home state.

Interaction between tax treaties and country legislation

Numerous international treaties have been concluded to prevent double taxation of the same income or profits by two different governments. These were not intended to generate *double nontaxation*, although this has occurred via treaty shopping. There are more than 3,000 such treaties in existence, “in which two countries agree on how and when each will tax activities of the residents (persons and legal entities) of the other with respect to certain items of income” (RWI et al. 2013).

Tax treaties between home and host states often reduce withholding-tax rates imposed by statute on dividends, interest, management, or technical service fees due by the subsidiary located in the host state to their home-state parents. This is aimed at cases where the parent company has its head offices (and head office staff) domiciled in the tax treaty state. A host government may negotiate different withholding taxes for different treaty partners.

The risks to the host government are that the tax base of an extractives project may be significantly eroded and the permitted levels of withholding taxes may be reduced or even eliminated altogether.

Countries with significant flows of investment into their extractives sectors, and negligible outward investment flows of their own, must design treaty strategies to minimize this risk of tax base erosion and to adopt rules to prevent treaty shopping: the routing and characterizing remittances to intermediate jurisdictions to exploit advantageous treaty provisions. Ineffective tax treaties can also limit a government’s ability to tax nonresident entities on capital gains.

If these treaties have special provisions on EI, their aim is to ensure taxing rights on income by expanding the general definition of *permanent establishment* to include activities for the exploration and exploitation of natural resources, in addition to the usual coverage of a place of extraction such as a mine, gas, or oil well (Mullins 2010). The essential idea is that oil, gas, and mining exploration and production activities are treated as attributable for tax purposes to a permanent establishment in the host country, where the business has an enduring presence, so that the source country has the taxing rights on the profits of the business. The investor is not being encouraged to reduce or delay the amount of tax payable in the host country but rather is being made subject to tax only once for a given source of revenue.

Since many companies in the EI sector are multinational in character, the treatment of their foreign source income

in their countries of residence is very important to them. This is particularly so when the countries concerned have global taxation regimes (foreign source income earned abroad is taxed in the taxpayer's country of residence), as in the United States and the United Kingdom. If foreign tax credits are available for taxes paid by the multinational in the source country, they can offset home country taxes (Mullins 2010, 384–88). Obviously, where this is permitted, there are detailed rules governing its operation.²⁷ Such double taxation treaties are modified from time to time to take into account changing global tax practices.

In situations where tax treaties do not exist to prevent double taxation, some parent companies may be tempted to set up an intermediary “paper company” in a tax haven as the owner of the subsidiary company in order to gain those tax benefits. Governments can prevent this by including provisions in their tax laws that deem such practice as tax evasion, subject to substantial penalties (Calder 2010b, 33). In recent years, tax treaties have attracted critical scrutiny. As one authority notes diplomatically, “The experience of resource-rich countries in entering into double tax treaties varies” (Mullins 2010, 388). Such treaties make sense in cases where there are relatively even flows of capital between signatory countries, but where capital flows mainly in a single direction, which is the case in most resource-rich poor countries, the basis for such treaties is less clear, since they work only to decrease host-state revenues (Daniel et al. 2016).

Confidentiality of EI agreements

All EI states have a fiscal regime embedded in the law. Some states have also negotiated and signed separate, generally confidential EI sector agreements that contain special fiscal regimes unknown except to the investor, the tax authority, and a very small number of officials who have access to the agreement (see chapter 8).²⁸ During the commodity boom of 2007 and 2008, a number of these agreements in the mining sector came to light when governments found that tax payments did not increase commensurate with profitability because of fiscal concessions made in the contracts (ICCM 2009, 32). The risk of corrupt practices, poorly informed decisions, and mismatched negotiating capabilities can be avoided by keeping the mining fiscal regime in the law and refraining from modifying it in separate confidential agreements. If separate agreements are made, making them public and transparent will give governments and the state at large full knowledge of the tax regime.

6.6 EI FISCAL ADMINISTRATION

Many of fiscal administration requirements and procedures apply equally to EI and fiscal administration generally. The United Nations has classified the following actions as essential functions of any fiscal administration:

In order to execute its basic mission, a tax administration performs certain fundamental functions: taxpayer registration and identification, assessment (including valuation), collection and audit. These functions have been classified as “essential.” . . . The “essential” functions have also been labelled “operational,” since they involve the actual collection of taxes and entail close relations with taxpayers (UN 1997, 19).

The OECD (2013, 273–95) likewise defines the basic functions of tax administration as including assessment of taxes, including imposing sanctions to deter and penalize noncompliance, and the power to obtain relevant information from taxpayers.

Given the very large amounts of money typically involved in oil, gas, and mining, and the transformative potential they have, it is critical to get the fiscal administration right.²⁹ A well-designed but poorly drafted or implemented fiscal regime may fall far short of its tax-raising potential. The nonrenewable character of the resources underlines the importance of sound fiscal administration. The irony is that in the EI sector, the bulk of the revenues are often paid by a very few large taxpayers, so the scale of administrative capacity required should not be large. Moreover, for the investors the maintenance of good relations with the host government will tend to be of great importance. A basis for success in fiscal administration of the extractives does exist.

Careful identification of fiscal objectives and selection of fiscal instruments is of little use if fiscal authorities prove incapable of implementing the resulting regime.

Tax policy and administration

Several of the key fiscal objectives identified at the beginning of this chapter argue in favor of a progressive, profits-based tax regime. Critics have faulted these regimes on grounds of their perceived complexity and difficulty of administration. However, the simpler systems with which the critics would replace them (such as royalty-based regimes) have drawbacks of their own in terms of

assessment, efficiency, or fiscal neutrality. The conclusion seems to be that countries should use a mix of instruments based on well-drafted fiscal rules.³⁰

A way of resolving this dilemma would be to opt for the simpler, but less efficient, tax design as a starting position, while adding capacity and transitioning toward something more sophisticated. In assessing these trade-offs, it is worth noting that the ease of administration associated with simpler fiscal regimes may be, and often proves, deceptive. Their economic drawbacks can lead to pressures for renegotiation, legislative amendments, and/or special deals that, in the end, considerably complicate administration.³¹

Finally, it should be recognized that administration of the progressive regimes requires no more, or very little more, capacity than that required to administer any income tax. To reject these regimes because they are profits based or income based suggests there are much broader fiscal administration problems than those associated with the EI sectors alone.

In cases where a state lacks the capacity to administer a profits-based EI sector tax regime, where such a tax regime is not available domestically, or both, there is a way forward. They can quickly put in place the capacity by using foreign experts, who could not only undertake and lead specific assessment and field-auditing tasks but also provide on-the-job training to build the capacity and experience needed for state-based staff.

Routine administrative functions

Routine functions are the mechanics of gathering tax: registering taxpayers, designing return templates, publishing guidance notes on fiscal rules, processing returns, issuing tax assessments, and collecting the tax. Several considerations should make the job of routine administration easier in the EI sectors. The oil, gas, and mining companies participating in the sector tend to be relatively few, easy to find, and for the most part willing and able to carry out routine tax obligations. Additionally, adoption of self-assessment procedures should facilitate routine administration by transferring many routine tasks to the taxpayers.

These advantages notwithstanding, many developing states have faced enormous difficulties, traceable to the obstacles or challenges listed in box 6.4. Building capacity is not simply a matter of building skills. It is also very much a matter of attention to procedures, infrastructure, resources, and institutional organization. In addition, there are plenty

Box 6.4 Routine Tax Administration: Challenges

Many developing states have encountered enormous difficulties in routine EI sector tax administration that are traceable to the following:

1. *Number of taxes.* Too many different EI sector taxes with differing filing and payment rules, poor fiscal procedures and forms, and absence of guidance notes and accounting rules adapted to the sector, creating uncertainties
2. *Number of agencies.* Different agencies for different taxes
3. *Banking and accounting.* Different arrangements for different taxes
4. *Technology.* Poor information technology and management information systems, no IT network connecting different agencies
5. *National resource company.* Limited or no control over NRC tax payments
6. *Accountability.* No one person responsible for the overall task

of reasons the administration might become complicated: for example, the complexity of the sector; lack of technical knowledge and knowledge asymmetries; and absence of a chart of accounts adapted to the EI activities.

Steps required to simplify routine resource tax administration are immediately suggested by the obstacles themselves. While self-assessment—backed up by strong penalties for noncompliance and by effective audit and enforcement (major challenges in and of themselves)—may limit the risk of large direct losses attributable to weaknesses in routine administration matters, poor routine administration and associated reporting will confuse economic and budgetary planning, undermine sector accountability and governance, and damage government's reputation with investors.

Nonroutine functions

Nonroutine functions have to do with ensuring that the tax is calculated correctly. The most important among them deal with resource valuation (prices and volumes), allowable cost deductions, audit and appeals, and dispute resolution. They are demanding functions that require professional skill and judgment. Very large amounts of money are at risk.

Resource valuation

Valuation of petroleum or mineral resources needs to be established for profit taxes, royalties, and production sharing. The challenges of establishing prices for this purpose are discussed in the preceding section. Similarly, physical or volume audits can be complicated. Volume measurement can be highly technical, involving complex equipment. Definition of sales point, valuation points, and measurement points must be clear.

Tax audit and other audits

Under any fiscal regime there is always scope for error, differences of opinion, or unacceptable manipulation. Where petroleum or mining are concerned, even marginal errors in incomes or costs can involve very large sums of money; hence the importance of effective tax audits. The ideal starting point for effective audit is a clear, well-designed tax, supported by clear instructions to both taxpayers and administrators in the form of a public, regularly updated taxpayers' manual. Fiscal administration of the EI sector, like other sectors of the economy, is based on a self-assessment system whereby companies prepare and submit tax returns according to their understanding of tax rules. In a tax administration system that is based on self-assessment, field tax audits of EI sector enterprises, led by qualified and experienced staff, are essential to reduce the risk of substantial underestimation in tax assessments, because companies will always interpret tax rules to their advantage unless audited.

A key weakness in many states is that tax administrations do not undertake field tax audits, and where they do they are at a great disadvantage given that EI sector tax returns are generally very large and complicated. Thus, obtaining the services of qualified tax auditors experienced in tax audits of EI sector companies is essential; this is important not only for undertaking audits but also for ensuring that all the necessary accounting rules and audit procedures are in place. Establishing the accounting rules in advance is essential in order to have a benchmark to audit against.

In addition, the auditing task can be made much more manageable if tax administration staff become familiar with the enterprises they are auditing and obtain annual projections from each enterprise and each project on a quarter-by-quarter basis of expected tax assessments. The tax authority staff and auditors then have an initial reference point when examining the actual assessments. EI sector projects involve a variety of activities such as exploration

work, development work, coproduction of different products, decommissioning, reclamation, and restoration that are not found in other businesses and for which the accounting treatment may have significant implications for tax assessments.

The procedures for selection of exchange rates will also need very careful attention. The tax authority will be well served to agree on a detailed accounting treatment for these various activities and projects. Ideally, the tax administration staff—together with the EI sector ministry staff—should have computerized, financial models of each of the operations and enterprises, preferably using inputs received from, or agreed with, the companies.

In the petroleum industry, tax audits are assisted by the common practice of investor joint ventures whose rules provide not only for detailed (and increasingly standard) accounting for costs and revenues but also for partner audits of the joint venture operator. The special accounting rules and chart of accounts for the sector must be issued or agreed to before the commencement of activity.

The mining industry, to date, has not been characterized by either unincorporated joint ventures or the kind of standardized accounting procedures found in the annexes to PSCs, which makes tax audit for mining more difficult. Different states take different approaches on audit coverage; some opt for full investor coverage with comprehensive field audits, and others adopt a varied approach that combines risk-assessed field audits of selected companies with desk audits of others. For large EI sector companies, annual audits are usually desirable given the significant amounts of tax at risk. Due to the large amounts of tax involved, an effective tax audit usually repays the cost of the audit many times over in terms of agreed adjustments to payments. Both interest and penalties on any tax increase resulting from the audit should be charged.

Tax dispute resolution and appeals

Resolving tax disputes by formal litigation can be extremely expensive and slow. The preferable route is to settle differences by mutual agreement during the audit. If disputes remain unresolved, investors must have some formal right of appeal to tax courts or tribunals; in this case, credibility and a reputation for nondiscriminatory handling of appeals are of fundamental importance. The tax authority should also have readily accessible expert legal capacity (either on its staff or as outside counsel) so that disputes can be taken with confidence to the tax court if necessary.

Institutional structures

In most sectors of the economy, tax administration is the responsibility of the national tax authority, or in some cases (such as Canada and Argentina), the provincial tax authority. For petroleum, however, tax administration may be assigned either to the EI sector or the finance ministry or, more commonly nowadays, shared with the tax authority and the finance ministry. A typical division of responsibilities would assign taxes to the ministry of finance and assign royalties to the EI sector ministry. Under PSCs, audits performed for cost-recovery purposes and CIT tax audits should be well coordinated. The rationale advanced for this division is that physical measurement requires special technical expertise that is available only in the EI sector ministry. The same reasoning has made the EI sector ministry, or more often the NRC, responsible for fiscal calculations under production sharing (for instance, in making cost recovery and profit-oil-sharing calculations), but there are reservations to placing this responsibility outside the ministry of finance.

While such divisions may appear logical, the spreading of fiscal administration among several agencies has disadvantages that include increased complexity, duplication of effort, and reduced accountability.³² Where differing institutional comparative advantage is perceived to outweigh the disadvantages of dispersal of administrative responsibilities and where responsibilities are divided, clear definition of roles and responsibilities, regular communication, and effective coordination among the agencies involved become vitally important.

Interagency coordination

The tax authority and the EI sector ministry also need to coordinate closely in terms of production, costs, and/or sales data on which royalties, income taxes, and production sharing are assessed. The EI sector ministry should work closely with the tax authority so that the authority has good comprehension of the production and exploration process and can make an informed judgment about the eligibility of charges and expenditures for tax purposes.

The central bank should not play a direct role in fiscal administration, but it is one of the key agencies that must be kept in the loop of communication and coordination. Ideally, all resource payments made to the government should go in a single unified treasury account held in the central bank. The fiscal authority should be

responsible for preparing comprehensive accounts of payments assessed, collected, and paid into the treasury account, and these accounts should be capable of being reconciled with central bank accounts. In practice, the spreading of administrative functions tends to leave no single fiscal authority responsible for producing these accounts. A single, specialized office is preferable: either a stand-alone office or a subdivision of another office (such as the main tax authority office).

Even when good accounting rules have been established, expert judgment may be needed to determine whether rules are being applied correctly: for example, whether exploration charges are being correctly assigned as development or greenfield exploration charges in situations where the two have different tax expense or depreciation rules. It will likely take the expertise of the EI sector ministry or the geological survey to determine if exploration activities have been correctly categorized in the tax return. Technical expertise may also be needed in cases where EI sector companies claim tax deductions for intellectual property.

Finally, the importance of giving these offices the skills and resources they require cannot be overstated. Where requisite domestic skills are not immediately available, good practice would recommend engagement of qualified international audit, legal, or commercial consultants and twinning their support with the development of local capacity.

Fiscal federalism

The design and administration of a fiscal regime can be influenced by revenue sharing at the central and subnational levels. The horizontal fiscal disparity that can result from different layers of government typically require a particular response, sometimes called *fiscal federalism*. This is discussed in chapter 7 under “Revenue Allocation and Subnational Issues.” These elements can be linked within a country, as they are in Indonesia, where, for mining, subnational jurisdictions have the authority to issue local taxes as well as create differing administrative arrangements for the collection of mining royalties from the central government.

6.7 SUMMARY AND RECOMMENDATIONS

The effectiveness of an EI sector fiscal regime depends on the objectives established for it, on the fiscal instruments selected to achieve those objectives, on the clarity

and completeness of the EI tax rules made consistent with general tax legislation, and on the quality of fiscal administration.

Making a choice of overly complex instruments or combinations of instruments in fiscal design makes implementation difficult, particularly where capacity limitations constrain and distort the implementation of fiscal regimes in many countries. The goals in any fiscal administration should be simplicity and clarity while maximizing revenue. However, none of the fiscal instruments considered here is free from challenges to administration.

A narrow economic perspective on the making of choices in fiscal design has become less common, as an appreciation of political economy factors has risen. Context in a broad sense will be the prime driver behind choice in this as in all other areas of the EI Value Chain. Given the kind of states that the *Sourcebook* has identified as having the most pressing needs for cutting-edge knowledge of the subjects in the EI Value Chain (emerging producers, fragile states, reforming markets), it is more likely than not that they will come under early pressure to show results from their choices in fiscal design. Their responses will determine the credibility of their fiscal regimes with domestic constituencies (their inclusiveness) and their ability to honor long-term commitments with investors. In all of this, transparency will be a key element.

There will be nonpolitical contextual considerations that influence the choice of fiscal instruments and the design of the overall fiscal package. Among others, these include the nature of the resource (oil, gas, or minerals); whether it is marginal or not; and its location (on land, offshore, or in deep water). Again, these have implications for fiscal design and administration generally.

The key principle underlying an efficient and effective fiscal regime is to strike the right balance between the risks and rewards for the investor (which requires satisfactory prospects of profitability to justify a new investment) and the government (which requires adequate compensation for the use of a resource and a fair share of the economic rent associated with the extraction of a nonrenewable resource).

The mineral-specific fiscal regime is generally contained in legislation and consists of taxes and fees that apply to all sectors (such as profits taxes, employment taxes, and import duties) plus mineral sector taxes (which generally consist of additional taxes and royalties that apply only to minerals). The fiscal terms can also be contained in contracts when the legislation is not well developed, but this is not good practice. Generally, the mineral-specific fiscal

regime is administered by the taxation authority and supported by the ministry of mines.

The petroleum fiscal regime contained in legislation is often supplemented by fiscal or other terms specified in petroleum agreements or contracts and may provide for (1) tax and royalty systems—including CIT with specific tax rules, additional profits tax or resource rent tax, and the other taxes and fees that apply to all sectors—and/or (2) production-sharing arrangements, involving cost petroleum, profit petroleum, CIT, and other taxes and fees. The petroleum fiscal regime is generally administered by the taxation authority in close collaboration with the EI sector ministry. Box 6.5 presents an overview of a well-designed fiscal regime.

Box 6.5 What a Well-Designed Fiscal Regime Must Do

1. Provide an investment environment that is fair, stable, and predictable with a tax take that responds fairly and robustly to changes in reserves, production, prices, and costs.
2. Be transparent and applicable to all investors. (A regime may change over time as a state establishes a positive track record with investors.)
3. Have fiscal instruments that are efficient and progressive and that provide a dependable minimum flow of tax receipts to the government each year, starting early in the project life.
4. Ensure that the design and complexity of the fiscal instruments are commensurate with the administrative capacity of the government entities administering the tax regime.
5. Have clearly elaborated dispute-resolution procedures.
6. Protect against tax avoidance and tax evasion, which can significantly reduce actual tax payments in relation to expected collections by providing rules in the law or any related agreements for special issues, such as the use of interaffiliate transactions (including transfer pricing, loans, and management fees), ring-fencing, thin capitalization, interest rate caps for borrowing, gains on the transfer or sale of petroleum or mining rights, stabilization clauses, and the domicile of parent companies for double taxation treaties.

A limit to the approach adopted in this chapter is that fiscal design has been considered separately from the division of rents and revenue sharing, the subject of chapter 8 in the *Sourcebook*. Considerations of environmental and social sustainability can also play a role but are separated into chapter 9. The interrelation among these subjects should not be neglected, because in real life it plays a part.

6.8 ACTION TOOLS

The development of open fiscal models has been carried out by the IMF (in particular the FARI model for “fiscal analysis of resource industries,” which can be found at <http://www.imf.org/external/np/fad/fari/>), as well as the *Sourcebook* partner the Columbia Center on Sustainable Investment (CCSI) in conjunction with various specialist institutions and nongovernmental organizations (NGOs). Two early models deserve mention. First, there is an open fiscal model for liquefied natural gas (LNG) that allows users to test different LNG commercial structures, to compare domestic gas use options, and to assess the impact of various fiscal tools along the gas value chain. The tool is accompanied by a manual that explains the basic concepts around the LNG value chain and assists in using the tool.

A second fiscal tool (developed with IBIS Denmark, an NGO) focuses on gold benchmarking. It allows users to compare 10 fiscal regimes of gold-producing jurisdictions. There is also the option of inserting the fiscal terms of an additional mining contract. Benchmarking needs to be done among peer group countries (with similar geology, infrastructure, and political risk). In a pilot study, the model included the fiscal terms of various countries chosen by the Africa Center for Energy Policy in Ghana and the LATINDADD in Peru.

The CCSI Open Fiscal Modelling text and links for Latin America and Africa can be found at the following:

http://www.eisourcebook.org/867_LatinAmerica.html

http://www.eisourcebook.org/864_Africa.html

NOTES

1. For example, see the discussion in Boadway and Keen (2010) and McPherson (2010), particularly in relation to the time inconsistency issues.

2. For an overview of the recent international tax issues relevant to the extractive industries, see the chapters in Daniel et al. (2016).

3. A helpful sketch of the five most important characteristics of a good fiscal policy is as follows. First, it should be

neutral (and not distort investment and production decisions). Second, it should reserve the major portion of possible resource rents for the government. Third, it should assign risk to government and investors according to their abilities to bear risk. Fourth, it should be progressive (higher payments to government as the underlying profitability increases). Fifth, it should be flexible or adaptable to changing circumstances, increasing the potential for long-term stability (IMF 2010, 18–19).

4. Costs included in this calculation should reflect any negative externalities that may be associated with the project (such as collateral environmental or social damage). For a discussion of the principles behind rent taxes, see Boadway and Keen (2010, 31–37).

5. There is no standard definition of progressivity. Some define it in terms of how the present value (PV) of taxes varies with the lifetime PV of a project. The IMF (2012, 14) defines it as “the extent to which revenue increases as the price of the commodity rises or production costs fall.”

6. Of course, the government’s interest in broad-based sector development is not based solely on fiscal considerations but considers expected spinoffs in terms of employment, regional development, and expanded infrastructure.

7. The “obsolescing bargain” refers to the changing nature of relations between multinational enterprises and host states. For a full analysis of this idea, see Vernon (1971).

8. It may be argued that royalties are valuable in sending a price signal, but many advisers are likely to have concerns about the links between royalties and depletion rates. See the discussion by Boadway and Keen (2010). For a comprehensive discussion on royalties in the mining sector, see Otto et al. (2006).

9. The IMF (2012, 18–19) lists several disadvantages.

10. One common approach is to insert a specific part in the general tax code dealing with the EI sector or alternatively to enact petroleum and mining taxation legislation referring to the general tax code.

11. Recent signature bonuses in Angola have been as high as US\$1 billion per exploration block. Nigeria has also seen a significant increase in signature bonuses. These numbers may be dwarfed by the scale of revenues the government can expect to receive over the life of a successful project, but they are nonetheless eye-catching, and do have “bird-in-the-hand” appeal. While popular in the petroleum sector, the bid bonus is very rare in mining, where competitive license awards are less common and where geological data available in advance of award is often limited and complex, which makes preaward evaluation of commercial potential difficult (see discussion in chapter 4).

12. For example, any x percent increase in prices will increase or decrease profits tax revenues by more than x percent.

13. This type of tax is being used in Liberia, Malawi, and Zimbabwe. In 2012 a Minerals Resource Rent Tax was adopted in Australia to tax 30 percent of the “superprofits” from mining companies on operations concerning iron ore and coal.

14. For example, a 5 percent withholding tax might be levied on payments to subcontractors to approximate a 25 percent income tax on an assumed profit margin of 20 percent.

15. The difficulty of marketing minerals—as opposed to crude oil, which has a readily accessed international market—is one reason for the absence of production sharing in the mining sector.

16. For a discussion of related issues, see Mullins (2010).

17. A farm-out is a common type of agreement in petroleum activities under which the holder of a petroleum interest transfers all or part of its interest to another party subject to the performance of specific work obligations plus a possible cash consideration.

18. The OECD (2010b) has published a set of guidelines that describe a sequence of acceptable methods for setting transfer prices.

19. Ring-fencing allowable costs to those incurred on the project itself will reduce incentives to invest in additional exploration or development but will also avoid deferral of tax revenues.

20. Natural gas liquids including condensate are usually treated as oil for fiscal purposes under both tax law and contracts.

21. The following paragraphs are based on Le Leuch 2012, section 5.2, page 35.

22. For natural gas liquids, also a by-product of oil production, their treatment as crude oil for legal and fiscal purposes is generally appropriate from an economic point of view. Condensate tends to achieve prices similar to those of oil, so their revenues should logically be treated the same as those from the sale of oil and subject to the same fiscal terms (Kellas 2010).

23. Discounted prices at the downstream consumer level, however, are still widespread in petroleum-rich developing countries. Despite their often significant cost to the budget, those subsidies to domestic consumers remain politically very popular and correspondingly difficult to remove.

24. See, for example, the case of Armenia, with regard to the adoption of tax holidays (World Bank 2011, 9).

25. On the design and effectiveness of contractual assurances, see Cameron (2010, 2013) and Daniel and Sunley (2010).

26. Japan, the United Kingdom, and the United States all have worldwide tax systems, and investors resident in those countries will have foreign tax credit concerns. Australia, Canada, and France are called “territorial tax systems” because they exempt foreign source income from tax in the home state of the investor. This is done so that the investor is taxed only in the source or host state.

27. See the discussion about the U.S. regime in Johnston (1994, 191–202).

28. For a critical discussion of contract confidentiality, see Rosenblum and Maples (2009).

29. Highly recommended are two chapters by Calder (2010a; 2010b) in *The Taxation of Petroleum and Minerals: Principles, Problems and Practice*.

30. For illustration, many disputes continue to exist in the United States regarding the determination of *ad valorem* royalties mainly caused by loopholes in the lease drafting.

31. For the case of mining, see ICCM and Commonwealth Secretariat (2009, 9, 37).

32. The challenges of changing existing structures are underlined by some recent studies that go well beyond fiscal administration, such as those in Victor, Hults, and Thurber (2012). See also the paper by Thurber, Hults, and Heller (2010).

REFERENCES

- 11cresma. 2010. “Progressive and Regressive Taxes.” *Manon’s Econ Blog*. August 30. <http://11cresma.wordpress.com/2010/08/30/progressive-and-regressive-taxes/>.
- Barma, Naazneen H., Kai Kaiser, Tuan Minh Le, and Lorena Vinuela. 2012. *Rents to Riches? The Political Economy of Natural Resource-Led Development*. Washington, DC: World Bank. <https://openknowledge.worldbank.org/bitstream/handle/10986/2381/659570PUB0EPI10737B0Rents0to0Riches.pdf?sequence>.
- Baunsgaard, T. 2001. “A Primer on Mineral Taxation.” Working Paper WP/01/139, International Monetary Fund (IMF), Washington, DC.
- Boadway, R., and M. Keen. 2010. “Theoretical Perspectives on Resource Tax Design.” In *The Taxation of Petroleum and Minerals*, edited by P. Daniel, M. Keen, and C. McPherson, 13–74. Oxford: Routledge.
- Burns, L., H. Le Leuch, and E. Sunley. 2016. “Taxing Gains on Transfer of Interest.” In *International Taxation and the Extractive Industries*, edited by P. Daniel, M. Keen, A. Swistak, and V. Thuronyi, 160–89. Abingdon, UK: Routledge.
- Calder, J. 2010a. “Resource Tax Administration: Functions, Procedures and Institutions.” In *The Taxation of*

- Petroleum and Minerals*, edited by P. Daniel, M. Keen, and C. McPherson, 340–77. Oxford, UK: Routledge.
- . 2010b. “Resource Tax Administration: The Implications of Alternative Policy Choices.” In *The Taxation of Petroleum and Minerals*, edited by P. Daniel, M. Keen, and C. McPherson, 319–77. Oxford, UK: Routledge.
- Cameron, P. 2006. *Stabilization in Investment Contracts and Changes of Rules in Host Countries: Tools for Oil and Gas Investors, Final Report*. London: Association of International Petroleum Negotiators (AIPN).
- . 2010. *International Energy Investment Law: The Pursuit of Stability*. Oxford, UK: Oxford University Press.
- . 2013. “Reflections on Sovereignty over Natural Resources and the Enforcement of Stabilization Clauses.” In *Yearbook of International Investment Law and Policy, 2011–2012*, edited by Karl P. Sauvant, chap 7. Oxford, UK: Oxford University Press.
- Conrad, Robert, Zmarak Shalizi, and Janet Syme. 1990. “Issues in Evaluating Tax and Payment Arrangements for Publicly Owned Minerals.” Working Papers Series 496, World Bank, Washington, DC.
- Cotula, L. 2010. *Investment Contracts and Sustainable Development: How to Make Contracts for Fairer and More Sustainable Natural Resource Investments*. London: International Institute for Environment and Development.
- Daniel, P., M. Keen, and C. McPherson, eds. 2010. *The Taxation of Petroleum and Minerals: Principles, Problems and Practice*. London: Routledge.
- Daniel, P., M. Keen, A. Swistak, and V. Thuronyi, eds. 2016. *International Taxation and the Extractive Industries*. Abingdon, UK: Routledge.
- Daniel, P., and E. Sunley. 2010. “Contractual Assurances of Fiscal Stability.” In Daniel, Keen, and McPherson, *The Taxation of Petroleum and Minerals*.
- Date-Bah, S., and M. Rahim. 1987. “Promoting Petroleum Exploration and Development: Issues for Government Action.” In *Petroleum Resources and Development: Economic, Legal, and Policy Issues for Developing Countries*, edited by K. Khan. London: Belhaven Press.
- Duval, C., H. Le Leuch, A. Pertuzio, and J. Weaver. 2009. *International Petroleum Exploration and Exploitation Agreements: Legal, Economic and Policy Aspects*. 2nd ed. New York: Barrows Company.
- Henry Report. 2010. *Australia’s Future Tax System: Final Report*. Canberra: Commonwealth of Australia. http://taxreview.treasury.gov.au/content/FinalReport.aspx?doc=html/Publications/Papers/Final_Report_Part_2/chapter_c1.htm.
- Hogan, L. 2008. “International Minerals Taxation: Experience and Issues.” ABARES Conference Paper, IMF, Washington, DC.
- ICCM (International Council on Mining and Metals) and Commonwealth Secretariat. 2009. *Minerals Taxation Regimes: A Review of Issues and Challenges in their Design and Application*. London: ICCM. <http://www.icmm.com/page/84143/our-work/projects/articles/minerals-taxation>.
- IMF (International Monetary Fund). 2010. *Managing Natural Resource Wealth*. Washington, DC: IMF.
- . 2011. “Production-Sharing Agreements.” Presented at the Twenty-Fourth Meeting of the IMF Committee on Balance of Payments Statistics, Washington, DC. <http://www.imf.org/external/pubs/ft/bop/2011/11-17.pdf>.
- . 2012. *Fiscal Regimes for Extractive Industries: Design and Implementation*. Washington, DC: IMF. <http://www.imf.org/external/np/pp/eng/2012/081512.pdf>.
- Itriago, Deborah. 2011. *Owning Development: Taxation to Fight Poverty*. Oxford, UK: Oxfam International.
- Johnston, D. 1994. *International Petroleum Fiscal Systems and Production Sharing Contracts*. Tulsa, OK: PennWell.
- . 2003. *International Exploration Economics, Risk, and Contract Analysis*. Tulsa, OK: PennWell.
- Kellas, G. 2010. “Natural Gas: Experience and Issues.” In *The Taxation of Petroleum and Minerals*, edited by P. Daniel, M. Keen, and C. McPherson, 163–83. Oxford, UK: Routledge.
- Land, B. 2010. “Resource Rent Taxes: A Re-Appraisal.” In *The Taxation of Petroleum and Minerals*, edited by P. Daniel, M. Keen, and C. McPherson, 241–62. Oxford, UK: Routledge.
- Le Leuch, H. 2012. “Good Practice Note on (Upstream) Natural Gas: A Guidance Note to Complement the EI Sourcebook: Good-Fit Practice Activities in the International Oil, Gas & Mining Industries.” Washington, DC: World Bank. www.eisourcebook.org/documents.php.
- McPherson, C. 2009. “Fiscal and Financial Policies for Extractive Industries in Turbulent Times.” Presented at the Resource Curse to Development Conference, September 8–11, Oslo. <http://www.cmi.no/file/?853>.
- . 2010. “State Participation in the Natural Resource Sectors: Evolution, Issues, and Outlook.” In *The Taxation of Petroleum and Minerals*, edited by P. Daniel, M. Keen, and C. McPherson. Oxford, UK: Routledge.
- Mullins, P. 2010. “International Tax Issues of the Natural Resources Sector.” In *The Taxation of Petroleum and Minerals*, edited by P. Daniel, M. Keen, and C. McPherson. Oxford, UK: Routledge.

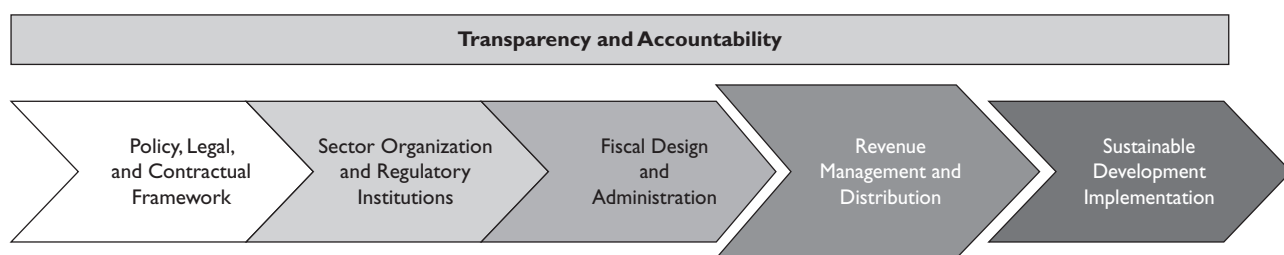
- Nahkle, C. 2007. *Do High Oil Prices Justify an Increase in Taxation in a Mature Oil Province? The Case of the UK Continental Shelf*. Surrey, UK: Surrey Energy Economics Centre.
- OECD (Organisation for Economic Co-operation and Development). 2010a. *The Economic Impact of Export Restrictions on Raw Materials*. Paris: OECD. <http://www.oecd.org/publications/the-economic-impact-of-export-restrictions-on-raw-materials-9789264096448-en.htm>.
- . 2010b. *OECD Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations 2010*. Paris: OECD. http://www.oecd-ilibrary.org/taxation/guidance-on-transfer-pricing-aspects-of-intangibles_9789264219212-en.
- . 2013. *Tax Administration 2013: Comparative Information on OECD and other Advanced and Emerging Economies*. Paris: OECD. http://www.keepeek.com/Digital-Asset-Management/oecd/taxation/tax-administration-2013_9789264200814-en#page1.
- Osmundsen, P. 2010. "Time Consistency in Petroleum Taxation: Lessons from Norway." In *The Taxation of Petroleum and Minerals*, edited by P. Daniel, M. Keen, and C. McPherson, 425–44. Oxford, UK: Routledge.
- Otto, J., C. Andrews, F. Cawood, M. Doggett, P. Guj, F. Stermole, J. Stermole, and J. Tilton. 2006. *Mining Royalties: A Global Study of their Impact on Investors, Government and Civil Society*. A World Bank Study. Washington, DC: World Bank.
- Rio Tinto. 2012. "Tax in Developing Countries: Increasing Resources for Development." Presented before the UK Parliament, London, February 22. <http://www.publications.parliament.uk/pa/cm201012/cmselect/cmintdev/writev/1821/tax14.htm>.
- Rosenblum, Peter, and Susan Maples. 2009. *Contracts Confidential: Ending Secret Deals in the Extractive Industries*. New York: Revenue Watch Institute.
- RWI (Revenue Watch Institute). 2010. *Oil, Gas, and Mining Fiscal Terms*. New York: RWI. http://www.revenuewatch.org/training/resource_center/backgrounders/oil-gas-and-mining-fiscal-terms.
- RWI, VCC (Vale Columbia Center), ISLP (International Senior Lawyers Project), and OpenOil. 2013. *Mining Contracts: How to Read and Understand Them*. New York: RWI and VCC. <https://eiti.org/files/mining-contracts-how-to-read-and-understand-them.pdf>.
- Smith, James. L. 2012. "Issues in Extractive Resource Taxation: A Review of Research Methods and Models." Working Paper, IMF, Washington, DC. http://www.imf.org/external/pubs/cat/wp1_sp.aspx?s_year=2012&e_year=2012&brtype=default.
- Stiglitz, J. 2007. *Making Globalization Work*. London: Penguin Books.
- Sunley, E., T. Baunsgaard, and D. Simard. 2003. "Revenue from the Oil and Gas Sector: Issues and Country Experience." In *Fiscal Policy Formulation and Implementation in Oil-Producing Countries*, edited by J. M. Davis, R. Ossowski, and A. Fedelino. Washington DC: IMF.
- Thurber, M., D. Hults, and P. R. P. Heller. 2010. *The Limits of Institutional Design in Oil Sector Governance: Exporting the Norwegian Model*. Stanford, CA: Stanford University Program on Energy and Sustainable Development.
- Tordo, S. 2007. *Fiscal Systems for Hydrocarbons: Design Issues*. Washington, DC: World Bank.
- Tordo, S., D. Johnston, and D. Johnston. 2010. "Petroleum Exploration and Production Rights: Allocation Strategies and Design Issues." Working Paper 179, World Bank, Washington, DC.
- UN (United Nations Department for Development Support and Management). 1997. *Guidelines for Improving Tax Administration in Developing Countries*. New York: UN.
- Vernon, R. 1971. *Sovereignty at Bay*. New York: Basic Books.
- Victor, D. G., D. R. Hults, and M. Thurber, eds. 2012. *Oil and Governance: State-Owned Enterprises and the World Energy Supply*. Cambridge, UK: Cambridge University Press.
- World Bank. 2010. *Towards Sustainable Decommissioning and Closure of Oil Fields and Mines: A Toolkit to Assist Government Agencies*. Washington, DC: World Bank. http://siteresources.worldbank.org/EXTOGMC/Resources/336929-1258667423902/decommission_toolkit3_full.pdf.
- . 2011. "Republic of Armenia Fiscal Consolidation and Recovery." Background Papers Report 62587-AM, World Bank, Washington, DC.

OTHER RESOURCES

- Calder, J. 2014. *Administering Fiscal Regimes for Extractive Industries: A Handbook*. Washington, DC: IMF.
- Guj, Pietro, Stephanie Martin, Bryan Maybee, Frederick Thomas Cawood, Boubacar Bocoum, Nishana Gosai, and Steef Huibregtse. 2017. "Transfer Pricing in Mining with a Focus on Africa: A Reference Guide for Practitioners." WorldBank, Washington, DC. <http://documents.worldbank.org/curated/en/801771485941579048/Transfer-pricing-in-mining-with-a-focus-on-Africa-a-reference-guide-for-practitioners>.
- IMF (International Monetary Fund). "Fiscal Analysis of Resource Industries (FARI)." Washington, DC: IMF. <http://www.imf.org/external/np/fad/fari/>.
- . 2007. *Guide on Resource Revenue Transparency*. Washington, DC: IMF. <http://www.imf.org/external/np/pp/2007/eng/051507g.pdf>.

- . 2012. “Macroeconomic Policy Frameworks for Resource-Rich Developing Countries.” Washington, DC: IMF. <http://www.imf.org/external/np/pp/eng/2012/082412.pdf>.
- . 2012. “Macroeconomic Policy Frameworks for Resource-Rich Developing Countries.” Background Paper 1. Washington, DC: IMF. <http://www.imf.org/external/np/pp/eng/2012/082412a.pdf>.
- . 2012. “Macroeconomic Policy Frameworks for Resource-Rich Developing Countries: Analytic Frameworks and Applications.” Washington, DC: IMF. <http://www.imf.org/external/np/pp/eng/2012/082412b.pdf>.
- . 2015. “The Commodities Roller Coaster: A Fiscal Framework for Uncertain Times.” *Fiscal Monitor*, October. Washington, DC: IMF.
- Land, B. 2009. “Capturing a Fair Share of Fiscal Benefits in the Extractive Industry.” *Transnational Corporations* 18 (1):157–73. http://archive.unctad.org/en/docs/diaeiia20097a7_en.pdf.
- Open Society Institute of Southern Africa, Third World Network Africa, Tax Justice Network Africa, Action Aid International, and Christian Aid. 2009. *Breaking the Curse: How Transparent Taxation and Fair Taxes Can Turn Africa’s Mineral Wealth into Development*. <http://www.commdev.org/extractives/breaking-curse-how-transparent-taxation-and-fair-taxes-can-turn-africas-mineral-wealth-development>.
- Schmaltz, Karl. 2016. *Capital Gains Issues in the Extractive Industries*. Washington, DC: International Tax and Investment Center.

Revenue Management and Distribution



7.1 KNOWLEDGE CORE

Once extractive industry (EI) revenues have been generated and collected, a government must decide on their management and allocation. This is the fourth link in the EI Value Chain. Mismanagement of the wealth from oil, gas, and mining can lead, among other things, to social and economic inequalities, the funding of corrupt practices, and intrastate, or even interstate, conflicts. The two overriding options for this wealth are spending or saving, with decisions required in appropriate channels or mechanisms for each. The sharing of resource revenues among levels of government and regions is increasingly common and requires careful balancing of pros and cons. A challenge is to ensure that the approach adopted to revenue management and distribution is one that can withstand the sharp falls and hikes in prices that the EI sector is prone to experience.

The stakes are high. New EI income will relax pressures on government budgets, but it also creates challenges.

Not the least of these is the probability that many citizens will remain poor in spite of the large revenues from extractive resources. Several commentators on revenue management have written variations of Arezki, Dupuy, and Gelb's (2012, 1) warning, "The future is not without its dark side."

Transparency and accountability are crucial to achieving success in revenue management and distribution. A lack of transparency in fiscal practices is likely to lead to substantial costs and a loss of credibility (see chapters 2 and 8). Fiscal transparency includes a clear assignment of roles and responsibilities to different government bodies, the establishment of an open budget process, publicly available information, and assurances of data integrity.¹

Revenue sharing schemes in particular need transparency. Investors seek clarity about their relationships with different levels of government and how payments are meant to flow. Stability, predictability, and transparency of resource revenue flows are a key part of their social license to operate. It is important to ensure that resource revenue

sharing schemes within a country are workable: that is, efficient, fair, and transparent. Many countries enshrine their sharing formula and implementing rules in legislation.

7.2 WHY REVENUE MANAGEMENT IS DIFFICULT

Good practice in resource revenue management is increasingly recognized, yet the experience of most resource-rich states in this area has not been especially encouraging (see chapters 2 and 8). This suggests that there are continuing problems in the implementation of resource revenue management good practice. As always, the lessons for avoiding common pitfalls have to be understood in context. Where they appear relevant, they need to be adapted to fit the circumstances of the country concerned. Those circumstances include the level of development, nature of the resources and their size, fiscal dependence on resource revenues, institutional capacity, fiscal federalism, budget rigidities, transparency levels, and capital scarcity. There can be no combining of the best lessons in a standard model that a government can blindly follow.² Recent research has underlined this.³ Indeed, many resource-rich countries have to overcome constraints in capacity before they can align themselves with successful examples of revenue management in the extractives sector.

A country in the developing world that has recently discovered large-scale natural resources likely starts with at least three important constraints:

1. A scarcity of capital, with an interest rate higher than the global rate, and limited access to international capital markets, possibly as a result of the country's credit rating
2. An undersupply of public infrastructure
3. An investment climate that lacks incentives to private investment

To make the starting point even more challenging, there is likely to be a difficult issue with managing expectations, both of the public and of the government. Inflated expectations tend to exert pressure for overly rapid spending. The problems that contribute to depressed private investment, or a poor credit rating, are mainly institutional and political and will not be solved in any direct way by the injection of resource funds.

From these inauspicious circumstances, the country with new discoveries has the prospect of making high-return investments and putting its economy on a growth path that will involve capital deepening with the rate of return converging to the world rate. At the same time,

wages, consumption, and income will move on an upward trajectory. As two leading development economists, Collier and Venables (2008, 1) have noted, the question for governments in such circumstances is "What is the optimal consumption profile: i.e., what maximizes the present value of the utility of consumption given available investment opportunities?"

The four main challenges

The importance of managing these revenues cannot be exaggerated. Revenues from oil, gas, and mining are to a large part concentrated in the public sector; how this revenue should be spent and distributed across generations is key to any economic development. Yet, as one recent study has noted, "tax authorities often lack the confidence and ability to handle it, and general tax administration experts may feel unqualified to advise them" (Calder 2014, 1).

Four areas of sensitivity lie behind this curious situation:

1. *Volatility and uncertainty.* This is by far the greatest challenge for a resource-rich economy. Any design of revenue management rules is complicated by the volatility and uncertainty of resource receipts, which affect resource wealth estimates as well as the government's cash flow. The literature on the so-called resource curse finds that much or all of the negative effect (where there is one) can be attributed to increased volatility, which studies show to be very costly, (The literature is summarized in chapter 2). This is exacerbated by the unimpressive record of price forecasts and the limited information in futures prices. There is also the uncertainty about assessments of future reserves and prices to contend with, as well as of current prices.
2. *Absorptive capacity.* There are consequences to spending decisions. If revenues are spent at once, the price of plant machinery and equipment that enable production will be driven up, imposing stress on transport systems, for example. Future nonresource sectors with good prospects will be pushed to one side, appearing less attractive by comparison, with the effect of reducing learning and future growth. The problem is associated with volatility because absorptive capacity constraints are most tested when revenues and spending are high, although the issue can also apply over a longer cycle.
3. *Exhaustion.* In theory, the exhaustibility of oil, gas, and other mineral resources raises intergenerational issues and reveals a need for balance between government

consumption and saving for the long term. Policy makers need to strike a balance between spending today and saving for tomorrow. In practice, this is often less clearly a problem. Apart from the island of Nauru, no country has actually run out of mineral (or hydrocarbons) resources, although the Republic of Yemen comes close.

4. *Undetermined ownership.* Resource rents belong to the “nation,” but what does that mean? Does it mean the government or municipalities in producing areas or something wider like “the people”? If the latter, what about unborn citizens? These questions go to the heart of the accountability problem and beyond questions of whether revenue should be shared among today’s citizens.

Responding to volatility

Policies have to be designed in ways that avoid transmitting volatility (which is outside the control of policy makers) to the macroeconomy. This is achievable by smoothing spending flows; promoting long-term fiscal sustainability and intergenerational equity; enforcing measures to mitigate Dutch Disease (see the discussion of overall resource policy in chapter 2 and section 4.2). In principle, decisions on current versus future consumption and on the form of investment can all be made using a model—but volatility is a complication.

Experience suggests that success is often elusive. One researcher notes, “Capital flows, fiscal policy, monetary policy, and sectoral allocation each tend to be more procyclical in commodity producing countries than economists’ models often assume. If anything, they tend to exacerbate booms and busts instead of moderating them” (Frankel 2011, 167). Formal fiscal rules and resource funds are not a panacea. A study of increased revenues from oil concluded, “Implementation of quantitative fiscal rules has proved very challenging, mainly due to the characteristics of oil revenue and political economy factors. . . . Many countries have had difficulty managing funds with rigid operational rules, as tensions have often surfaced in situations of significant exogenous changes or with shifting policy priorities” (IMF 2007b, 3). Large sovereign wealth funds can also be raided by future governments, who may also seek to divert resource rents outside the budget. For example, in the República Bolivariana de Venezuela, almost 70 percent of oil rent flows through funds that are outside the budget (Rodríguez, Morales, and Monaldi 2012). This undermines fiscal rules as well as transparency.

No option is free from risks.

7.3 CONSUME OR SAVE?

The basic question for a country facing the prospect of significant resource revenues is how it should plan the time path of spending and saving from this revenue flow (inter-temporal optimization). How much of the resource wealth should a government consume and how much should it save?

- If consumption is the priority, government has to make decisions about increasing public consumption or transferring funds to citizens.
- If investment is the priority (and investment is the principal option for the use of savings), there are several choices: decisions can involve making domestic public investments or to invest abroad in financial assets (sovereign wealth funds).⁴ Investment in human capital can be done by training or education and in intellectual capital through investment in research and development. Rather than overseeing the investing itself, the government can offer investment incentives to private firms.

In either case, the choice could lead to waste and generate unfair outcomes. Whatever decision is made for the use of rents, it will be made under high levels of uncertainty about resource revenue flows. For example, sudden slumps in demand can follow euphoric booms, and the persistence of either is unknown.

Some kind of fiscal framework is required to address these issues. Given the inevitable fluctuations in revenues, it needs to smooth revenue flows and perhaps involve the use of stabilization funds. The fiscal framework may also wish to introduce an instrument called *fiscal rules* as a means of addressing stabilization or savings. This does not necessarily have a statutory basis.

Other factors and policy choices have to be taken into account in making such fiscal choices, including the factor of absorptive capacity and choices such as tax reduction, increases in expenditure, and debt reduction or savings of windfall revenues.

Fiscal rules

Fiscal rules are multiyear formal constraints on government spending or public debt accumulation. They rely on formal commitments to the achievement of certain numerical values for selected and targeted fiscal variables, such as the fiscal balance, public expenditure, or the public debt. The International Monetary Fund (IMF) has defined them as “institutional mechanisms that are

intended to permanently shape fiscal policy design and implementation” (IMF 2007b, 17). Hence there is a tendency to enshrine them in legislation or even in a constitutional document. Some countries like Peru and Colombia have fiscal rules in this sense. Others like Trinidad and Tobago have preferred “ad hoc rules which may not have taken specific issues such as household welfare and fiscal stability, into account” (Primus 2016, 5). Those that do have them use various types of rules or combinations of them, but essentially a set of fiscal rules comprises numerical rules designed to guide and benchmark performance against quantitative indicators (such as the fiscal balance of debt) and procedural rules intended to establish transparency, coverage, and accountability requirements (IMF 2007b, 17). See table 7.1 for a recent list of countries and their fiscal rules.

The five kinds of fiscal rules found in practice are the following:⁵

1. The *balanced budget rule*. Sometimes called “hand to mouth,” in this rule all annual oil receipts are spent while the government’s overall financial position is kept in balance. For example, in Mongolia the structural deficit may not exceed more than 2 percent of gross domestic product (GDP). (The disadvantages are that it tends to privilege current over future generations in terms of their share of consumption of extractives wealth and it may subject governments to boom-and-bust cycles in the international markets.)
2. The *debt rule*. This sets a limit on public debt as a percentage of GDP. For example, in Indonesia there is a requirement that total and local government debt should not exceed 60 percent of GDP. Mongolia sets the ceiling of public debt at 40 percent of GDP.
3. The *expenditure rule*. This sets a limit on spending, in absolute terms or terms linked to the level of growth rate or percentage of GDP. For example, Botswana has a ceiling on the expenditure-to-GDP ratio of 40 percent, and Peru has a statutory limit on real growth current expenditure of 4 percent.
4. The *revenue rule*. This sets a ceiling on the use of overall revenues or revenues from oil, gas, or minerals. For example, in Ghana a statutory limit is set on the amount of oil and gas revenues that may enter the budget; this may not exceed 70 percent of revenue averaged over a seven-year period. The rest of the revenue has to be saved in a stabilization fund or a fund for future generations.
5. The *permanent income hypothesis* (PIH) rule. With this rule, decisions on spending oil, gas, or mineral revenues

Table 7.1 Country Fiscal Rules

Country	Rule and date established
Botswana	Expenditure rule (2003) Supranational rules—Central African Economic and Monetary Community (CEMAC) (2002, 2008)
Cameroon	Budget balance rules (2002, 2008), Debt rule (2002)
Chad	Supranational rules—CEMAC (2002, 2008)
Chile	Budget balance rule (2001)
Colombia	Budget balance rule (2012), Expenditure rule (2000)
Congo, Rep. of	Supranational rules—CEMAC (2002, 2008)
Côte d'Ivoire	Supranational rules—West African Economic and Monetary Union (WAEMU), Budget balance rule (2000), Debt rule (2000)
Ecuador	Expenditure rule (2010), Budget balance rule (2003), Debt rule (2003)
Equatorial Guinea	Supranational rules—CEMAC (2002, 2008)
Gabon	Supranational rules—CEMAC (2002, 2008)
Indonesia	Budget balance rule (1967), Debt rule (2004)
Mali	Supranational rules—WAEMU (2000)
Mexico	Budget balance rule (2006), Expenditure rule (2013)
Mongolia	Expenditure rule (2013), Budget balance rule (2013), Debt rule (2014)
Niger	Supranational rules—WAEMU (2000)
Nigeria	Budget balance rule (2007)
Norway	Budget balance rule (2001)
Peru	Budget balance rule (2000, 2003, 2009), Expenditure rule (2000, 2003, 2009, 2013)
Russian Federation	Expenditure rule (2013)
Venezuela, RB	Fiscal rules embedded in Organic Law for the Public Finances (2000)

Source: Adapted from IMF 2015a, 6, table 1.5.

in any given year are predicated only on the return on the assets already in hand. Only the interest income that accrues from accumulated revenues may be spent consistently over time. This “precautionary saving” is based on the idea that since these resources are nonrenewable it is not fair to future generations to consume them today. It may create social tensions, since public expenditure may be low while revenues are accumulated during production, and there may be a lost opportunity in terms of social and infrastructure spending in the early years in deference to future spending.

We may also note here the so-called bird-in-hand approach to resource revenue management, which suggests that resource revenue should be used to accumulate financial assets in a sovereign wealth fund; the government should limit its spending to only the interest accrued from these assets.

None of these rules is likely to prove sufficient in itself or in combination with others. There has been a robust debate about their benefits.⁶ For many years the PIH rule was influential, emphasizing the need to preserve resource wealth and avoid the instability that can arise from spending resource revenues (in other words, addressing the familiar challenges of exhaustibility and volatility characteristic of EI and discussed in chapter 2 of the *Sourcebook*). That view has been challenged by several leading economists taking a more development-oriented approach to fiscal rules (NRGI and CCSI 2014, 7). After all, resource revenues can be used beneficially to finance public investments in infrastructure, especially where such infrastructure has been physically damaged following conflict, or government institutions, where these are characterized by a weak civil service, for example. Even if no one-size-fits-all principle applies, and some fiscal rules may suit an advanced economy better than a capital-scarce resource-rich country, the existence of fiscal rules in one form or another “can provide helpful and transparent benchmarks for policy” (Gelb 2014, 23). They can play a role in providing robust checks and balances on public spending and at the same time factoring in the kind of uncertainty that will always be present in resource markets. However, fiscal rules are neither necessary nor sufficient for the achievement of sound fiscal outcomes. Arguably, this conclusion also applies to fiscal discipline at the subnational level (Ter-Minassian 2007). The decision to consume or save does not need a fiscal rule to be determined.

In the extractives sector, fiscal rules are less commonly used than the fund instrument (discussed in sections 7.4 and 7.6), at least in the oil-exporting countries. However,

some funds, such as those in Chile, Ghana, Kazakhstan, and Norway, are governed by fiscal rules. The volatility of revenues in the EI sector plays a large part in the variation in approaches. Some fiscal rules target overall or primary balances or particular debt-to-GDP ratios, but they can transmit oil fluctuations to expenditure and the non-oil balance.

Experience has shown the difficulties of implementing effective and durable rules, partly due to design weaknesses and political economy factors (IMF 2007b). Essentially, the rules, often resulting from fiscal policies oriented to short-term constraints, can be too rigid to adapt to economic fluctuations and lack reliable support among political elites. During a boom, liquidity pressures can ease and governments may find it very difficult to contain spending pressures.

There is no shortage of examples of fiscal rules being weakened over time or ignored. Equatorial Guinea has an expenditure rule, which requires current spending not to exceed non-oil revenue; it has been repeatedly breached and even interpreted as a medium-term goal. Expenditure in this case has even grown substantially faster than EI revenue, rendering the fiscal rule largely irrelevant as an instrument to benchmark fiscal policy (IMF 2007b, 19). By contrast, Chile changed the target for its structural balance to permit slightly more expansive spending when copper prices and the reserves in the stabilization fund were high. The benefit of this approach is that the spending adjustment, while significant in the longer run if maintained, is gradual. This reduces pressure for a more radical change in the rules.

The considerable successes of Botswana and Chile with resource revenue management are well known. In both cases, the fiscal rules have considerable flexibility, in contrast to those in some other countries. They have achieved stable macroeconomic environments and high growth rates. Given the importance of their natural resource sectors (mainly diamonds in Botswana and copper in Chile), and their use of fiscal rules, they present worthwhile lessons for petroleum-producing countries. This is explained in box 7.1.

While fiscal rules have been useful to the conduct of sound fiscal policies in Botswana and Chile operationally, the evidence suggests that they were not critical elements—the keys have been political commitment and good institutions. Both countries’ economic success mostly points to strong overall institutional quality, willingness to adopt key structural reforms, and political commitment to ensure fiscal discipline.⁷ According to World Bank and

Botswana

Botswana has implemented medium-term national development plans (NDPs) closely linked to the budget process for decades. A six-year NDP sets broad fiscal objectives and associated policy actions. It has contributed to the implementation of a longer-term strategy that has helped contain spending during periods of revenue buoyancy and led to overall surpluses for most of the past two decades. The framework has incorporated goals for the overall balance and a type of golden rule, where nonmineral revenue should at least cover noninvestment recurrent spending. This rule has been adhered to in most years, except for a few in the early 2000s, when fiscal deficits emerged.

Due to the global financial and economic crisis, the mining sector contracted by 46.2 percent in 2009, while the nonmining sector grew at 4.9 percent, with the net effect on overall GDP of -7.9 percent. In 2010 and 2011, real mining GDP recovered only partially and is still well below the prerecession levels, while growth in the rest of the economy resumed at rates yielding overall GDP growth similar to the rates leading up to the global financial crisis (Botswana 2013).

Their Sustainable Budget Index rule in NDP 10 reserves mineral revenue for capital spending, leaving only nonmineral revenue to finance recurrent spending (IMF 2012).

While the fiscal position has been under some strain, continued commitment to prudent fiscal policies and medium-term planning put Botswana in a strong position to face important medium-term challenges.

Chile

Chile introduced an informal fiscal rule in 2001. The rule calls for maintaining a structural central government surplus over the economic and copper price cycles. It is seen as a useful signal to financial markets, indicating sensitivity to the risks of procyclical spending. The successful implementation of the rule is seen in large measure as due to low debt and high policy credibility, the result of past prudent policies and good institutions.

The rule was enshrined in the Fiscal Responsibility Law in 2006. This law adopted a target of 1.0 percent of GDP positive surplus, which was reduced in May 2007 to 0.5 percent effective in 2008 and further to 0.0 percent of GDP in 2009. This has advantages for business cycle stabilization, because further asset accumulation would require higher taxes and/or lower spending today relative to the future, which would induce intertemporal effects in consumption and investment (Kumhof and Laxton 2009).

However, the implementation of the rule in recent years has revealed certain challenges, and in May 2010 the government established a high-level commission to recommend reforms that could make the rule more effective (Dabán 2011).

Further, the administration (2010–14) specified a target path (to converge to 1 percent of GDP structural deficit by 2014). A second-generation structural balance rule was published in 2011 (available in Spanish at <http://www.dipres.gob.cl/594/w3-article-81713.html>).

Transparency International governance indicators, both countries have significantly higher levels of governance and institutional quality than most resource-rich countries.

Absorptive capacity

While in many circumstances it may be desirable to make a significant allocation of EI sector revenues to spending, and especially to domestic investment,⁸ the effectiveness of that spending will depend to a large degree on the absorptive capacity of the resource-rich economy and the government's institutional capacity. A rapid rise in spending in

response to a revenue windfall could be inefficient if countries do not have adequate absorptive capacity, creating supply bottlenecks and reductions in the quality of administration and implementation. The spending path needs to be set at a rate that is efficient for the economy.

Experience of both expenditure smoothing to address volatility concerns and a gradual expenditure build-up in the face of absorptive capacity constraints suggests that part of any resource revenue windfall should be allocated to saving (Iimi 2006). However, this depends on a number of factors, including the size of the windfall relative to budget expenditure and the potential to increase absorptive capacity. Saving of resource revenues may also be justified

on other grounds (such as a precaution against unforeseen negative events or to generate wealth for future generations in anticipation of the eventual depletion of resources). The next section discusses savings funds, an institutional mechanism to put gross public financial resources away.

Good practice in response to absorptive capacity issues involves credible commitments to improvements in public expenditure management and a gradual build-up in expenditure. The literature provides some indicators as to what institutional features are required for a well-functioning system of public investment. Rajaram (2010) and colleagues have identified eight “must have” features that would address the major risks and provide an effective systemic process for managing public investments.⁹ These do not represent best practice, as might be exemplified in a high-level Organisation for Economic Co-operation and Development or Chile-like system, but rather the bare-bones institutional features that would minimize major risks and provide an effective systemic process for managing public investments. They include several features that would require long-term investment in administrative capacity to improve project implementation and making credible commitments.

Institutional strengthening

Absorption difficulties of a different kind arise at the institutional level in many developing states. These result from limited capacity, which can constrain government in its ability to identify and implement policies and projects that are a cost-effective use of resources. If investments are badly chosen or badly executed, the state will have wasted a unique opportunity for transformative development. Highly expensive but ultimately redundant projects and half-completed investments are all too common. However, absorption is not solely a capacity issue. The flow of revenues tends to undermine the incentives to build institutions designed to manage investments in the first place: if you are able to obtain “cheap” money, you may be motivated to think very hard about the efficiency with which you are spending it.

The quality of government institutions and public financial management is critical to the fiscal discipline (and focus on sustainability) needed for successful resource revenue management (Bacon and Tordo 2006, 13–15). Institutions particularly important to this effort are the central bank and the ministries responsible for finance and planning. These are critical for the setting of aggregate annual and medium-term expenditure ceilings and the overall budget

for different agencies. However, as Barma et al. (2012, 184–85) note, “Legislative bodies are likely to pay particular attention to sectoral capital budget envelopes as part of the annual budget process, especially in systems with a single-district plurality system” (such as Mongolia). Clearly, technical assistance can make an important contribution in this area, but political will may prove as or more important, especially where political economy factors place great emphasis on short-term horizons and early spending of resource revenues.

Moreover, there is a dynamic created by resource inflows. With opportunities for rent seeking by established groups, undermining of efforts at institutional strengthening and accountability can be expected from increasingly entrenched interests. A more complex variant of this phenomenon occurs when some groups anticipate such a strengthening of one set of interests and act to forestall it even if it undermines a collective benefit.¹⁰

7.4 RESOURCE FUNDS AND THEIR POPULARITY

Interest in natural resource funds, established by setting aside a portion of resource revenues, has grown significantly over the past few years. Since 2000 the number of such funds has grown from 24 to 54 and the assets they manage have been estimated at a value of US\$3.5 trillion (Bauer and Rietveld 2014). At least 14 more funds are at the planning stage at the national level, and at the subnational level a number of countries, such as Canada and Indonesia, are considering them for revenue management among provinces, states, or districts. This renewed interest among governments in a not-so-new instrument has been partly due to the discovery of new resource deposits and is partly a response to dramatic increases in resource prices yielding increased revenues during the long commodities super-cycle ending around 2014–15. For an emerging EI producer, such funds offer a highly appealing combination of potential benefits: the accumulation of funds for national development projects, a buffer against budget deficits if resource revenues decline, and a way of mitigating spending volatility and improving the quality of public spending, reducing poverty, and insulating revenues from corruption. They could act as precautions against major negative resource shocks or to generate financial revenues for the future, replacing resource revenues when the resource itself is depleted. Unlike fiscal rules, resource funds do not constrain fiscal policy, although a fund may be a part of a fiscal framework, as in Norway.

However, such funds have an uneven performance history. An example is the Kuwait Investment Authority's loss of US\$5 billion in less than 10 years on poor investments in Spanish firms. Among the reasons for the loss were an absence of internal controls, lack of transparency, and lack of supervision. There are other examples of poor decision making and waste. Some governments have drawn on the funds accumulated to address short-term problems or finance special projects. Even without such mishaps, they should not be seen as repositories of resource revenue windfalls off of whose interest a state could potentially live for many years afterward (Barnett and Ossowski 2003). There is no need for a fund mechanism to accumulate a windfall in, and the interest would be unlikely to last for many years. So why are they so popular?

Research into these funds—which are a form of sovereign wealth fund—has identified at least five reasons for governments to create funds: (1) financial savings (to provide intergenerational equity); (2) macroeconomic stabilization (smoothing government expenditure in the face of volatile revenues); (3) earmarking resource funds for future development or specific purposes (poverty reduction or debt servicing, for example); (4) sterilization (to avoid overheating of the economy in the face of constrained

absorptive capacity, although some countries have also established dedicated infrastructure funds); and (5) ring-fencing resource revenues. Their main aim is to act as an accountable financial instrument in the service of the national economy and not become a gray financial tool or a parallel budget.¹¹

The two main types of funds—savings and stabilization—are defined by their function. A savings fund seeks to create a store of wealth for future generations. The *raison d'être* for a stabilization fund, by contrast, is reduction in the impact of volatile revenue on the government and the economy. A savings fund may be combined with a stabilization fund into a hybrid with dual objectives. This may introduce an element of increased flexibility. The most successful resource fund in the world, the Norwegian Government Pension Fund, has mixed savings and stabilization objectives with flexible rules. So does Timor-Leste's successful Petroleum Fund. For examples of savings and stabilization funds, see boxes 7.2 and 7.3, respectively. A list of 32 oil funds is set out in table 7.2, distinguishing their role as savings or stabilization funds.

A key to establishing stabilization funds is often setting a reference price and ensuring that if the resource price exceeds the reference price, then any revenue collected over

Table 7.2 Country Oil Funds

Country	Name	Date established	Objective
Algeria	Revenue Regulation Fund	2000	Stabilization
Angola	Fundo Soberano de Angola FSDEA	2012	Investment and development
Azerbaijan	State Oil Fund of Azerbaijan Republic SOFAZ	1999	Stabilization and saving
Bahrain	Reserve Fund for Strategic Projects Mumtalakat Holding Company	2000 2006	Stabilization Investment
Botswana	Revenue Stabilization Fund Pula Fund	1972 1994	Stabilization Saving
Brunei Darussalam	Brunei Investment Agency General Consolidated Fund	1986 1984	Saving Saving
Chad	Stabilization Account	1999	Stabilization
Chile	ES Fund PRF	2007 2006	Stabilization Pension
Colombia	Oil Stabilization Fund FAEP	1995	Stabilization
Equatorial Guinea	Fund for Future Generations Special Reserve Fund SRF	2002 2002	Saving Saving and stabilization

Table 7.2 Country Oil Funds (continued)

Country	Name	Date established	Objective
Gabon	Fund for Future Generations	1998	Saving
Ghana	Ghana Stabilization Fund	2011	Stabilization
Indonesia	Government Investment Unit	2006	Stabilization and development
Iran, Islamic Rep.	National Development Fund	1999	Oil stabilization and development
Kazakhstan	National Fund of the Republic of Kazakhstan NFRK	2000	Stabilization and saving
Kuwait	General Reserve Fund Reserve Fund for Future Generations	1960 1976	Stabilization and saving Saving
Libya	Oil Reserve Fund ORF Libyan Investment Authority	1995 2006	Stabilization and saving Saving
Mauritania	National Fund for Hydrocarbon Reserves	2000	Stabilization
Mexico	Oil Revenues Stabilization Fund of Mexico	2000	Stabilization and saving
Mongolia	Fiscal Stabilization Fund	2011	Stabilization
Nigeria	Nigeria Sovereign Investment Authority	2004, 2011	Stabilization and saving
Norway	Government Pension Fund	1990	Stabilization and saving
Oman	State General Reserve Fund Oman Investment Fund	1980 2006	Saving Investment
Papua New Guinea	Sovereign Wealth Fund	2011	Stabilization and development
Peru	Fiscal Stabilization Fund	1999	Stabilization
Qatar	Stabilization Fund (2000)/Qatar Investment Authority (since 2005)	2000	Stabilization/saving
Russian Federation	Reserve Fund (Former Oil Stabilization Fund) National Wealth Fund	2004	Stabilization Saving
Sudan	Oil Revenue Stabilization Account	2002	Stabilization
Timor-Leste	Petroleum Fund	2005	Stabilization and saving
Trinidad and Tobago	Heritage and Stabilization Fund	2000	Stabilization and saving
United Arab Emirates	Several funds		
Venezuela, RB	Macroeconomic Stabilization Fund FIEM	1998	Stabilization

Source: Adapted from IMF 2015a, 7, table 1.6.

Note: For the Islamic Republic of Iran, the National Development Fund was previously called the Oil Stabilization Fund. For Norway, although the Government Pension Fund was established in 1990, it was activated only in 1995. For Trinidad and Tobago, the Heritage and Stabilization Fund was previously known as the Interim Revenue Stabilization Fund. The funds for United Arab Emirates include the Abu Dhabi Investment Authority, Abu Dhabi Investment Council, Emirates Investment Authority, IPIC, Investment Corporation of Dubai, Mubadala Development Company, and RAK Investment Authority.

and above the reference is deposited in the fund and not channeled through the budget (see “Stabilization Funds” under section 7.6). By contrast, it is not the only key for savings funds: they also have to take into account the expected profile of future revenues and that will in turn depend on reserve estimates. As a result, they tend to have some noncontingent rule for accumulation (for example, x percent of resource revenue or total revenue has to be put away, as in Kuwait).

Country context will shape a government’s motive in setting a fund’s objectives (and indeed in deciding whether a fund is necessary at all). For example, the stabilization objective is likely to be stronger among large, established producers of oil, gas, and hard minerals with mature provinces. They are likely to be concerned about the impacts of cyclical variations in revenues caused by price volatility. Similarly, concerns about an aging population and its effects may encourage a focus on the intergenerational benefits of a fund (as in Norway).

Common features

Some features are common to savings and stabilization funds.

LEGAL FRAMEWORKS FOR FUNDS. Funds may be either *virtual* or *real*. (Bacon and Tordo 2006, 8–10). Funds are virtual when they are embedded in the normal budget process and require no special approval for establishment or maintenance. Strictly speaking, a virtual fund is a subaccount under the treasury single account. No new responsibilities need to be created. Funds are real where accumulated funds are held in a separate managed and audited account, requiring a legal framework. The preference for one or the other may depend on the overall transparency of fiscal reporting to both the legislature and the public. Where resource revenue dependency and public interest in its use are high, the creation of a real fund may be desirable, rendering the link between resource revenue generation and utilization transparent. As Bacon and Tordo have observed, “Preference for one or the other may depend on the overall transparency of fiscal reporting to both the legislature and the public” (Bacon and Tordo 2006, 9). On the other hand, virtual funds might be desirable if it is important that all national funds remain fully integrated with the regular budget, which would always be a basic objective of public finance management (Allen and Radev 2010). If a government decides to establish a real fund—which can also be reasonably well integrated with the budget—good practice would argue for

the closest possible coordination of its operations with the regular budget process.

In practice, resource-rich countries have used a wide variety of legal frameworks to establish an extractives fund (usually for oil). Where a distinct legal framework is required to set up a real fund, a law or an amendment to existing legislation (or even to the constitution) is usually required. Deciding on the level of specificity in the law will involve trade-offs between ensuring the financial integrity of the scheme (for instance, preventing its reversal or perversion) and providing adequate administrative or executive flexibility to address unforeseen circumstances.

PAYMENTS INTO AND WITHDRAWALS FROM FUNDS. Procedures for fund movements are often governed by *deposit* and *withdrawal* rules. The former define which oil, gas, or mineral revenues are deposited and when. The latter define how much revenue may be withdrawn from the fund in any given quarter or year and also where that amount may be sent.

In general, there are two approaches to determining the rules for deposits into funds and withdrawals. The first is on the budget side, in terms of specifying fiscal deficits to be covered by the fund. The second is on the fund side. Experience shows that it is the budget side that determines the fund practice, rather than the reverse.

These rules may differ depending on the objectives of the fund. For savings funds, the focus will tend to be on linking any withdrawals to the long-term sustainability of resource revenue spending, and its size will be determined by reference to a policy seeking to keep the wealth in the fund constant. For stabilization funds, the goal is different, so the size of the fund will depend on assumptions about volatility of revenues and the average expenditure required by the government. Good practice would link these transfers to and from the fund to the annual budget process and near-term revenue forecasting since the principal intention is to allow for expenditure smoothing. Parliamentary or presidential approval may be required to authorize transfers to and from a fund.

Transfers in a fund may be direct or indirect:

- In a direct transfer, certain defined categories of revenue will be paid to the fund account, which is usually held by the finance ministry or central bank. If there is a lack of precision about the categories or if the classification is incomplete, problems arise. The expected size and use of the fund is then determined by means of the rules concerning withdrawals from the fund.

- In an indirect transfer, all of the revenues have to be paid into the finance ministry and then a decision is made by the competent authorities to determine the expenditures from revenues that will be made through the budget, and the balance is transferred into the fund for investment.

In many states, however, operational rules have been introduced to make amounts added to, or withdrawn from, the funds automatic. Such rules have the perceived advantage of reducing discretion but may themselves create serious tensions when their operation proves inappropriate to actual state circumstances or developmental priorities. For example, it may be desirable in the near term to spend in excess of long-term sustainable levels in order to take advantage of investment opportunities expected to yield high developmental returns, or to spend less than the long-term sustainable amount where near-term absorptive capacity constraints apply. In practice, fiscal rules need to be flexible and appropriate to national circumstances. They must also have a broad-based buy-in from stakeholders, and ideally adherence to the rules should be monitored by an independent oversight body (such as the Public Interest Accountability Committee in Ghana). However, the need or otherwise for an independent oversight body will depend on the circumstances, since such a body is not without costs and trade-offs arise. For example, few would argue that there is a need for such a body in Norway. Where they have been adopted, an oversight body will not be able to function unless there is a strong degree of transparency of the flow of funds from collection to the time when the revenues are spent. Fund administrators should be obliged to publicize and defend any deviation from guidelines where these have been adopted.

In practice, a number of countries have found that rigid operational fund-accumulation rules prove impossible to sustain, and they change them, bypass them, or even eliminate the fund in the face of spending pressures, changing policy priorities or reacting to exogenous events that render the fund's operational accumulation and withdrawal rules inappropriate. Chad, Ecuador, and Papua New Guinea found that their funds became operationally or politically unworkable and abolished them (Ossowski et al. 2008, 9). Other countries have changed their rules, including Kazakhstan, Mexico, Oman, the Russian Federation and the República Bolivariana de Venezuela, as well as the U.S. state of Alaska and the Canadian province of Alberta.

FINANCIAL MANAGEMENT. Financial management of resource funds requires asset management and decisions on asset classes in which funds will be invested. Decisions on

asset classes depend, to a large extent, on the purpose of the fund, attitudes toward risk, and a time horizon. Fund management is often assigned to the central bank, which may engage third-party custodians and specialist asset managers to safekeep and invest the assets. A set of asset management mandates based on risk and return objectives should provide benchmarks for the assessment of performance by government-selected fund trustees or their delegates.

GOVERNANCE OF FUNDS. Experience with resource funds underscores the critical importance of oversight and governance. Funds often lie outside established budget systems and frequently only a few persons are accountable for them, and those persons are often political appointees. Abuse of responsibility and susceptibility to political interference are a real risk. Constraint and accountability are ideally spelled out in legislation. Independent regular audits are also essential, but in practice they have often been loose (RWI and Vale 2014). Good governance practices include both vertical and horizontal accountability. Vertical accountability comes with fund management reporting lines that lead, ultimately, to a minister. Horizontal accountability is provided by regular reporting on performance to elected officials independent of the executive branch and widely available and readily accessible public information on the fund. Transparency with respect to all aspects of fund operation and performance is generally regarded as indispensable to achieving good governance (see chapter 8). This can be achieved through press releases, publications, and audits that are made available on the Internet. Bacon and Tordo (2006, 15) go further and recommend the “presence of watchdog non-governmental organizations (NGOs) [which] strengthens horizontal accountability.”

As discussed under “Fiscal Rules” in section 7.3, operating a fund often involves the use of both internal and external managers. The recruitment of any asset managers should be made as independently as possible. Regular, independent audits are also essential if confidence in the fund is to be established and maintained. In Norway's case, an external performance audit is carried out and published in addition to the internal audit, which checks the latter's audit of performance and also checks the actual performance against a benchmark.

Savings funds as a means of addressing fiscal sustainability

Many funds will have been set up with savings as at least part of their overall *raison d'être*: save now to provide for

future expenditure. Bacon and Tordo (2006, 128) find at least three reasons for this:

1. To provide income for future generations so that they may benefit from natural resource endowment, because policies of rapid depletion to meet urgent current expenditure needs risk exhaustion of the resource.
2. To obtain the best social return over time by limiting current expenditure by government to projects that yield an adequate return, whereas limited absorption capacity means that too rapid government expenditure could lead to Dutch Disease symptoms.
3. To provide precautionary savings against large and unexpected shocks to the domestic or world economy that would generate abnormal demands on expenditure or very large falls in revenue.

The design of the savings fund should focus on the accumulation of financial assets and the generation of financial returns adequate to replace resource revenues as they decline. Such a design would, one hopes, maintain a constant level of government expenditures attributable to the initial resource wealth. However, the generation of financial returns depends on fiscal policy, not on the

savings fund. If the government builds assets in the fund by running up public debt because it is running fiscal deficits, the accumulation of assets in the fund will not generate financial returns adequate to replace resource revenues. It is not, in practice, the design of the fund but the design of fiscal policy that will generate the financial returns to replace resource revenues in the future. The savings fund is merely an instrument.

SIZE. The desirable size of a savings fund will depend on, among other things, the scale and expected life of the resource deposit. Generally, the shorter the life of the deposit, the higher the percentage of resource revenues going into the fund ought to be. The asset mix in a savings fund is typically longer term and higher risk than might be found in a stabilization fund (Ossowski et al. 2008, 8–9). Several examples of savings funds in resource-rich countries are briefly summarized in box 7.2.

An important concern about savings funds turns on the assumptions they necessarily make. For example, when oil revenues are the principal source, the government has to consider projected profiles of output, extraction costs, prices, discount rates, and returns on alternative investments by keeping oil in the ground.

Box 7.2 Savings Funds: Four Examples

Norway

The Government Petroleum Fund was established in 1990. It has two main purposes:

1. To act as a buffer to smooth fluctuations in oil revenues and mitigate exchange rate pressures to avoid Dutch Disease and preserve a diversified industrial structure.
2. To save part of current oil rents to help address future needs related to the ageing population and eventual decline in oil revenues.

Fund income consists of government net cash flow from petroleum activities and the returns on the fund's assets. Detailed guidelines for fund operations are decided by government in consultation with parliament. Its only expenditures are transfers to the government's budget: the fund is an integrated part of the government budget.

Transfers to and from the fund require parliamentary approval. Withdrawals from the fund reflect a fiscal rule, agreed in 2001, that limits the non-oil structural deficit to 4 percent.

Norway's balanced budget rule is a political commitment and is not set down in legislation.

Information is available in quarterly and annual reports. Control and supervisory bodies exist at all levels of fund management.

Fund assets have to be invested abroad, instead of becoming an additional source of financing for public expenditure, to avoid strong impacts on the mainland economy and on the exchange rate.

Alaska, United States

The Alaska Permanent Fund was set up by an amendment to the state constitution in 1976, and receives 25 percent of all mineral lease rentals, royalties, and bonuses taken by the state.

Box 7.2 Savings Funds: Four Examples (continued)

Only a portion of oil revenues is deposited into the fund. For example, corporate income taxes from oil companies go straight into the budget.

It has two unusual features. The principal of the fund is to be invested permanently and cannot be spent without a popular vote. This is a highly unusual feature of a fund. A further unusual feature is that income from the fund is to be used for inflation-proofing the capital and paying dividends annually to citizens; this has had the effect of limiting any attempts to broaden the scope of the fund.

The determination of individual dividends or direct cash payments is made according to a formula set out in legislation and does not reflect current oil prices but instead is based on a five-year average of earnings on a number of securities.

The legislation determines ways that payments flow in and out of the fund, leaving little room for even legislative discretion. The primary requirement is that the real value of the capital is maintained.

The model is rigid as a result: it is unable to respond to changing state needs or a decline in oil production.

Internal and external managers are used. Investments are always made outside of the state.

Operation of the Fund exhibits a high degree of transparency; quarterly and annual reports are produced.

Alberta, Canada

The Heritage Savings Trust Fund was set up in 1976 but has evolved considerably since the 1990s. Initially it had goals of economic diversification and social improvement, but these were abolished after perceptions of limited success. Instead the fund was restructured into a financial investment fund with the goal of maximizing return subject to acceptable risk.

It is required to invest much of its assets within the province as part of developing the local economy but also invests savings outside the province.

The fund has been de facto decoupled from the oil economy and is now a portfolio of financial assets with returns being used to pay down provincial debt. Quarterly reports are made by the provincial finance minister summarizing investments to the legislature and the public; annual reviews of the fund's performance ensure compliance with the regulations governing the

fund. Fund finances are subject to a regular external audit by the Auditor General.

External managers have been hired to cover specific investment mandates.

The Fiscal Management Act of 2013 created the contingency account as a stabilization fund to provide budget financing in those years when expenses exceed revenues. The 2013 budget adjusted the new deposit rule by depositing the first Can\$5 billion in resource revenue in the Contingency Account. In subsequent years, all or some of any fiscal surpluses will be deposited into the Contingency Account. The Alberta Treasury determines the portion of fiscal surpluses to be deposited into the account. The size of the Contingency Fund cannot fall below Can\$5 billion.

The net income of the fund will no longer be withdrawn after fiscal year 2017/18, and will instead be retained in the fund using a graduated process.

One of the objectives of the fund is to save oil revenues for future generations. Yet despite production and historically high prices at times from 1987 to 2012, only two relatively small deposits were made into the fund over this period. This is due to the lack of a deposit rule. In 2013, the Alberta government finally instituted a set of fiscal rules with long-term savings and fiscal stabilization objectives in mind.

Kazakhstan

The National Fund was established in 2000 as an account of the government held at the national bank. Oil and mining revenues due to the government are first paid to the finance ministry and then paid into the fund according to a strict formula.

The fund has a savings and a stabilization function and payments are made into two separate portfolios to reflect this. A reference price for oil is determined for a five-year period, and this determines baseline budgeted oil revenues. Ten percent of these are paid into the savings account quarterly and 90 percent are retained for the budget. Excess revenues above the budgeted amount are paid into the stabilization account; deficits below the reference price are withdrawn from the stabilization account. Mining payments have a separate reference price. The finance ministry sets benchmarks for the fund and the central bank reports to the ministry on fund performance against the benchmarks.

(Box continues on the following page)

Box 7.2 Savings Funds: Four Examples (continued)

All major decisions concerning management and altering of rules on payments in and out of the Fund have to be made by the president.

Accountability is lower than usual in such funds and there is little oversight or transparency of information.

Since 2010, Presidential Decree no. 962 introduced the most recent rule. Annual transfers are fixed at US\$8 billion per year, which can now be used to fund current budget expenditures in addition to develop-

ment programs. This amount can be adjusted by 15 percent through legislation.

The balance of the fund cannot fall below 20 percent of GDP in a given fiscal year. If it does, the shortfall is to be covered by cutting the fixed annual transfer by the amount needed to cover the difference.

A further change was made in November 2014, in response to a drop in oil prices: withdrawals of US\$3 billion a year will be made from 2015 to 2017 to develop transport, energy, industrial, and social infrastructure.

Sources: NRG1 and CCSI 2014; Davis et al. 2001; Bacon and Tordo 2006.

FUNGIBILITY. Critically, savings funds suffer from a problem of fungibility. They receive a share of revenues that are automatically put away for future generations. However, for this to be effective, they need to lead to higher government savings in the aggregate. If, instead of this outcome, the government does not reduce its expenditure and borrows to finance the gap left by revenue that has been diverted into the fund, the aggregate savings are unaffected. What happens is that savings fund assets are merely offset by government debt (Davis et al. 2001). A way of solving this is to change the paradigm and, instead of having a rigid accumulation rule, require the fund to finance the budget: the fund receives budget surpluses and finances budget deficits. This model has been adopted by Chile, Norway, and Timor-Leste. While it may appear that these arrangements remove the disciplining effect of a savings fund and lead to a loss of the automatic mechanism for saving, in fact, as noted, the disciplining effects of a savings fund can be illusory as long as the government can borrow.

An argument against a fiscal policy that aims at accumulating “excessively” large savings funds is that investment in domestic social and physical infrastructure can yield potentially much higher returns; the resulting incremental growth (if achieved for a sustained period) may, for many states, come to dwarf the income from holding resource wealth in financial assets. This argument must be qualified, however, by taking into account the absorptive capacity of the domestic economy and institutions and the need for precautionary balances, which can be large.

7.5 ALTERNATIVE MEANS OF ADDRESSING FISCAL SUSTAINABILITY

Assessing long-term fiscal sustainability is challenging in resource-rich economies due to the exhaustibility of the resource and therefore the revenue from its production. Although this affects all countries with resources, it is much more of a concern for countries with limited resources and shorter resource horizons, like Cameroon, Uganda, and the Republic of Yemen. In such cases, there is a need to focus on how government expenditures can be sustained once resource revenues come to an end. If there is no framework in place for fiscal sustainability, there will be considerable uncertainty about how long a government can sustain its current spending and tax practices and other promised expenditures. For countries with longer resource horizons, the main objective of fiscal policy is how to manage revenue volatility as the price of the resource fluctuates. Whether or not government spending can be sustained is a less immediate question for them.

There have been various studies in recent years including several by the IMF on the fiscal response of petroleum-rich developing states to oil booms.¹² They have demonstrated that while the prospect of long-term fiscal sustainability was improving in many states, that prospect is being seriously jeopardized by short-term policies and behavior that sharply increased non-oil fiscal deficits through tax cuts or dramatic escalation of expenditures. This results in significantly increased vulnerability to future revenue shocks from

price collapses or resource exhaustion. Two macroeconomic management tools that can act as complementary mechanisms to funds or fiscal frameworks (rather than alternatives) in avoiding these risks are (1) medium-term frameworks (MTFs) and (2) revenue forecasting.

Medium-term frameworks

A medium-term expenditure framework (MTEF or MTF) can help frame fiscal policy in a longer-term context, providing structure to decision making and fostering transparency and accountability.¹³ MTFs for fiscal and expenditure policy are planning tools that help connect the annual budget to longer-term objectives such as poverty reduction and sustainability and the policies to achieve them. They also enhance analysis of risks of revenue volatility, a positive feature given the need for EI-producing countries to be in a strong position to deal with exogenous shocks and to facilitate orderly adjustment processes when needed. The publication of medium-term projections, which incorporate the policy and economic assumptions used in the framework, assist the public in understanding the future implications of current fiscal policies (IMF 2007a, 36).

The budgets of many governments in resource-rich states are too dependent on volatile and exhaustible resource revenues in the short term and suffer from excessively short-term budget planning horizons. They would benefit from introducing a medium-term to longer-term perspective to budget planning. MTFs for these states would typically incorporate estimates of future resource revenue earnings, giving important weight to uncertainty through evaluation of a range of possible future external scenarios and their impact on revenues. Additional relevant considerations would include macroeconomic stabilization, medium-term expenditure priorities, and absorptive capacity. They would also usually be formally linked to the annual budget cycle in order to be implemented properly. This can be challenging for some resource-rich countries because ministries and government agencies do not always have adequate technical capabilities to develop and implement a multiyear budget approach. It can nonetheless help to manage fiscal risks and foster expenditure smoothing. An MTF can be designed in a way that takes into account the stage of development of the country and also the level of administrative capacity.

An example of an MTF is the system mandated by the Fiscal Responsibility Law introduced by Mexico in 2006.

The law requires the annual budget to be presented to congress with quantitative projections of the next five years and explicit costing for new fiscal measures. Other measures were included to smooth expenditures, strengthen management, promote transparency, and encourage performance-based budgeting.¹⁴

It may be asked what teeth an MTF typically has. The short answer is that an MTF forces the government to think about the medium term and about fiscal risks; it forces spending ministries to think multiyear in their budgeting and incorporate the recurrent implications of current policies; and it fosters transparency and accountability. Even so, medium-term fiscal planning will retain a measure of flexibility. An MTEF is not a multiyear budget, which would entrench rigidity and hamper flexible and efficient responses to changing circumstances.

In a practical sense, there are issues that arise over the level of flexibility of expenditure. Capital spending is typically one of the most discretionary forms of public spending and is, therefore, vulnerable to periodic fiscal adjustments. If most of the recurrent expenditure is largely nondiscretionary in a country and cannot be cut quickly, then, by necessity, when faced with volatility governments could look to cut capital expenditure in a nonoptimal way to spread the pain equally. The investment budget needs to have commitment control mechanisms and an ability to implement investment spending to be credible (Barma et al. 2012, 185).

Revenue forecasting

Realistic resource revenue forecasting is the starting point for good practice in revenue and budgetary management. Good practice suggests that forecasts should be prepared on a project-by-project basis, applying simple fiscal models and aggregating them to the economywide level. Data required from EI sector investors should include expected volumes and expenditures. Price projections should be consistent with EI sectorwide forecasts, but at the same time they need to recognize the volatility of prices and the notorious inaccuracy of price forecasts (see figure 2.4 in chapter 2). There should be a realistic resource price forecast in the budget for the next year (one price, possibly adjusted for quality in some cases) and all resource revenues should be projected on that basis, regardless of how individual companies project their revenues on the basis of other price projections. The budget can be set on the basis of only one resource price projection—the same way that

the budgets of other countries are set on the basis of a single macroeconomic projection. Then the budget is subjected to stress tests (lower resource prices than the price in the budget, or other shocks) to assess the budget's vulnerability to potentially adverse developments and what would be done if such circumstances arose.

Finally, price and production assumptions should be codified and not made subject to year-on-year or month-on-month manipulation in order to generate more fiscal space. However, revenue forecasting has limits: a government can have good revenue forecasting and still run a reckless fiscal policy.

7.6 ADDRESSING VOLATILITY: STABILIZATION FUNDS

Volatility

The volatility of resource revenues in the EI sector can have major impacts on fiscal policy, public consumption, and investment spending. High revenues encourage many governments to step up spending based on a mistaken belief that the revenue windfall will be permanent or a politically driven disregard of virtually certain future declines in revenue. This gives rise to unsustainable spending levels with painful adjustments when revenues fall (Ossowski et al. 2008, 8).

Revenue volatility is particularly worrisome in its potential effects on domestic consumption via changes in wage income and employment. The poor are especially vulnerable, having limited ability to alter household consumption, and often face severe difficulties in either insuring themselves or borrowing against fluctuating income. Current government expenditures are difficult to cut in low-income states where they are likely to be focused on basic services and poverty reduction. This is not to argue against allocation of resource revenues to consumption but to suggest the importance of protecting some (recurrent) expenditures against the volatility of revenues.

Fluctuations in domestic investment may be more manageable and less costly than those in consumption. In a mechanical sense, it may seem easier to cut capital expenditures as a large piece and in one action. In practice, existing contracts with suppliers have to be adjusted or renegotiated, sometimes at great cost if there are contractual clauses that protect suppliers from such government interventions. Some investments depend on other investments: a new school may need a new country road for example. Investment expenditures have to be

reprogrammed. Spending ministries usually oppose such cuts, which creates political problems for the ministry of finance.

It may be thought that the fluctuating investment can be partially offset by the relatively smooth output it typically produces. However, even if less costly than fluctuating consumption expenditures, "stop-go" investment behavior carries a considerable cost in terms of efficiency losses, a build-up on project contract arrears, and aggregate economic instability (Alba 2009, 14). Effective utilization of volatile resource revenues requires that the resulting expenditure in both consumption and investment be smoothed.

Key features of the funds

A stabilization fund differs from a savings fund (see section 7.4) in that it is designed to guard against volatility in the international resource markets. Such funds are a form of self-insurance against short-term volatility (Shabsigh and Ilahi 2007), and so are designed to address precautionary objectives and, indirectly, to assist in expenditure smoothing, although the latter will depend on many other things besides a fund. In many stabilization funds, when revenues or prices are high relative to some norm, payments are made into the fund. When revenues are low relative to the norm, payments are moved out of the fund to the budget.

The optimal size of a stabilization fund depends on the magnitude of expected resource revenues, their relative importance in the budget, and the volatility of the revenues. The larger the possible variation in revenues relative to the total state budget expenditure, other things being equal, the larger the amount of precautionary assets in the fund should be. Given the objective of stabilization funds, they should hold short-term, highly liquid, and low-risk assets. The fund's assets should be held abroad to avoid putting pressure on the domestic economy; otherwise, the fund far from contributing to domestic stabilization, would actually exacerbate procyclicality and transmit resource price volatility into the economy.

As is the case with savings funds, a major challenge facing a stabilization fund is setting a reference price or revenue and ensuring that, if the resource price exceeds the reference price, any revenue collected over and above the reference is deposited in the fund and not channeled through the budget. If the aim is to help to stabilize current government revenues, the calculation of future revenues

Box 7.3 Stabilization Funds: The Experience of Chile

One very important innovation of Chile is the use of independent professional committees to issue a projection for long-term copper prices—vital for revenue forecasting—which helps to depoliticize them.

Chile established two funds in 2006, the Pension Reserve Fund to help finance pension and social welfare spending and the Economic and Social Stabilization Fund to help overcome fiscal deficits when copper revenues decline unexpectedly. The funds are governed by a strong set of deposit and withdrawal rules underpinned by a fiscal rule that has the effect of smoothing spending over time.

The Economic and Social Stabilization Fund is a countercyclical tool that aims to smooth government expenditures, allowing the government to finance fiscal deficits in times of low growth and/or low copper prices and to pay down public debt when necessary.

While external audits are made public, compliance with the rules is not assessed by a formal oversight body like a multistakeholder committee or independent fiscal council.

The funds are very transparent. Information on fund managers, returns on specific investments, and how deposits and withdrawals are calculated is publicly available.

A minimum of 0.2 percent of the previous year's GDP must be deposited in the Pension Reserve Fund annually. If the effective fiscal surplus exceeds this amount, the deposit amount can rise to a maximum of 0.5 percent of the previous year's GDP. The fund is capped at 900 billion Unidades de Fomento (approximately US\$1.4 billion as of February 2017). Deposits can be financed with funds from the Economic and Social Stabilization Fund at the discretion of the minister of finance.

Any remaining fiscal surplus after deposits to the Pension Reserve Fund are made, minus any funds used for public debt repayments or advance payments into

the Economic and Social Stabilization Fund made the previous year, are deposited into the Economic and Social Stabilization Fund.

Funds from the Pension Reserve Fund can be used only to pay for pension and social welfare liabilities.

Until 2016, the previous year's return on the Pension Reserve Fund could be withdrawn. From 2016 onward, annual withdrawals from the Pension Reserve Fund cannot be greater than a third of the difference between the current year's pension-related expenditures and 2008 pension-related expenditures, adjusted for inflation.

Chile's Structural Balance Rule allows for estimating fiscal revenues for budget planning and, therefore, whether withdrawals are needed from the Economic and Social Stabilization Fund.

Funds can be withdrawn from the Economic and Social Stabilization Fund at any time in order to fill budget gaps in public expenditure and to pay down public debt. However, withdrawals are subject to the structural balance rule. Funds can be withdrawn, at the discretion of the Minister of Finance, to finance annual contributions to the Pension Reserve Fund.

The Economic and Social Stabilization Fund's investment policy is to maximize the fund's value in order to partially cover cyclical reductions in fiscal revenues while maintaining a low level of risk.

The Economic and Social Stabilization Fund invests in portfolios with a high level of liquidity and low credit risk and volatility in order to ensure that resources are available to cover fiscal deficits and avoid significant losses in the fund's value.

Funds are invested in fixed-income assets in reserve currencies that typically do well in financial crises. Sovereign investments are made exclusively in German, Japanese, and U.S. government bonds.

The fund has adopted a passive management investment policy since May 2011.

becomes very important. Any procedures set down for doing this will be highly dependent on price forecasts. In some countries, such as Chile (see box 7.3) and São Tomé and Príncipe, a formula is used to determine the reference price. This avoids arbitrary decisions that may favor the current spending plans of the ruling groups and result in a depletion of the stabilization fund.

In practice, the focus on a reference price has proven to be very difficult due to the stochastic process driving resource prices: there does not appear to be a meaningful long-term average price, and resource prices do not tend to revert to anything. Further, there are problems due to the fungibility of money: the government can undo in the budget what it is trying to achieve in the fund.

7.7 ALTERNATIVE MEANS OF ADDRESSING VOLATILITY

Hedging

Financial instruments such as futures contracts and options (designed to lock in prices on future production) can be used in resource-rich states to reduce the risk of future adverse commodity price movements (J. Daniel 2001).¹⁵ For a government or state company, the assumption is that if international energy and mining companies and traders can use hedging strategies to reduce risks from price volatility, why should they not do the same? Instead of trying to cope with the effects of a volatile and unpredictable revenue stream, the aim of a hedging program is to make the revenue stream itself more stable.

To date, only a very few resource-rich states (such as Mexico and the República Bolivariana de Venezuela) have tried to reduce their exposure to commodity price risk by using these instruments, although a few others, like Kazakhstan and Russia, have considered it.¹⁶ The Mexican experience is the most commonly cited. Each year, the country hedges a large part of its exports of oil (about half of the volume of oil exports) by means of put options to insure against a decline in international oil prices. The Asian put options it purchases have a strike price equal to the oil reference price used in the budget. In practice, the program “has been particularly useful after the collapse of oil prices at the onset of the global financial crisis, when oil prices were 20 percent below the budgeted price” (IMF 2015b, 22).¹⁷

The main deterrents are political rather than practical. Governments have no control over the commercial decisions taken about hedging and are exposed to asymmetric political costs where hedging results in losses. According to J. Daniel (2003, 373), “For an individual finance minister (or head of a state oil producer), the political costs of hedging may outweigh the benefits, even if the economic case is clear.” For example, this can occur when the hedged sales price turns out to be substantially less than the actual future market price. In such circumstances, the responsible authorities may find themselves out of a job; by contrast, they are likely to escape blame when nonhedged prices fall in line with a fall in market prices. It may also be difficult to justify the expense of hedging, which can be considerable (premium payments on over-the-counter transactions, for example). In one notorious instance, the government of Ecuador lost US\$20 million (in 1993 money) to Goldman Sachs through hedging (Farchy 2016).

The most significant obstacle of all might be the institutional capacity issue. Hedging requires substantial

specialized technical capacity, which is not always available in emerging resource-rich countries. Given the potential scale of losses, it would be extremely dangerous to allow people without such expertise to run a hedging program. An illustration of this was a scandal in Chile’s national copper company, CODELCO, when large losses were found to have accumulated some years ago.¹⁸

Further, like resource funds, hedging does not stabilize expenditures, directly or indirectly. That would require additional fiscal policy decisions. It is perfectly possible to have a resource fund or to hedge revenues and yet undertake a recklessly procyclical fiscal policy funded, if needed, by borrowing.

For gas producers hedging presents far fewer problems. Many long-term gas contracts are in practice “internally hedged”: they set fixed prices with an escalator or are linked to a basket of fuels with a floor and ceiling, or they prescribe a portion of annual sales to be made at an initially fixed price (P. Daniel 2007, 42).

Economic diversification

One response to volatility is to introduce a diversification policy. This is discussed extensively in chapter 9. It can include “prudent macroeconomic management over the resource cycle to help stabilize the economic setting for the traded sectors” (Gelb 2011, 64).¹⁹ However, experience to date among high-rent-producing countries with low linkage levels to non-resource sectors is not encouraging. Extreme price cycles have proven very challenging to oil-exporting countries, in particular, as they try to sustain investment in the non-oil traded sectors, which tend to become destabilized by large swings in the real exchange rate. Even the poster child of success in avoiding the resource curse, Botswana, has been challenged in this respect.²⁰ Malaysia and Indonesia stand out as exceptions however, with the latter shifting toward manufactured exports over time (RWI 2012).²¹ Both had a broad resource endowment and a favorable economic location. Indonesia had a large, low-cost supply of labor, which encouraged its shift to low-wage manufacturing and exports, while it invested strongly in agriculture to ensure a cheap food supply. Chile, Sri Lanka, and Thailand are other examples (Coxhead 2007).

In this respect, institutional quality is important since manufacturing is more transactions-intensive in the local economy than subsistence agriculture or offshore infrastructure: it needs a business environment in which contracts will be enforced after they are concluded and assurance that the rule of law will provide elementary levels of

security. Where such institutional quality is lacking, the discovery of large-scale extractive deposits offers an opportunity for a country to develop it, either by creating a special development zone for this purpose or by ramping up the quality of the state institutions and its delivery of services to the economy. Policies “to reduce this institutional gulf . . . are therefore of the utmost importance for diversification policy” (Gelb 2011, 67).

There is a large body of literature that addresses the development of domestic links between the mining sector and the wider economy.²² This linkage is also given much emphasis in the *African Mining Vision* and similar declarations.²³ Key elements mentioned in chapter 1 and revisited in chapter 9 are policies on local benefit and resource corridors. However, it should be noted that forced “value addition” or “beneficiation” increase dependence on resources produced and do not count as diversification.

7.8 SPENDING CHOICES AND USE OF GOVERNMENT REVENUES

Resource revenues, like any other revenues, can be put to various uses, such as spending through a public investment program benefiting the population by developing infrastructure or through social benefit expenditures such as health and education. They can also benefit the population by means of direct distribution to the general population through the tax system and or “citizen dividends” (Alba 2009, 14–17). Irrespective of their origin however, they will usually become part of total government revenues. Once they enter the Single Treasury Account, they are no longer distinguishable and cannot be identified separately.

Domestic investment

Growth is usually seen as the main way in which incomes and consumption can be increased. It creates employment, bids up wages, and broadens the tax base for future public spending and service provision. Investment in domestic assets, particularly infrastructure, is key to that growth. Several Middle Eastern resource-rich countries (such as Kuwait, Qatar, and Saudi Arabia) engaged in large public investment during the oil boom years between 2003 and 2008. This was aimed at diversifying the domestic economy and improving the quality of infrastructure. However, in many resource-rich countries limited state capacity makes appropriate and effective investment difficult to achieve. Private sector investment, in the long run, may prove more important to growth than public sector spending, but its

scope may also be constrained by public spending in some countries (Alba 2009, 14–17).

Against this background, the traditional argument is that in the context of a resource-rich country a disproportionate allocation of public sector resource revenues should be made to domestic investment, with special attention to investments that will stimulate private sector investment. Subsidies to the poor and debt reduction should also be high priority areas. However, this statement cannot apply to countries where the stock of public capital is ample and of relatively good quality. In those countries, the marginal public dollar is likely to be better used in other ways. The key question is, what kind of “investment?” Governments also need to distinguish between different projects as targets for investment, but how? If there is a capacity deficit, not only is there a lack of capacity to identify, implement, and monitor key investment projects, but public sector corruption will lead those with influence to allocate high-value construction contracts in ways that are vulnerable to mismanagement. Finally, governments need to decide what processes (such as procurement, project appraisal, costing, and monitoring) they need to put in place to promote effective spending.

From one perspective, it may be a serious mistake for some countries to put all their revenues in a sovereign wealth fund (investing only in financial assets outside the country) when domestic investment needs are very high (van der Ploeg 2012, 98). The resource revenues from EI production can alleviate capital scarcity and so create opportunities for public investment. Indeed, for some countries it may be far better to use the windfall “to steadily ramp up public investment, tolerate a temporary fall in the efficiency of public investment, and gradually boost the efficiency-adjusted stock of public capital and non-oil output” (Van der Ploeg 2012, 98). For certain countries, then, this will influence their choice of whether or not to place revenues in a fund.²⁴ In any event, it may be sensible to park a portion of the windfall temporarily in a fund in the face of absorption constraints when investing in public infrastructure and human capital.

Arguments in favor of direct public spending include retention of central control over both the macroeconomic trend and microeconomic detail of spending; the chronic undersupply of physical and social infrastructure supported by public expenditure and the high rates of economic and social return on such investments; the potentially significant catalytic impact of public expenditure on private sector investment; and job creation and employment. With respect to private sector investments, direct public spending could

be complementary. For example, public investment that included strategic investment in key infrastructure, education and training, and human capital could facilitate private investment in both the EI sector and in complementary sectors.

The main argument against direct public spending of resource revenues has to do with its ability to handle any rapid increase in expenditure in an effective manner (see section 7.3). In addition to the problem of absorptive capacity already discussed (including bureaucratic capacity and capital expenditure processes), there is the risk of waste and, without adequate transparency and oversight, the *probability* of corruption. A rapid escalation in spending can also be expected to put upward pressure on domestic prices. This can result in a real appreciation of the exchange rate, loss of competitiveness of nonresource exports, and, as a consequence, loss of economic diversity as well as a large negative impact on overall economic performance. This describes the problem known as Dutch Disease, which was discussed in chapter 2).

If the intention is to engage in domestic investment, a clear benefit to a government would be to establish a public investment program for the medium and long terms. This could include priorities for strategic investments. With an appraisal process that is not capricious, this would set out a clear plan as to what projects will and will not receive funding. It would also support planning and implementation capacity at the line ministries. Institutional factors will be central to its success, including the capacity to select, implement, and evaluate projects. In turn, this requires the creation of robust public financial management systems.

Consumption

Once revenues from resource production begin to flow, a case can be made for immediate allocation of part of those revenues to recurrent expenditure on consumption in the form of subsidies based on the urgent poverty reduction needs of large segments of the population. Even setting aside the humanitarian motives for such spending, it is sometimes considered essential on political stability grounds.

Once the existence of large-scale resource revenues becomes known, allocating at least a proportion to consumption of this kind may become a political imperative (Liebenthal, Michelitsch, and Tarazona 2005, 80). At the same time, it will have to compete with other political imperatives such as increasing investment in hard infrastructure, which may be as strong as that of providing or increasing subsidies for poverty alleviation.

Against this prioritization of immediate action on poverty reduction, it can be argued that a holistic approach should be taken to setting expenditure in the budget. All needs and potential expenditures would compete in an open budget process. In this way, the marginal dollar would be allocated to the area where the marginal benefit is highest, given efficiency and equity considerations that have to be balanced in the political process. Poverty reduction is also a priority that is vulnerable to circumstances: for example, if the fiscal position is unsustainable, inflation is high and the economy overheated, the external position precarious, or there is rampant corruption to the extent that only a fraction of the resources would reach the poor. In such circumstances, immediate poverty reduction would make little sense as a priority. Further, it is a kind of policy that can generate benefit-dependence if not properly designed, targeted, and conditioned and may give rise to entitlements that are very difficult to reverse at a later stage.

Cash transfer schemes

An alternative to public consumption or investment is the direct transfer of resource revenues to citizens. The payment of dividends from resource revenues directly to the population has been the subject of much research in recent years (Moss 2011; Gelb and Decker 2012). Sometimes known as “oil-to-cash” and invoking the Alaskan experience,²⁵ the idea is to place some revenues from extractives production into a fund and through that to pay cash directly to citizens, who would be taxed on the income. It establishes a close link between the citizen, the government, and the natural resources being produced.

This is *not* a replacement for an established revenue-sharing mechanism with or without a formula; if that is absent, local government activities and expenditures could not be financed. It also differs from reduced taxation, which is applicable only in countries where there is a large income tax base, a condition that does not apply to most resource-rich countries.²⁶

ARGUMENTS IN FAVOR OF CASH TRANSFER. The two main arguments advanced in support of direct distribution are based either on a governance proposition or on distribution and efficiency. The first argues that direct transfers can always be taxed back by the government, with the taxing relationship forming the basis for long-term improvements in governance and accountability. The second argues that direct transfers will be more equitable and efficient than

many mechanisms now used to provide either public goods or subsidies, and that they better reflect the proposition that resources belong to “the nation.” Fuel subsidies, for example, are very regressive as well as being distorting. An example of a country that has moved at least partly from fuel subsidies to transfers is the Islamic Republic of Iran. A key difference between these two arguments is that the former requires a large share of the rents to be transferred (to make the government dependent on taxes), while the latter does not.

ARGUMENTS AGAINST CASH TRANSFER. The strongest of these is that such schemes create entitlements (and an entitlement mentality) that soon become entrenched budgetary rigidities. Once direct payments to the population are granted, it is very difficult to abolish them or change them later if circumstances or policy priorities change. This is borne out by the experience in Alaska. Another strong counterargument is that government can pool resources to make large investments in, for example, education systems, health care, roads, and electricity projects. Individuals cannot coordinate these activities and hence there is a role for government to invest resource revenues. In economic terms, there are externalities that the private sector would not address if left to its own, leading to suboptimal efficiency and social outcomes.

Other counterarguments include the possibility that current beneficiaries of the distribution are likely to give little weight to the future and therefore invest too little. In any case, it is unfair to transfer the benefits of a depleting resource to the current generation only, without saving or investing for future generations. Also, governments are better informed on resource revenue flows, output levels, and price volatility than the general population, and governments are better placed than individuals to absorb revenue fluctuations. The problem of volatile revenues is also a difficult one for transfers. The mechanics of setting up a universal and accountable system have, however, become more feasible with the advent of new technology for citizen identification and payments. As yet, this appears to hold little interest to governments, although some, such as Mongolia, have been moving in this direction. For a few governments, the establishment of a database of its inhabitants will present problems, particularly in contested areas, where ethnicity and population size can be highly sensitive issues (for example, in Ethiopia’s Ogaden region and Sudan or Abyei in South Sudan).

Further, it is not clear why an increase in direct distribution (involving transfer of small sums of money to individual households) can stimulate “private” investment that

might lead to a better identification of investment priorities. In many resource-rich countries, the infrastructure gaps are so large that such direct transfers are unlikely to lead to improvements in infrastructure, or indeed to an offsetting against environmental damage (the Niger Delta being a good example of this). Direct distribution also carries the risk of capital flight to a country’s capital or to offshore accounts, exacerbating problems in local areas. Inequalities among localities could also end up being exacerbated. Private transfers, therefore, face a collective action problem in turning the rents into public goods. (It is not guaranteed, of course, that government manages this transformation well.)

IMPLEMENTATION. Beyond consideration of these arguments—several of which are in direct opposition to each other—the merits of direct distribution will depend on the particular mechanism chosen for affecting the transfer (for example, tax reduction, subsidy, social protection scheme, or citizen dividend) and its detailed specifications. For example, use of petroleum revenues to subsidize petroleum product prices in a petroleum-rich state may have political appeal, but it is distortionary, nonetheless, and often seriously so. The revenues could be poorly targeted, with the rich benefitting much more than the poor (except in the specific case of kerosene). Conditional social protection transfers, such as those linked to school attendance, can be very beneficial. In practice, a decision on direct distribution is very likely to depend on state-specific circumstances and available transfer mechanisms. Real technical constraints may hamper identifying beneficiaries of such schemes or building a transaction system for cash transfer delivery, electronic payment, and transfer systems, all of which need to be in place for a cash transfer to work.²⁷ Technological advances allowing biometric identification through mobile devices suggest that governments interested in developing such arrangements may have a greater chance of success than in the past.

One further issue that needs to be addressed is the need to stabilize transfer programs with respect to actual rent revenues. A degree of predictability is required so that central governments do not alter entitlements on an ad hoc basis. Programs need to allow the government flexibility in its macrofiscal management.

EXAMPLES. Experience of direct distribution has produced different and inconsistent lessons. Some might argue that direct distribution can indeed improve social welfare, pointing to examples of this in very low income countries with large oil revenues or in countries with large per-capita

revenues and low government accountability. Once allocation has been made, they could argue, the population's recognition of their entitlement to a share in resource benefits can be expected to increase demands for accountability on the part of the authorities. However, there are also cases where direct distribution can lead to perverse incentives and decreases in social welfare. A common assumption is that it will have negative effects on the labor supply, as individuals will have less incentive to work (Isakova, Plekhanov, and Zettelmeyer 2102, 11–12). It can also have the effect of starving the government of much-needed financing for domestic investment.

The most cited example of direct distribution is the Alaska Permanent Fund, established in 1976 by an amendment to the state constitution. To date, more than US\$1 billion has been distributed annually to 600,000 citizens. One of the reasons for its creation was to provide a safeguard against pressures from politicians to spend the oil revenue. However, the dividends have come to be seen as entitlements, and the government has borrowed substantially at times to finance increased spending (Ossowski et al. 2008, 10). This is not an approach that has yet found many followers among resource-rich economies.²⁸ The nearest comparable initiative is the Human Development Fund in Mongolia, which was set up in 2009 to make contributions to citizens such as cash handouts, payments of tuition fees, and possibly financing of other social benefits. The initial contribution to the fund came from a negotiated prepayment of royalties from a mining project. However, in contrast with Alaska are the decoupling of transfers from the performance of the underlying assets and their front loading.

In practice, as Barma et al. (2012, 170) note, “Governments endowed with natural resource wealth have provided wealth transfers to citizens in a variety of different ways.” Resource rents have been used to finance large transfer programs, even if not expressly linked to resource wealth; Iraq and Mexico are examples.

Debt reduction

Although not a spending choice and more a use of government revenues, paying off outstanding foreign debt with resource revenues is an option for resource-rich states with high debt levels. Many African states, for example, have international debts to pay to other countries and international financial institutions and plans to reduce dependence on external aid in their national budgets. Siphoning off revenues for this purpose dampens the potential for

cyclicality in spending, and it raises no domestic absorption issues. Its appeal lies in its positive impact on the state's credit standing, investor attitudes, and, most important, the cost of capital for the domestic private sector. However, it is only an option if the government is running an overall fiscal surplus. If not, the foreign public debt will simply be replaced by domestic public debt, leading to a rise in domestic interest rates if capital is not fully mobile and if the central bank does not accommodate the increase in domestic debt with a looser monetary policy.

Between 2002 and 2005, public debt as a proportion of GDP in several countries fell dramatically as a result of this kind of policy. In Saudi Arabia, it fell from 97 to 41 percent; in Russia from 35 to 14 percent; and in Qatar from 47 to 24 percent. Algeria went further in 2006 when it concluded an agreement with France to retire the full outstanding balance of its bilateral debt. Libya, too, paid off almost all of its external debt. As one former minister of Gabon notes, these countries' experiences “have taught us many lessons, one of which is that paying down debt early brings greater benefits than building up savings that earn a low rate of return” (Toungui 2006, 2).

Against these, rather positive, instances of debt reduction policies, it should be kept in mind that in many countries the debt may have been accumulated by a previous regime, creating political challenges for the successor government to mount a debt reduction. Also, if the country does not have access to financial capital at this stage in its development, how would a program of debt reduction reduce borrowing costs? Domestic borrowing costs are usually driven by short-term liquidity issues, so a significant debt reduction is unlikely to have any effect. Finally, there are some countries that will benefit from initiatives such as the Heavily Indebted Poor Countries Initiative, the Multilateral Debt Relief Initiative, or commercial debt buy-back initiatives in place to assist low income countries.²⁹ These may limit the value of a debt reduction program.

Adjusted natural capital

The revenues from extractives represent a transformation of natural capital into other assets. A depletion of this natural capital requires a corresponding increase in other forms of capital, such as financial assets or human capital, whether as savings or reinvestment. As noted, for some countries a departure from this principle may make sense with clear benefits probable from consumption in the domestic economy. However, if there is a strategy for replacing the natural capital lost from extraction with high quality physical and

human capital, some indicator will be required. In some cases, an indicator has been used to measure whether the depletion of natural capital has been compensated for by investment of extractives revenues in other assets such as education and physical infrastructure such as roads and water supply. Natural capital accounting can be a way of measuring growth in the context of long-term sustainability and can also influence spending choices (World Bank 2013). Botswana, for example, uses a sustainable budget index (the ratio of noninvestment to nonmineral revenues). However, there is no enforcement mechanism to ensure compliance, nor is there any guidance on the composition of public investment expenditure. In practice, mineral revenues “have been entirely devoted to investment in physical and human capital assets, and have not been used to finance recurrent spending” (ANRC 2016, 13).

7.9 REVENUE ALLOCATION AND SUBNATIONAL ISSUES

A major challenge for government policy in the EI sector is how to design a method of resource revenue allocation that takes into account a key fact of life: natural resources are very often unevenly spread geographically within, as well as across, countries. This has the potential to lead to wide disparities in income in decentralized systems and to claims that allocation should benefit producing areas disproportionately. Where different layers of government coexist, such as central, regional, and local, the resulting horizontal fiscal disparity requires a particular response, sometimes called “fiscal federalism.”³⁰

For both federal governments and devolved systems of government that are not strictly federal, revenue allocation issues between central and subnational governments have become increasingly common, particularly where countries have heterogeneous populations and centrifugal tendencies. First and foremost, the form of revenue allocation that results is one that follows from a political decision. In most countries, resources will be owned by the state, but in some, ownership will reside in provincial state bodies, and in the United States to a significant degree among private landowners. Coastal municipalities also receive rents, even from offshore hydrocarbons, as in Brazil. Sometimes the overall legal structure may be federal but issues of revenue sharing can readily arise among countries with looser, devolved structures.

Any form of EI revenue allocation entails a number of choices to be made. These include the scope of distribution, particularly geographical distribution across producing and

nonproducing regions, but also the objectives or outcomes sought by the distribution of revenues: compensation for social and environmental impacts, reduction of income inequality, or political economy imperatives, such as conflict mitigation and historical legacies, for example. Choices also include the method of distribution: should it be formula-based and, if so, what objective indicators should the formula include, or should cash transfers be used? Even more challenging is the need to find a path between objectives that compete with each other: a government may have to reconcile the aims of national cohesion and conflict avoidance, on the one hand, with local service delivery and effective macromanagement, on the other.

Research on revenue allocation suggests a useful distinction can be made between *revenue sharing* and *revenue assignment* (McLure 2003; Ahmad and Mottu 2003). The question that arises with respect to assignment is, to which level of government should resource revenue accrue in a multilayer system of government? Or, who should tax extractives, and how? In many cases, it will be the central, national level, but in some countries such as the United States and Canada it will be subnational. The question that arises about revenue sharing is different. If the national government obtains the revenue, how does it share it with the subnational governments? An option is to share the revenue *bases*, meaning that part of the revenue (arising from the application of a *single* fiscal regime to the sector) directly accrues to the national level and part to the subnational level (the extractive-producing regions). These questions raise vertical and horizontal balance issues.

Revenue assignment

For countries with federal and even unitary systems of government, the approach to revenue assignment will be influenced by the following considerations:

1. The generally superior institutional capacity of the national government
2. The ability of the national government to offset instability in resource revenues based on their larger budgets, more sources of nonresource income, greater access to credit markets, and the power to engage in monetary policy
3. The local costs of providing public services and infrastructure and the local social and environmental costs imposed by exploitation of the petroleum or mineral resource

4. The national government's ability to make statewide decisions on revenue use on the basis of assessments of economic efficiency and vertical and horizontal equity, offset in part by local government insistence on acquiring a major share of their "patrimony"
5. The prospect of enhanced accountability, expenditure program design, and implementation through subnational assignment of revenues
6. Issues of trust between local and national governments related to both distribution and expenditure of revenues

Balancing these considerations in practice is likely to prove very difficult and certainly complicates the task of integrated and comprehensive resource revenue management. Moreover, in the fiscal federalism literature there is a broad consensus that resource revenues should be centralized (they should accrue to the central government).³¹ In this respect, the United States and Canada are outliers, since in most resource-rich countries revenues are centralized and an intergovernmental transfer system is in place to share them. If there is a dilemma about balancing, it turns, on the one hand, on the value of institutional capacity building and technical assistance in public fiscal and expenditure management, at all levels of government, and, on the other, the importance of fostering effective dialogue and coordination. In fiscal decentralization, regional and subnational authorities may lack the capacity to manage revenues. This means that there is a role for the central ministries of economy and finance (and civil society bodies) to provide

assistance, supervision, and scrutiny at that level and ensure that an optimal utilization of the revenue occurs.

Revenue sharing

This is an intergovernmental financial relationship between the central government and subnational governments. Revenues from EI production could be collected in a single account and then distributed according to an agreed formula between the central and subnational governments.³² A derivation principle is often used, whereby each subnational government's share is related to the oil revenue that originates in its territory. The formula may be needs based or resource based. The criteria on which a formula is based may include population ratios; land mass; the need to ensure an equal standard of public services between regions or provinces; distinctions between current and future producing resources; central-national and local-provincial needs for expenditure; payments to producing areas; and compensation to provinces, districts, and indigenous peoples for resource development and any related environmental or social damage. In fairness, such criteria could also be used for many intergovernmental transfer systems.

In some cases, it may be appropriate to fix in legislation a percentage from the total amount for local communities. An alternative, procyclical approach would be to fix the percentage annually at the moment of approval of the national budget. As shown in box 7.4, in Nigeria the formula used by law requires the parliament to take several of these criteria into account before approving a formula every

Box 7.4 Examples of Revenue-Sharing Formulas

Indonesia

- The scheme was established in Law 33/2004.
- It requires 15 percent of oil revenues and 30 percent of gas revenues to be transferred to the originating provinces and the districts in them.
- Within this scheme there is a distinction between producing and nonproducing districts.
- Special asymmetric arrangements exist (for example, for Aceh) that allow receipt of 70 percent of the oil and gas revenues produced in their jurisdictions instead of the general arrangement.
- The allocation of revenue sharing is based on the actual, realized, oil and gas revenue. This means

that revenue sharing received by regions fluctuates with variations in the oil and gas price.

The net oil revenues are distributed 84.5 percent to the central government and 15.5 percent to the relevant subnational government. Net gas revenues are divided as 69.5 percent to the central government and 30.5 to the subnational government. Of the revenues received by the subnational government, 20 percent is allocated to the provinces, 40 percent to the producing district, and the remaining 40 percent is equally distributed among other districts within the province.

Revenue from mining, particularly from land rent and royalty, is shared between central and subnational

Box 7.4 Examples of Revenue-Sharing Formulas (continued)

governments. Of the land rent, 20 percent is allocated for the central government, while the remaining 80 percent is shared among the provinces (16 percent) and the producing districts (64 percent). The arrangement for the shared revenue from royalty is similar, with 32 percent for producing districts and 32 percent equally divided among the nonproducing districts within the province (article 14 Law 33/2004).

Iraq

The federal government as well as producing provinces and regions are given the authority to manage oil and gas extracted from present oil and gas fields. This is conditional on the distribution of revenues in proportion to the population distribution and specification of a share for previously disadvantaged areas (Constitution, article 112.1).

Articles 17 to 20 of Iraq's 2009 Budget Law outline the country's current revenue-sharing arrangements. "Sovereign expenditures" for the Council of Representatives, the administration of the national cabinet, the Ministry of Foreign Affairs, the Ministry of Defense, oil export production, and other national government functions are prioritized. Of the remaining hydrocarbon revenues, 17 percent is allocated to the Kurdistan Regional Government and the remainder is allocated to national ministries in other governorates (both hydrocarbon producing and nonhydrocarbon producing) in proportion to the population distribution and specific needs. The 2010 budget also includes a provision that will deliver US\$1 to producing governorates for each barrel of oil and refined fuel they produce.

Source: Blanchard 2010.

Nigeria

Parliament decides on a formula for distribution of oil revenues every five years. The constitution sets out criteria to be taken into account in the formula:

- Population
- Equality of states
- Internal revenue generation
- Land mass, with a minimum of 13 percent reserved for oil-producing states (article 162.2)

Oil-producing states receive 13 percent of revenues from the oil produced in their state, in addition to standard revenue allocations. The current vertical allocation formula, based on Presidential Executive order, is as follows:

- Federal government: 52.68 percent
- State government: 26.72 percent
- Local government: 20.60 percent

Sudan

Net oil revenues are split equally between the government of Sudan and the government of South Sudan, with 2 percent of oil revenue reserved for the producing states in accordance with their proportion of production (Comprehensive Peace Agreement, Wealth Sharing Protocol Arts 5.5–5.6).

Since independence, South Sudan appears to be continuing this practice. The National Legislative Assembly passed the Petroleum Law in April 2012 and in 2013 passed a petroleum revenue management bill. The latter states that counties in oil-producing states are to receive 3 percent of net petroleum revenues.

República Bolivariana de Venezuela

The constitution requires 15–20 percent of the national budget to be transferred to the states (article 167.4), and special shares are envisaged for states with hydrocarbons and mining activities (article 156.16).

Of the total, 80 percent is assigned to states, while municipalities receive 20 percent.

Until 2009, three main mechanisms served to decentralize public spending:

1. Constitutional revenue sharing: This arrangement consisted of the distribution of 20 percent of the ordinary fiscal income to subnational levels of government, of which 80 percent went to states and 20 percent to municipalities.
2. Special allocations law: This arrangement consisted of the distribution of a minimum 25 percent of the collected fiscal income to subnational levels of government. Of this, 42 percent went to state governments, 28 percent to municipalities, and 30 percent to communal councils.

(Box continues on the following page)

Box 7.4 Examples of Revenue-Sharing Formulas (continued)

3. Intergovernmental Decentralization Fund: This consisted of the distribution of no less than 15 percent of the income collected from the value-added tax (VAT) to subnational levels of government; 42 percent of this amount went to state governments, 28 percent to municipalities, and 30 percent to communal councils.

In 2010, the Intergovernmental Decentralization Fund was eliminated, and the Inter-Territorial Compensation

Source: Ríos, Ortega, and Scrofina 2012.

Overall source: Adapted from Haysom and Kane 2009.

Fund (FCI) was created. This fund does not have a rule for allocations. Instead, its income sources are decided by the executive, the subnational levels of government, and other sources defined by law.

The Federal Government Council decided to distribute the FCI funds in the following manner: 35 percent for communal councils, 37 percent for states, and 28 percent for municipalities. The 65 percent for states and municipalities is distributed considering population and a relative development index.

five years.³³ Iraq, Sudan, and the República Bolivariana de Venezuela have also adopted formulas but, as illustrated in box 7.4, these are different in character.

The approach taken in Indonesia merits comment. It was expressly designed to counter centrifugal tendencies and support the organizational integrity of the country by meeting demands from regions and local communities for a large measure of control over resource revenues. Under the scheme set up by Law 33/2004, the central government makes transfers quarterly, based on estimated profits for the current quarter and with an adjustment for the differences between projected and actual profits in the previous quarter transfers. Some delays have been reported in the transfers, a familiar concern among subnational authorities. There is also a transfer of oil and gas revenue indirectly to subnational governments through a general allocation transfer that forms the largest transfer to subnational entities. This is based on forward estimates. However, “There is an incentive for the central government to underestimate the revenue by assuming a low oil price” (Agustina et al. 2012, 14). An effect of the regime is to create a significant disparity across provinces and districts. For mining revenues, the amounts are much smaller and comprise land rents and royalties, which are shared between central and subnational governments, such as Papua New Guinea. The locations are often remote, and so mining has a significant impact on local development and generates employment for many local people. However, recent research has found the effect of the resource-sharing scheme to be one of creating significant disparity among provinces in terms of revenue sharing per capita.

EXAMPLE: NIGERIA. One consequence of a growing dependence on EI revenue at the expense of alternatives over time is evident from Nigeria. The local authorities have become increasingly dependent on the federal authorities, and not only for a share of revenue (they have become increasingly unable to generate revenue internally from alternatives such as agricultural produce). The federal government has assumed more responsibilities from the states and local governments on matters such as environment, defense, security, and transportation. This leads to the federal government arguing for a greater share of the revenues to discharge these responsibilities. State authorities have also annexed allocations that are intended for local government councils, the next layer of government down the chain (Idelare and Suberu 2012).

EXAMPLE: PERU. Dissatisfaction with the distribution of mining revenues in Peru led to the establishment of a mechanism for direct distribution of mining revenue from the central government to subnational government entities. The Canon Minero Law (2004) allows 50 percent of corporate income tax collected from mining companies to be earmarked in this way. The distributed amounts are to be spent on projects contributing to sustainable development by districts, provinces, and departments. Its impact has been primarily on infrastructure projects, but for provincial governments these revenues have been “transformational” for their revenue base (WGC 2011, 14). Its effectiveness is nonetheless dependent on sound governance and public fiscal management. It also requires an appropriate administrative capacity at the subnational

level to ensure that projects supported are ones that deliver tangible benefits to the local population.

An alternative approach in Peru is the Voluntary Contributions Program, which adds a social welfare component to the Canon Minero. Established in 2006 with a five-year duration, the idea was to promote social development through public-private partnerships between mining companies and their surrounding communities. Companies would agree to contribute a percentage of their profits toward projects compatible with a list of social development priorities. It was not an industrywide agreement but rather agreed with individual mining companies, as a way of responding to higher metals prices but avoiding a windfall profits tax. Not all mining companies joined the scheme, but the larger ones did. The four participating mining companies contributed 3 percent of profits after taxes, amounting to around US\$140 million for projects relating to social development among subnational governments (WGC 2012, 10). The scheme underlined how the mining industry could be a catalyst for sustainable development, and appeared to bring benefits to working relationships between the communities and the mining companies.

Delays in payment and a lack of transparency

These are among the most frequent concerns about revenue sharing. Sharing ought to be automatic on the basis of the agreed principles and formula, but in practice the fear of subnational governments that the payments will not be made in a timely fashion from the central account is often well founded. Their lack of trust in the central government may extend to fears of political interference and a lack of transparency about their share of the revenues (although the problem may also be attributable to institutional weaknesses). This has been a factor in negotiations about revenue sharing in Indonesia, Iraq, and Sudan. One solution may be to outsource the collection and sharing of revenues to a third party rather than leave them to the ministry of finance and/or treasury. An alternative approach to revenue sharing is to assign certain taxation powers to different levels of government. In Argentina, Brazil, Canada, and Sudan, for example, the state or provincial governments have the right to directly collect certain types of revenues (for example, royalties, fees, and excise or production taxes), leaving others to be collected by the central authority (for example, corporate income taxes and export charges). Revenues can be distributed by the particular level of government as it deems appropriate or according to its own set of rules. This has the advantage of circumventing the distrust that often exists

between the central government and regions, but it has the disadvantage of increased complexity, potential duplication of taxation and monitoring, and reduced competitiveness of national resources. Without an element of redistribution, such systems risk an unequal provision of public services between provinces or uneven levels of development. Each of the foregoing is evident in, respectively, Canada and the United Arab Emirates (Haysom and Kane 2009, 23–24).

The assumption behind revenue sharing according to a formula is that local representatives in subnational jurisdictions are better able to meet the diverse preferences and investment needs of the producing regions. The resources are physically located in the region even if legal ownership is vested in “the people” as a whole, and costs of EI development are all too often evident at the local level. However, tensions may develop among the various producing and nonproducing regions and districts, and indeed within a particular region in spite of this decentralization. Moreover, the common assumption in the fiscal federalism literature that subnational governments respond to the wishes of their constituents may be a brave one to make in the context of the EI sector of some countries (McLure 2003, 205).

Revenue volatility

A source of potential concern about subnational management is the considerable fluctuation in revenues that results from the overall budgetary process and commodity prices. An IMF study, which concluded that revenues should be fully centralized, included in its reasoning a concern about precisely this factor: revenue sharing between central and subnational levels transmits volatility in commodity prices to the subnational level (Ahmad and Mottu 2002). Some mechanism needs to be put in place to minimize the potential for unpredictability in fiscal transfers to subnational governments, which are likely to be less well placed to manage the macrofiscal risks because of their less diversified revenue base. A formula also needs to be found that shares the spending and saving decisions across all levels of government in a way that gives subnational governments confidence that savings made in their name will not be expropriated.

Delays in investing in projects and reduced levels of government service may be a consequence. In their review of the results of revenue sharing, the authors of a study on the Indonesian approach note, “The biggest danger remains that of heightened expectations concerning public services and improving living standards being unfulfilled. This could create a political backlash” (Agustina et al. 2012, 30).

There are other reasons for concern, however. In many countries, subnational administrations lack the technical expertise and administrative capacity—or even the authority—to utilize revenues to complement private investments with the kind of strategic public investments in related areas, such as infrastructure (ports, roads, power plants, and so on) and education to provide the necessary local skills. As a result, even if resources are allocated to the local level, management of their implementation might remain under the authority of the national government.

Revenue management laws

Sometimes the sharing among regions is enshrined in constitutional arrangements or in a dedicated piece of legislation such as a revenue-sharing law.³⁴ Any such rules should be clear and specific if they are to work. This formal approach to the design and adoption of a scheme should not be underestimated: its emergence from a formal, legal process can be a response to the lack of trust that is common in postconflict environments and present in many other countries. It can be key to establishing a consensus on the sharing of power over the resources and to balancing provincial demands for a direct share of locally generated resource revenues with equally strong claims that the resource wealth belongs to all citizens in the country. Revenue distribution can be as sensitive an issue as ownership of the resources themselves, and in some contexts even more sensitive.

The timing of the design of legal arrangements can have a crucial impact. Prior to the discovery of any resources, it will be much easier to reach an amicable result. As McLure (2003, 204) notes, “Decisions on revenue assignment can be made behind the ‘veil of ignorance,’ not knowing how much revenue will be at stake or which will be the oil-rich jurisdictions. Regional vested interests will not yet have arisen and a nationally oriented view of costs of compliance and administration, of distributional equity and of allocative efficiency is possible.” Once oil, gas, or other minerals are discovered, the context changes forever, and a different view of distribution issues is likely to dominate: how revenues are to be distributed between the central and subnational governments and among subnational governments. Brazil is an interesting case in this respect, because certain states and municipalities obtained a distinct fiscal advantage in 1988 by having a favorable allocation of hydrocarbons revenues written into a new constitution when those resources were relatively small. As a result, although the resource is federally owned and managed,

most of the revenues flow to the states and, unusually, to the municipalities. Often these revenues are generated from offshore production at a great distance from the states’ coasts (Anderson 2012, 390–91; Gobetti, Pinto, and de Carvalho Sardinha 2012).

In São Tomé and Príncipe, the revenue management law expressly sets out regional allocations but avoids any detailed requirements for priority sectors such as a poverty reduction strategy or a national development plan. Instead, there is only a general requirement that the revenues be used in “education, health, infrastructure, and rural development,” because the drafters considered more detailed limitations on future governments to be inconsistent with their democratic preferences; future governments “should be free to determine the details of their own expenditure choices within the ceilings” (Bell and Maurea Faria 2007, 294).

Any such law faces the risk that a future government may simply direct EI funds to its own short-term needs. Trying to mitigate this risk is a real challenge because fettering a future government is, as São Tomé and Príncipe concluded, not desirable either. In Alaska, a change in the legal regime for resource management was made more difficult by adoption of a provision in the state constitution. Article IX, section 15, states, “At least 25 percent of all mineral lease rentals, royalties, royalty sale proceeds, federal mineral revenue sharing payments and bonuses received by the State shall be placed in a permanent fund, the principles of which shall be used only for those income-producing investments specifically designated by law as eligible for permanent fund investments. All income from the permanent fund shall be deposited in the general fund unless otherwise provided by law.”

Contrasts among EI sectors

Allocation of revenues may well have different effects according to whether the revenues derive from oil and gas or mining. A revenue assignment scheme may alleviate tensions between governmental levels with respect to oil development in many cases—but not in all: Iraq and Nigeria are examples where difficulties have arisen. However, the impact of such arrangements on mining may be less dramatic. Essentially, the environmental and social costs of mining are borne at the local level while the benefits often accrue mostly at the central level. Arguably, the same could be said about oil and gas. This is a key dilemma in EI revenue allocation, even if it may be more vividly illustrated in the mining sector. Local impact is a critical dimension in

countries that have significant subnational and provincial rivalries or which have recently emerged from serious conflicts.

7.10 SUMMARY AND RECOMMENDATIONS

Two features of oil, gas, and mining create challenges for revenue management. First, the exhaustibility of the resource requires the identification of a resource horizon: the time profile of expected production and the probability of finding new reserves. Second, the volatility of commodity prices creates major challenges for resource-rich countries for the development of a macroeconomic framework that has the effect of smoothing impacts that can be sudden and of uncertain duration. To date, evidence suggests this has failed more often than not.

Country characteristics play differing roles in each state, but common variables that matter in managing revenues are capital scarcity, options for spending, and the political economy, because decisions on spending are highly political. The quality of institutions matters for both management and distribution of resource revenues. Accountability and the quality of public administration need the closest attention. These features can change over time and therefore require a periodic reassessment of the suitability of the revenue management scheme in place.

Even if no one-size-fits-all approach applies, and some fiscal rules may suit an advanced economy better than a capital-scarce developing country, the existence of fiscal rules in one form or another can assist policy makers by providing transparent benchmarks. They can play a role in providing robust checks and balances on public spending and at the same time factor in the kind of uncertainty that will always be present in resource markets. However, fiscal rules are neither necessary nor sufficient for the achievement of sound fiscal outcomes. Arguably, this conclusion also applies with respect to fiscal discipline at the subnational level.

However popular a resource fund is in current practice, the choice of a separate fund is not essential for savings from revenues, although it may make the management of saving easier. Equally, it is not a substitute for sound financial and economic management, even though it may be supportive of it.

The design of funds is highly diverse; sometimes the two aims of savings and stabilization are combined in a single fund. In many cases, there is much less transparency than is optimal, undermining the credibility and efficiency of the fund itself.

Direct distribution of revenues to citizens is to date little used but much discussed by experts; recent technological developments suggest that it has acquired greater potential than ever before and surely merits further exploration by governments as an option. It has redistributive potential to counter the widening inequality that can accompany extractives development. It could also complement savings measures.

Whatever the benefits of decentralization of revenues management, subnational administration may prove poor in practice. The administrations may, for example, lack the technical expertise, authority, or administrative capacity to complement private investments with strategic public investments.

Transparency is a critical variable in revenue management, because it is essential if a broad consensus is to be reached on policies. With respect to spending by funds, this should be provided for in a law that specifies their purpose and encourages independent oversight, such as parliamentary scrutiny.

7.11 PRACTICAL TOOLS

The complexity of revenue management is formidable, but the body of research into it is growing rapidly, as are the country case studies and an understanding of what *good practice* means. A particularly difficult area for many governments is how to allocate revenue between the central and subnational levels within their country borders. In this area, it is possible to distill the available knowledge around a set of policy considerations and guiding principles. This has been done by a Natural Resource Governance Institute (NRGI) team in connection with a country analysis that merits attention (Bauer, Shortell, and Delesgues 2016). The research team identified eight policy considerations that government officials should address:

1. What are the objectives of any resource revenue sharing regime in your country?
Without a clear sense of what the objectives are, the policy makers are going to find it very difficult to negotiate on details, such as a revenue-sharing formula. Among typical objectives of revenue-sharing schemes are the following: to compensate local communities for the negative impacts of extraction, to mitigate or prevent violent conflict, to respond to local claims for benefits based on ideas of local ownership, and to promote regional income equality between the resource-rich and non-resource-rich regions.

2. How would vertical distribution be determined?
A decision needs to be made on the share of revenues assigned to each level of subnational government, authority, or institution (the split). In Ghana 91 percent of the royalties are allocated to central government while 4.95 percent goes to municipal governments in producing areas and 4.05 percent to private landowners such as traditional institutions. The transferred revenues ought to match expenditures over the medium term.
3. Which revenue streams would be shared?
Some governments choose to share all revenue streams between levels of government but others choose only a selected few. Typical streams are royalties, signature bonuses, border taxes, and production entitlements. Are onshore activities to be considered only or both on- and offshore?
4. What revenue-sharing formula would be used?
The main kinds of formula are derivation based (a higher proportion accrues to the producing area), indicator based (where revenues are allocated according to needs, poverty for example), or one based on revenue-generating capacity (population, for example).
5. Who is to receive a share of the revenues?
It may seem that region- or state-level authorities are the obvious recipients, but in practice transfers can be made to traditional authorities, municipalities, landowners, and even directly to residents.
6. How can incentives be improved for efficient spending?
The way in which revenues are transferred—earmarked for specific expenditures such as education, for example—helps to determine whether or not they contribute to improving development outcomes.
7. What transparency and oversight mechanisms to verify accurate resource revenue transfers may be appropriate?
Without these, local governments cannot verify whether they are receiving their resource revenue entitlements under the law, and conflict may ensue.
8. How can a negotiating process for a revenue sharing formula be best conducted?
Consensus among the key stakeholders needs to be sought if there is to be long-term stability for the outcome. Key elements in this are to share knowledge, identify the stakeholders, and depoliticize the debate. Ultimately the outcome—the formula and the implementing rules—should be enshrined in a law.

Transparency

Little success in the management of resource revenues can be achieved without sound data on government revenues.

Guidance on this can be found in the IMF (2014b) “Template to Collect Data on Government Revenues from Natural Resources 2014.” The template is based on the IMF’s (2014a) *Government Finance Statistics Manual 2014*. This is the internationally accepted standard for compiling financial statistics.³⁵

The guidance in the template aims to facilitate the task of assigning the various revenues streams in the Extractive Industries Transparency Initiative (EITI) reports for each country to the corresponding category or subcategory in the template. Among the substantive points is that the definition of *reported revenues* needs to be clearly and publicly stated, with an independent agency, such as an auditor-general, assigned to assess whether revenues are being correctly and fully reported. International standards should be applied, particularly those that have been developed specifically for reporting on natural resources. The benefits can be expected to include an informed understanding and scrutiny of revenue flows by parliaments, citizens, and third parties. This should help ensure that revenues are used efficiently in accordance with national objectives, that revenues are all incorporated within the national budget, and the risk of misuse is reduced.

NOTES

1. For a comprehensive discussion of these issues see IMF (2007a), *Guide on Resource Revenue Transparency*.
2. For case studies of resource revenue management, various sources are available. For example, there are papers available from a joint project of the University of Oxford Centre for the Analysis of the Resource Rich Economies and the Revenue Watch Institute, covering the experiences of Cameroon, Chile, Kazakhstan, Malaysia, Nigeria, and Zambia. These can be found at <http://www.oxcarre.ox.ac.uk/index.php/Projects/revenue-watch.html>. The International Monetary Fund (IMF) Fiscal Affairs Department has produced a series of working papers and several collections of papers in book form over the past 10 years. A recent example is Arezki, Gylfason, and Sy (2011), *Beyond the Curse: Policies to Harness the Power of Natural Resources*. References to IMF working papers can be found throughout this chapter in the notes.
3. For example, the work of the Natural Resource Governance Institute and Columbia Center on Sustainable Investment, www.resourcegovernance.org/natural-resource-funds.
4. One caveat here is that the inclusion of all public investment as savings carries the risk that fiscal discipline will be undermined.
5. The typology is used in Budina et al. (2012) and in RWI and Vale (2014, 50). There are other kinds of fiscal rule but these are the most common by far. As table 7.1 indicates, fiscal rules can also be imposed.

6. Various IMF papers have been produced that illustrate how its own views on this subject have evolved in recent years. “Since the mid-2000s, calls for reconsidering the conventional advice (i.e., based on the PIH formula) and prompting investment spending of resource revenue in developing countries have emerged” Berg et al. (2012). Examples of literature that supports the use of fiscal rules include Collier et al. (2010); RWI and Vale (2014, 47–58); and Lassourd and Bauer (2014).

7. For example, Iimi (2006, 3) notes, in developing countries in particular, “The quality of regulation, such as the predictability of changes of regulations, and anticorruption policies, such as transparency and accountability in the public sector, are most important for effective natural resource management and growth.”

8. It will not be desirable if the fiscal position is unsustainable, if inflation is high, if the external current account of the balance of payments is in a nonfinanceable deficit, if public spending is of poor quality and resources are wasted, or if the public capital stock is decent. Specific circumstances are a crucial determinant of whether a significant allocation of revenues to spending is desirable.

9. The eight features are investment guidance, project development, and preliminary screening; formal project appraisal; independent review of appraisal; project selection and budgeting; project implementation; project adjustment; facility operation; and project evaluation. Core weaknesses are also identified by the study team to encourage reforms to focus resources where they are likely to have the greatest impact. These include poor project selection including wasteful projects; delays in design and completion of projects; corrupt procurement policies; cost overruns; incomplete projects; and a failure to operate and maintain assets effectively, resulting in benefits less than they should be.

10. Taking the case of Mongolia, one study has concluded that members of parliament have an incentive to overspend on smaller projects that bring benefits to specific geographical localities and to underspend on large infrastructure that would bring economic benefits to Mongolia as a whole. Large infrastructure projects carry a political risk because the political faction in control of the particular ministry involved would have access to very large rents and become politically too powerful. Anticipating this risk, members of parliament are reluctant to fund these projects, even though they are essential for national growth (Hasnain, 2011).

11. There is a large body of research now available, with the work of the Natural Resource Governance Institute project standing out for comprehensiveness: <http://www.resourcegovernance.org/natural-resource-funds#>. On mining, there is Wall and Pelon (2011). For oil see Bacon and Tordo (2006). For funds in general see Gelb et al. (2014).

12. For example, see Shabsigh and Ilahi’s (2007) “Looking beyond the Fiscal: Do Oil Funds Bring Macroeconomic Stability?” and Villafuerte, Lopez-Murphy, and Ossowski’s (2010) “Riding the Roller Coaster: Fiscal Policies of Non-renewable Resource Exporters in Latin America and the Caribbean.” For earlier work on this theme, see the volume edited by Davis, Ossowski, and Fedilino (2003), *Fiscal Policy Formulation and Implementation in Oil Producing Countries*.

13. The generic acronym for a medium-term framework for fiscal policy is MTF, connecting the annual budget to longer-term policies and sustainability objectives and enhancing risk analysis. A simple form of MTF is the medium-term fiscal framework (MTFF). More advanced in terms of their implications for how budgets are put together are medium-term budget frameworks (MTBFs) and medium-term expenditure frameworks (MTEFs). The former incorporates realistic projections of spending by individual agencies that allocate resources in line with strategic priorities, consistent with overall fiscal objectives of the MTFF. The latter takes the analysis further and provides more detailed costing within sectors and performance measures. Their implementation, especially in the more advanced forms, has to be consistent with administrative capacity.

14. For a discussion of MTFs in general and further examples, see Ossowski et al. (2008, 20–23).

15. There are three possible approaches: (1) use of futures to fix the price a government will receive in the future, giving it certainty about the oil revenue it would receive for budgetary purposes; (2) use of options, which would work like the purchase of an insurance policy; and (3) engagement by the government with a financial institution to provide a tailor-made arrangement to hedge the oil price risk according to the government’s risk preferences and the cost of the arrangement (over the counter, including commodity swaps, bonds or loans or combinations of all instruments). See P. Daniel (2007, 41).

16. Algeria, Colombia, and the U.S. state of Texas are reputed to have experimented with it. The Finance Ministry of Kazakhstan was reported to be in discussions to develop a hedging program with Goldman Sachs in November 2014 due to a fall in oil prices, but by early 2016 had not proceeded with this option. See Tully 2014. Russia was similarly reported to be preparing the technical infrastructure necessary to implement an oil hedging program like that of Mexico. This was very much a matter of preparation for possible future use, however (Farchy 2016).

17. The program is discussed in detail by Duclaud and Garcia (2012).

18. Between 1993 and 1994, Juan Pablo Davila (the company’s former chief of the future markets department), conducted several deals, mainly copper transactions, without a

production backup and at a price that was lower than the company's official quotation, generating total losses of US\$218.3 million (Henriquez 2003).

19. See also OECD and UN (2011), which looks at the economies of five African countries and analyses their diversification profiles and strategies, noting that the small size of some African economies means there are benefits in terms of economies of scale from regional initiatives, and opportunities from South-South linkages. For the Middle East, see Hvidt (2013).

20. "The mining sector continues to be the backbone of Botswana's economy, despite efforts to diversify" (ANRC 2016, 7).

21. The RWI study includes case studies of Azerbaijan, Botswana, Chile, Indonesia, Kazakhstan, and Malaysia. It finds that firm commitments, sound macroeconomic policies, investments in infrastructure, and strong institutions are critical to success.

22. For example, IFC (2013) and other literature cited in chapters 2 and 9 of the *Sourcebook*.

23. See the literature review in chapter 2 of the *Sourcebook*.

24. If the fund were to be used to invest domestically, it would not be offsetting the risks associated with Dutch Disease and would be vulnerable to special interests and rent seeking.

25. Fifty percent of the state's oil revenues are pooled in a sovereign wealth fund with five-year average earnings divided among the population. By contrast, in Bolivia a conditional cash transfer program was developed with hydrocarbon revenue. Bono Juancito Pinto was used to incentivize primary school enrolment and completion and Bono Juana Azurduy was designed to incentivize uninsured new mothers to seek medical care during and after pregnancy.

26. In developing countries, VAT and sales taxes are more important proportionately than in advanced countries, because direct tax revenues are weak. It is possible to distribute resource revenues in the form of low VAT rates. There are very low or no sales taxes or VATs in the Persian Gulf states, for example. That is one way in which rents are distributed to the population there. Another example is the low taxes adopted in Alberta, Canada.

27. For an optimistic view of the potential of direct cash transfers, see Moss 2011 and Gelb and Decker 2011.

28. Some see it as having applications in such contexts, however. See Moss 2012.

29. Learn more about IMF and World Bank initiatives at "Debt Relief under the Heavily Indebted Poor Countries (HIPC) Initiative," April 8, 2016, <http://www.imf.org/external/np/exr/facts/hipc.htm>, and "The Multilateral Debt Relief Initiative," <https://www.imf.org/external/np/exr/facts/mdri.htm>.

30. The literature on this subject is very extensive but the following provide a good start: Ahmad and Brosio 2006; Ter-Minassian 1997; and Boadway and Shah 2009. It can be relevant for the study of fiscal arrangements in devolved systems of government that are not strictly federal. Another good analysis is by McKenzie 2006, 247 et seq.

31. Various authors in Davis, Ossowski, and Fedelino 2003 posit this view. For example, Brosio (2003, 243) notes, "The theory hardly recommends revenues from oil and gas as an ideal source of finance for subnational governments—with the exception of funds to compensate social and environmental damages and to finance additional needs for infrastructure in the producing areas."

32. For a review of the options that is still useful today, see Ahmad and Mottu 2003.

33. For a review of many related issues in the Nigerian context, see Ojo 2010.

34. For a good discussion of this, see Haysom and Kane 2009.

35. There is also a pillar to the IMF's Fiscal Transparency Code, devoted to resource revenue management, that sets out transparency practices in certain areas. See IMF (2016), "How Does the IMF Encourage Greater Fiscal Transparency."

REFERENCES

- Agustina, C. D., E. Ahmad, D. Nugroho, and H. Siagian. 2012. "Political Economy of Natural Resource Revenue Sharing in Indonesia." Asia Research Centre Working Paper 55, Asia Research Centre, London.
- Ahmad, E., and G. Brosio, eds. 2006. *Handbook of Fiscal Federalism*. Northampton MA: Edward Elgar.
- Ahmad, E., and E. Mottu. 2003. "Oil Revenue Assignments: Country Experiences and Issues." In *Fiscal Policy Formulation and Implementation in Oil-Producing Countries*, edited by J. Davis, R. Ossowski, and A. Fedelino, 216–42. Washington, DC: IMF.
- Alba, Eleodoro Mayorga. 2009. *Extractive Industries Value Chain*. Extractive Industries for Development Series 3. Washington, DC: World Bank.
- Allen, R., and D. Radev. 2010. "Extrabudgetary Funds." IMF Technical Note, International Monetary Fund, Washington, DC.
- Anderson, G. 2012. "Reflections on Oil and Gas in Federal Systems." In *Oil and Gas in Federal Systems*, edited by George Anderson, 371–408. New York: Oxford University Press.
- ANRC (Africa Natural Resources Center). 2016. *Botswana's Mineral Revenues, Expenditure and Savings Policy: A Case Study*. Abidjan, Côte d'Ivoire: African Development Bank.

- Arezki, R., A. Dupuy, and A. Gelb. 2012. "Spend or Send." *Finance and Development* (December). <http://www.imf.org/external/pubs/ft/fandd/2012/12/arezki.htm>.
- Arezki, Rabah, Thorvaldur Gylfason, and Amadou Sy, eds. 2011. *Beyond the Curse: Policies to Harness the Power of Natural Resources*. Washington, DC: International Monetary Fund.
- Bacon, Robert, and Silvana Tordo. 2006. *Experiences with Oil Funds: Institutional and Financial Aspects*. Washington, DC: World Bank and Energy Sector Management Assistance Program.
- Barma, Naazneen H., Kai Kaiser, Tuan Minh Le, and Lorena Vinuela. 2012. *Rents to Riches? The Political Economy of Natural Resource-Led Development*. Washington, DC: World Bank.
- Barnett, S., and R. Ossowski. 2003. "Operational Aspects of Fiscal Policy in Oil-Producing Countries." In *Fiscal Policy Formulation and Implementation in Oil-Producing Countries*, edited by J. Davis, R. Ossowski, and A. Fedelino, 45–81. Washington, DC: IMF.
- Bauer, Andrew, and Malan Rietveld. 2014. "Natural Resource Fund Governance: The Essentials." New York: Revenue Watch Institute and Vale Columbia Center on Sustainable International Investment. <http://www.resourcegovernance.org/natural-resource-funds>.
- Bauer, A., P. Shortell, and L. Delesgues. 2016. *Sharing the Wealth: A Roadmap for Distributing Myanmar's Natural Resource Revenues*. New York: Natural Resources Governance Institute.
- Bell, Joseph C., and Teresa Maurea Faria. 2007. "Critical Issues for a Revenue Management Law." In *Escaping the Resource Curse*, edited by M. Humphreys, J. D. Sachs, and J. Stiglitz, 286–321. New York: Columbia University Press.
- Berg, A., R. Portillo, S.-C. S. Yang, and L. F. Zann. 2012. "Public Investment in Resource-Abundant Developing Countries." IMF Working Paper WP/12/274, International Monetary Fund, Washington, DC.
- Blanchard, Christopher M. 2010. *Iraq: Oil and Gas Sector, Revenue Sharing, and U.S. Policy*. Washington, DC: Congressional Research Service.
- Boadway, R., and A. Shah. 2009. *Fiscal Federalism: Principles and Practice of Multi-Order Governance*. New York: Cambridge University Press.
- Botswana (Ministry of Finance and Development Planning). 2013. *NDP 10 towards 2016*. Gaborone. http://www.cabri-sbo.org/uploads/files/Documents/botswana_2013_execution_external_mid-year_review_ministry_of_finance_sadc_english_1.pdf.
- Brosio, G. 2003. "Oil Revenue and Fiscal Federalism." In *Fiscal Policy Formulation and Implementation in Oil-Producing Countries*, edited by J. Davis, R. Ossowski, and A. Fedelino, 243–69. Washington, DC: IMF.
- Budina, N., T. Kinda, A. Shaechter, and A. Weber. 2012. "Fiscal Rules at a Glance: Country Details from a New Dataset." IMF Working Paper WP/12/273, International Monetary Fund, Washington, DC.
- Calder, J. 2014. *Administering Fiscal Regimes for Extractive Industries: A Handbook*. Washington, DC: International Monetary Fund.
- Collier, P., R. van der Ploeg, M. Spence, and T. Venables. 2010. "Managing Resource Revenues in Developing Countries." *IMF Staff Papers* 57 (1): 84–118.
- Collier, P., and A. J. Venables. 2008. "Managing Resource Revenues: Lessons for Low-Income Countries." OxCarre Research Paper 2008-12. Oxford, UK: University of Oxford. <http://users.ox.ac.uk/~econpco/research/pdfs/ManagingResourceRevenues.pdf>.
- Coxhead, I. 2007. "A New Resource Curse? Impacts of China's Boom on Comparative Advantage and Resource Dependence in Southeast Asia." *World Development* 35 (7): 1099–119.
- Dabán, Teresa. 2011. "Strengthening Chile's Rule-Based Fiscal Framework." IMF Working Paper WP/11/17, International Monetary Fund, Washington, DC.
- Daniel, James A. 2001. "Hedging Government Oil Price Risk." IMF Working Paper WP/01/185, International Monetary Fund, Washington, DC.
- . 2003. "Hedging Government Oil Price Risk." In *Fiscal Policy Formulation and Implementation in Oil-Producing Countries*, edited by J. Davis, R. Ossowski, and A. Fedelino, 359–80. Washington, DC: IMF.
- Daniel, P. 2007. "Petroleum Revenue Management: An Overview." (Unpublished paper for internal discussion at IMF.)
- Davis, J., R. Ossowski, J. Daniel, and S. Barnett. 2001. *Oil Funds: Problems Posing as Solutions?* Washington, DC: International Monetary Fund.
- Davis, J., R. Ossowski, and A. Fedelino, eds. 2003. *Fiscal Policy Formulation and Implementation in Oil-Producing Countries*. Washington, DC: International Monetary Fund.
- Duclaud, J., and G. Garcia. 2012. "Mexico's Oil Price-Hedging Program." In *Commodity Price Volatility and Inclusive Growth in Low-Income Countries*, edited by R. Arezki, C. A. Pattillo, M. Quintyn, and M. Zhu, chap. 15, 297–311. Washington, DC: International Monetary Fund.
- Farchy, Jack. 2016. "Russia Considers Hedging Part of Its Oil Revenues." *Financial Times*, January 22.
- Frankel, Jeffrey. 2011. "How Can Commodity Exporters Make Fiscal and Monetary Policy Less Procyclical?"

- Harvard Kennedy School Faculty Research Working Paper 11-015. Cambridge, MA: Harvard Kennedy School.
- Gelb, A. 2011. "Economic Diversification in Resource-Rich Countries." In *Beyond the Curse: Policies to Harness the Power of Natural Resources*, edited by R. Arezki, T. Gylfason, and A. Sy, 55–80. Washington, DC: International Monetary Fund.
- . 2014. "Should Canada Worry about a Resource Curse?" Calgary, Alberta: University of Calgary School of Public Policy. <http://www.eisourcebook.org/cms/Jan%202014/Should%20Canada%20Worry%20About%20a%20Resource%20Curse.pdf>.
- Gelb, A., and C. Decker. 2012. "Cash at Your Fingertips: Biometric Technology for Transfers in Developing Countries." *Review of Policy Research* 29 (1): 91–117. <http://www.cgdev.org/content/publications/detail/1425165/>.
- Gelb, A., S. Tordo, H. Halland, with N. Arfaa and G. Smith. 2014. "Sovereign Wealth Funds and Long-Term Development Finance: Risks and Opportunities." World Bank Policy Research Working Paper Series 6776, World Bank, Washington, DC.
- Gobetti, S. W., H. Q. Pinto Jr, and J de Carvalho Sardinha. 2012. "Brazil." In *Oil and Gas in Federal Systems*, edited by George Anderson, 61–87. New York: Oxford University Press.
- Hasnain, Zaid. 2011. "Incentive Compatible Reforms: The Political Economy of Public Investments in Mongolia." Policy Research Working Paper 5667, World Bank, Washington, DC.
- Haysom, N., and S. Kane. 2009. *Negotiating Natural Resources for Peace: Ownership, Control and Wealth-Sharing*. Geneva: Centre for Humanitarian Dialogue. http://comparativeconstitutionsproject.org/files/resources_peace.pdf.
- Henriquez, Victor. 2003. "Codelco Recovered 47 Percent of Losses Generated by Davila." *Santiago Times*, 17 March. <http://santiagotimes.cl/2003/03/17/codelco-recovered-47-percent-of-losses-generated-by-davila/>.
- Hvidt, Martin. 2013. "Economic Diversification in GCC Countries: Past Record and Future Trends." London: LSE/Kuwait Programme on Development, Governance and Globalisation in the Gulf States.
- Idelare, Wumi, and Rotimi Suberu. 2012. "Nigeria." In *Oil and Gas in Federal Systems*, edited by George Anderson, 227–56. New York: Oxford University Press.
- IFC (International Finance Corporation). 2013. *Fostering the Development of Greenfield Mining-Related Transport Infrastructure through Project Financing*. Washington, DC: IFC.
- Iimi, Atsushi. 2006. "Did Botswana Escape from the Resource Curse?" IMF Working Paper WP/06/138, International Monetary Fund, Washington, DC.
- IMF (International Monetary Fund). 2007a. *Guide on Resource Revenue Transparency*. Washington, DC: IMF. <http://www.imf.org/external/np/pp/2007/eng/051507g.pdf>.
- . 2007b. *The Role of Fiscal Institutions in Managing the Oil Revenue Boom*. Washington DC: IMF.
- . 2012. "Botswana: Staff Report for the 2012 Article 4 Consultation." IMF Country Report 12/234. Washington DC: IMF. <https://www.imf.org/external/pubs/cat/longres.aspx?sk=26166.0>.
- . 2014a. *Government Finance Statistics Manual 2014*. Washington, DC: IMF. <https://www.imf.org/external/Pubs/FT/GFS/Manual/2014/gfsfinal.pdf>
- . 2014b. "Template to Collect Data on Government Revenues from Natural Resources 2014." Washington, DC: IMF.
- . 2015a. "Background Notes." *Fiscal Monitor*, October. Washington, DC: IMF.
- . 2015b. "The Commodities Roller Coaster: A Fiscal Framework for Uncertain Times." *Fiscal Monitor*, October. Washington, DC: IMF.
- . 2016. *How Does the IMF Encourage Greater Fiscal Transparency*. Washington, DC: IMF, April 6. <https://www.imf.org/external/np/exr/facts/fiscal.htm>.
- Isakova, A., A. Plekhanov, and J. Zettelmeyer. 2012. "Managing Mongolia's Resource Boom." EBRD Working Paper 138, European Bank for Reconstruction and Development, London.
- Kumhof, Michael, and Douglas Laxton. 2009. "Chile's Structural Fiscal Surplus Rule: A Model-Based Evaluation." IMF Working Paper WP/09/88, International Monetary Fund, Washington, DC.
- Lassourd, T., and A. Bauer. 2014. "Fiscal Rule Options for Petroleum Management in Uganda." Revenue Watch Institute, New York.
- Liebenenthal, A., R. Michelitsch, and E. Tarazona. 2005. *Extractive Industries and Sustainable Development: An Evaluation of the World Bank Group Experience*. Washington, DC: World Bank.
- McKenzie, Kenneth J. 2006. "Fiscal Federalism and the Taxation of Nonrenewable Resources." In *Perspectives on Fiscal Federalism*, edited by R. M. Bird and F. Vaillancourt, 247–65. Washington, DC: World Bank.
- McLure, Charles E. Jr. 2003. "The Assignment of Oil Tax Revenue." *Fiscal Policy Formulation and Implementation in Oil-Producing Countries*, edited by J. Davis, R. Ossowski, and A. Fedelino, 204–15. Washington, DC: IMF.

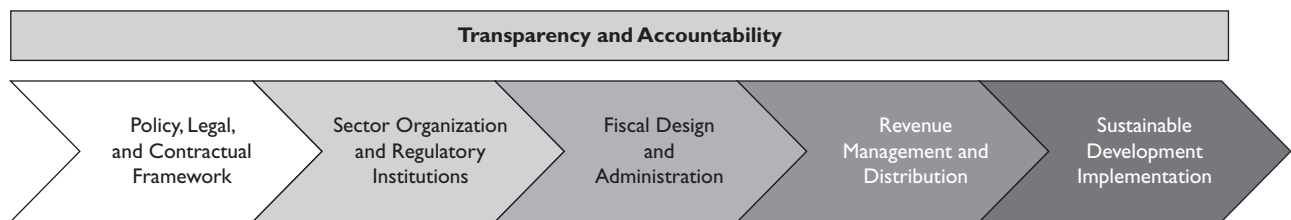
- Moss, Todd. 2011. "Oil to Cash: Fighting the Resource Curse through Cash Transfers." CGD Working Paper 237, Center for Global Development, Washington, DC. http://www.cgdev.org/files/1424714_file_Oil2Cash_primer_FINAL.pdf.
- . ed. 2012. *The Governor's Solution: How Alaska's Oil Dividend Could Work in Iraq and Other Oil-Rich Countries*. Washington DC: Center for Global Development. <http://www.cgdev.org/content/publications/detail/1426542>.
- NRGI (Natural Resource Governance Institute) and CCSI (Columbia Center on Sustained Development). 2014. *Managing the Public Trust: How to Make Natural Resource Funds Work for Citizens*. New York: NRG. http://ccsi.columbia.edu/files/2014/09/NRF_Complete_Report_EN.pdf.
- OECD (Organisation for Economic Co-operation and Development) and UN (United Nations). 2011. *Economic Diversification in Africa*. Paris and New York: OECD and UN.
- Ojo, E. 2010. "The Politics of Revenue Allocation and Resource Control in Nigeria: Implications for Federal Stability." *Federal Governance* 7 (1): 15–38.
- Ossowski, R., M. Villafuerte, P. A. Medas, and T. Thomas. 2008. *Managing the Oil Revenue Boom: The Role of Fiscal Institutions*. Washington, DC: International Monetary Fund.
- Primus, Keyra. 2016. "Fiscal Rules for Resource Windfall Allocation: The Case of Trinidad and Tobago," IMF Working Paper WP/16/188. IMF, Washington, DC. <https://www.imf.org/external/pubs/ft/wp/2016/wp16188.pdf>.
- Rajaram, A., T. Minh Le, N. Biletska, and J. Brumby. 2010. "A Diagnostic Framework for Assessing Public Investment Management." Policy Research Working Paper 5397, World Bank, Washington, DC.
- Ríos, Germán, Federico Ortega, and J. Sebastián Scrofina. 2012. "Sub-national Revenue Mobilization in Latin America and Caribbean Countries: The Case of Venezuela." IDB Working Paper Series IDB-WP-300, International Development Bank, Washington, DC.
- Rodríguez, Pedro L., José R. Morales, and Francesco J. Monaldi. 2012. "Direct Distribution of Oil Revenues in Venezuela: A Viable Alternative?" Working Paper 306, Center for Global Development, Washington, DC. <http://www.cgdev.org/publication/direct-distribution-oil-revenues-venezuela-viable-alternative-working-paper-306>.
- RWI (Revenue Watch Institute). 2012. "Diversification in Resource-Dependent Countries." London: NRG. <http://www.resourcegovernance.org/analysis-tools/publications/diversification-resource-dependent-countries>.
- RWI and Vale (Vale Columbia Center for Sustainable Investment). 2014. *Managing the Public Trust: How to Make Natural Resources Funds Work for Citizens*. New York: RWI and Vale.
- Shabsigh, G., and N. Ilahi. 2007. "Looking beyond the Fiscal: Do Oil Funds Bring Macroeconomic Stability?" IMF Working Paper WP/07/96, International Monetary Fund, Washington, DC.
- Ter-Minassian, T., ed. 1997. *Fiscal Federalism in Theory and Practice*. Washington, DC: International Monetary Fund.
- . 2007. "Fiscal Rules for Subnational Governments: Can They Promote Fiscal Discipline?" *OECD Journal on Budgeting* 6: 1–11.
- Toungui, Paul. 2006. "Spend Now or Save?" *Finance and Development Magazine of the IMF* 43 (4). <http://www.imf.org/external/pubs/ft/fandd/2006/12/toungui.htm>.
- Tully, Andy. 2014. "Kazakhstan to Use National Fund for Oil Price Damage Limitation." *Oilprice.com*, November 11. <http://oilprice.com/Energy/Oil-Prices/Kazakhstan-To-Use-National-Fund-For-Oil-Price-Damage-Limitation.html>.
- van der Ploeg, R. 2012. "Managing Oil Windfalls in the CEMAC." In *Oil Wealth in Central Africa: Policies for Inclusive Growth*, edited by B. Akitoby and S. Coorey, 89–109. Washington, DC: International Monetary Fund.
- Villafuerte, M., P. Lopez-Murphy, and R. Ossowski. 2010. "Riding the Roller Coaster: Fiscal Policies of Non-renewable Resource Exporters in Latin America and the Caribbean." IMF Working Paper WP/10/251, International Monetary Fund, Washington, DC.
- Wall, E., and R. Pelon. 2011. *Sharing Mining Benefits in Developing Countries: The Experience with Foundations, Trusts and Funds*. Washington, DC: World Bank.
- World Bank. 2013. "Growing Number of Countries Factoring Nature's Value into Economic Decisions." April 22. Washington, DC: World Bank. <http://www.worldbank.org/en/news/feature/2013/04/22/governments-embrace-natural-capital-accounting>.
- WGC (World Gold Council). 2011. *The Economic Contribution of Large-Scale Gold Mining in Peru*, 2nd ed. London: World Gold Council. <http://www.opml.co.uk/sites/default/files/The%20economic%20contribution%20of%20large-scale%20gold%20mining%20in%20Peru.pdf>.
- . 2012. *The Socio-Economic Contribution of Gold Mining in Peru*. London: World Gold Council.

OTHER RESOURCES

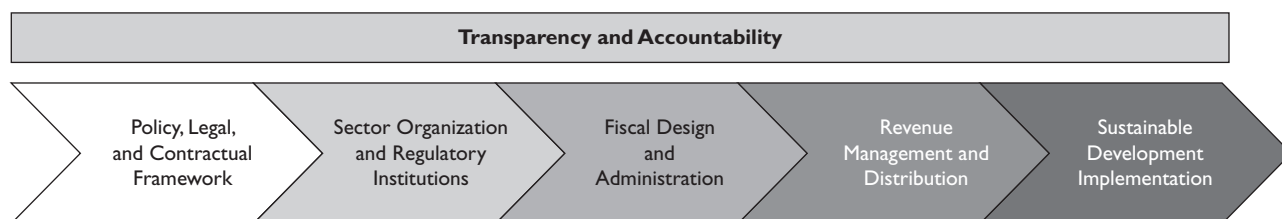
- Akitoby, B., and S. Coorey, eds. 2012. *Oil Wealth in Central Africa: Policies for Inclusive Growth*. Washington, DC: International Monetary Fund.
- Asfaha, S. 2007. *National Revenue Funds: Their Efficacy for Fiscal Stability and Inter-Generational Equity*. Winnipeg, Canada: International Institute for Sustainable Development. https://www.iisd.org/pdf/2007/trade_price_nat_rev_funds.pdf.
- Bauer, Andrew. 2013. *Subnational Oil, Gas and Mineral Revenue Management*. New York: Natural Resource Governance Institute. http://www.resourcegovernance.org/sites/default/files/Sub_Oil_Gas_Mgmt_20151125.pdf.
- Bremer, T. S. van den, and Rick Van der Ploeg. 2012. "Managing and Harnessing Volatile Oil Windfalls." OxCarre Research Paper 85. University of Oxford, Oxford, UK. [http://www.oxcarre.ox.ac.uk/files/OxCarreRP201285\(2\).pdf](http://www.oxcarre.ox.ac.uk/files/OxCarreRP201285(2).pdf).
- Collier, Paul. 2012. "Savings and Investment Decisions in Resource-Rich Low-Income Countries." In *Commodity Price Volatility and Inclusive Growth in Low-Income Countries*, edited by Rabah Arezki, Catherine Pattillo, Marc Quintyn, and Min Zhu. 87–103. Washington, DC: International Monetary Fund.
- Daniel, P., M. Keen, and C. McPherson, eds. 2010. *The Taxation of Petroleum and Minerals: Principles, Problems and Practice*. Oxford: Routledge.
- Natural Resource Governance Institute (NRGI). "Natural Resource Funds." London: NRGI. <http://www.resourcegovernance.org/natural-resource-funds>.
- NRGI (Natural Resource Governance Institute). 2016. *Natural Resource Revenue Sharing*. London: NRGI. <http://www.resourcegovernance.org/analysis-tools/publications/natural-resource-revenue-sharing>.
- Palley, T. 2003. "Combating the Natural Resource Curse with Citizen Revenue Distribution Funds: Oil and the Case of Iraq." *Foreign Policy in Focus: Special Report*, 1–12. http://www.thomaspalley.com/docs/articles/economic_development/natural_resources_curse.pdf.
- Sachs, Jeffrey. 2007. "How to Handle the Macroeconomics of Oil Wealth." In *Escaping the Resource Curse*, edited by Macartan Humphreys, Jeffrey D. Sachs, and Joseph E. Stiglitz, 173–193. New York: Columbia University Press.

PART III

Toward Good Governance



Transparency and Accountability



8.1 KNOWLEDGE CORE

There is no alternative

Investors and governments in resource-rich countries now have no choice but to engage with evolving new international norms and standards on transparency and accountability. Legal norms are being adopted in the home states of many large extractives firms that require them to meet transparency standards. Governments are increasingly becoming engaged with the requirements of the Extractives Industries Transparency Initiative (EITI).

Why?

The poor record of governance in many resource-rich states and its damaging effects on their development have encouraged a consensus around transparency as a policy response. The guiding idea behind the new norms, standards, and legal rules is that if more information is available to the public, governments and extractive industries (EIs) will

become more accountable and resource revenues will be better spent, to the advantage of the countries concerned. It has become a cornerstone of good practice that EI companies increasingly must comply with or face strict penalties.

In light of the large sums of money involved with EI sector activities, it is hardly surprising that it has led to high and pervasive levels of corruption all along the EI Value Chain.¹ Advocates of greater transparency argue that it provides safeguards against many of the powerful incentives for corruption, such as high entry costs, the multiplicity of parties involved, the technological complexity of resource development, complex revenue accounting, and traditions of sector secrecy.² Transparency and accountability are now thought to be critical to combat these and permit the efficient and prudent management of natural resources and their revenues throughout the EI Value Chain. For that reason, the *Sourcebook* treats them as a cross-cutting topic. Transparency can limit the opportunities for misuse of power and corruption, while accountability can ensure that those entrusted with the management of public resources are held responsible for their actions or inactions.

Limits to this focus

Transparency is not an end in itself. To be effective, it must be combined with effective stakeholder dialogue in order to achieve accountability. Improving transparency and accountability requires multiple measures, both voluntary (among many stakeholders) and mandatory (regulatory). For several years, global norms and standards have been emerging, but wide differences exist in the weight given to them by particular players and in their manner of implementation. Voluntary initiatives led primarily by civil society or international agencies have forged ahead of mandatory measures for many reasons. In the case of both types of measures, questions that arise in the shaping of global norms and standards include the following (IMF 2007b):

- What is an appropriate level of contract disclosure?
- How can host-state and investor-state transparency requirements be balanced?
- What is the best way to engage citizens more directly in policy formulation and monitoring processes and outcomes?

What does cross-cutting mean?

Transparency and accountability are cross-cutting topics because they apply to all segments along the EI Value Chain. They call for the following:

- Transparency around the decision to extract
- Transparent and competitive procedures for issuing licenses and allocating mineral or hydrocarbon exploration or production rights in the design of legal, contractual, and policy frameworks
- Competent and noncorrupt institutions with clear and nonoverlapping mandates in the regulation and monitoring of operations
- Publicly reported fiscal regimes that avoid nonpublished special deals and minimize tax avoidance and evasion in the collection of taxes
- Transparent revenue management
- Transparent and participatory budgeting based on development priorities

If there is a lack of transparency at any point in the EI Value Chain, a spread of misinformation may result, sowing mistrust in the management of the resources. In turn, this can lead to instability and, ultimately, to conflict. These topics are, therefore, dealt with in the individual chapters on the EI Value Chain as well as in the following material.

8.2 DEFINITION AND SCOPE

Under a broad definition to encompass its many objectives, *transparency* refers to the degree to which information is available to outsiders that enables them to have an informed voice in decisions and to assess the decisions made by insiders. Transparency issues in the EI sector are diverse and relate to laws and regulations, policies, administration, revenues, expenditures, and other factors. While this list might apply to all economic sectors, its coverage is especially significant in the EI sectors of states with heavy dependence on EI revenues. Indeed, the International Monetary Fund (IMF) considered the differences to be so significant that, in 2007, it published a supplement to its *Manual on Fiscal Transparency*, setting out a more detailed set of guidelines specific to the EI sector (IMF 2007c), and in May 2016 it published a revised draft code for fiscal transparency in the natural resources sector. It adapts the entire code to the needs of natural resource producing countries.

The sheer size of natural resource rents for many states, combined with the technical complexity and the volatility of the transaction flows, means that transparency issues are especially important to the good governance of the EI sector (see chapter 2 and chapter 3). For example, Nigeria, Africa's largest oil producer, experienced financial discrepancies in excess of US\$8 billion between what companies reported paying and what governments reported receiving between 2009 and 2011, due largely to missing payments resulting from incorrect fuel subsidy deductions.³ These discrepancies were revealed following Nigeria's effort to strengthen the management of its EI sector projects across the EI Value Chain by implementing an EI sector-specific transparency initiative, the EITI,⁴ through its own Nigeria Extractive Industries Transparency Initiative (NEITI), which was made law in 2007 by the National Assembly.⁵ NEITI focuses on promoting due process and transparency to remediate deficiencies revealed by EI sector audits. These efforts include continuing comprehensive audits of the EI sector, developing a revenue-flow interface among government agencies, improving oil and gas metering infrastructure, developing a uniform approach to cost determination, building capacity across Nigeria's regulatory agencies and civil society, and improving overall governance of its EI sector.⁶ Nigeria was certified as EITI compliant in March 2011, demonstrating a successful move toward stronger, more transparent governance of its EI sector despite the unique challenges presented by EI projects.⁷ However, the recent revelations about missing payments confirm that local EITI legislation alone will not result in the benefits of transparency. The Nigerian

example demonstrates that there must be concerted, ongoing development in the practices across the EI Value Chain and this change must be constantly and consistently monitored.

8.3 THE BENEFITS OF TRANSPARENCY

Government effectiveness

Transparency can be a key contributor to public policy effectiveness and efficiency. It can counter rumors and speculation about how resource revenues are being allocated. Motivated decision makers need feedback on how their policies are working in practice. However, feedback is possible only when information flows freely in both directions. The prospect of public scrutiny based on transparency can also be expected to deter wasteful expenditure and encourage the development of appropriate institutional capacity, as demonstrated by the Nigerian example.

Reduced corruption

Transparency will almost certainly reduce the risk of corruption and rent seeking, which is a persistent and endemic issue in resource revenue management and allocation (Kolstad and Wiig 2009). The work of one of the leading anticorruption organizations, Transparency International,⁸ supports the connection between a rise in transparency and a reduction in corruption related to the EI sector (RWI and TI 2011). Research by the IMF across a wide range of countries has also identified a strong correlation between transparency and the control of corruption. Independent research provides further support for the EITI approach (David-Barrett and Okamura 2013).

In preference to secret deals with individual companies, a transparent and balanced tax regime is the best way to avoid corruption and provide citizens and investors with assurance that rents from the EI sector are shared fairly (OSI 2009). However, corruption is so pervasive in the petroleum industry that one study identified a typology for it: policy corruption, administrative corruption, commercial corruption, and grand corruption, meaning diversion of massive amounts of money through production, products, or revenues (MacPherson and MacSearraigh 2007). Common indicators of corruption in making agreements include a very short negotiating period, unusual payment arrangements, disproportionately high remuneration, secrecy, criminal background of some of the parties, and corruption in the local context. Given the rise of petroleum and mining activities in Sub-Saharan Africa, there has been particular interest in ensuring that such patterns do not arise or are quickly countered.⁹

Where bribes are common, one effective countermeasure can be a publicly accessible register in which all mining and hydrocarbon licenses and rights are recorded. Such a registry was recently established by the government of Sierra Leone; it covers data on all mineral rights, export licenses, and related payments.¹⁰ This data should be readily available so that license applicants and the public have unrestricted access to information on licenses that have been granted or are being considered. This would address bribery arising from:

1. The granting of exploration and production licenses and contracts, environmental permits, or other permits that do not meet the requirements stated in the law and regulations
2. The granting of licensing, environmental, or fiscal terms and conditions in agreements that are highly favorable to the license holder and highly unfavorable to government
3. Situations in which a mineral or hydrocarbon right is provided to a favored local party for which a bona fide license application has been previously received from another company (The result is that the bona fide mining or petroleum company has to negotiate with and pay the local company to obtain the mineral right and to get access to the area it wants to explore or mine.)

This is an area in which the EITI moved in 2013, extending its remit beyond a focus on revenue transparency alone.

Information disclosure

Access to information is an essential precondition for checks and balances to be effective and for social accountability to be possible (Cameron 2010, 415). Achieving access requires clearly defined company requirements for timely and detailed reporting to regulators and the local community. This should be accompanied by public reporting of obligations and related performance, public debate and dialogue, and the government provision of regulatory requirements that can lead to performance improvement where it is needed.

In 2012 the International Finance Corporation (IFC) committed to disclosing future financing agreements as part of its revised *Sustainability Framework: Access to Information Policy* (IFC 2012; IMF 2010). Specifically, the IFC promotes transparency as “essential to building and maintaining public dialogue and increasing public awareness about IFC’s development role and mission” (IFC 2012, para. 3). It requires clients receiving EI project financing to “publicly disclose their material project payments to the host government” and for “the principal contract with government that sets out the key terms and conditions under which a resource

will be exploited” to be made public (32–33). The IFC has gone beyond revenue disclosure requirements to include transparency about the terms and conditions in contracts with host governments. Similarly, the IMF has designated the following information disclosure standard as good practice in the EI sector: “contractual arrangements between government and public or private entities should be clear and publicly accessible” (IMF 2007a).¹¹ Various development banks have taken a similar approach, including the African Development Bank and the European Bank for Reconstruction and Development.

Democracy

Transparency plays a key role in building more stable and accountable institutions to counter the poor governance that characterizes most autocratic regimes. If the EI Value Chain is properly husbanded, EI projects have the opportunity to facilitate the transition to democracy (Ross 2012). The transparency of government actions and rights of citizens to access information is generally seen as fundamental to the functioning of a democratic society. The essence of representative democracy is informed consent, which requires that information about government policies and practices be disclosed. Informed democratic debate can, among other things, help determine priorities in the allocation and expenditure of resource revenues.

Human rights

Access to information may be a fundamental human right in itself, but is also a core principle necessary for the realization of many other human rights, such as political and civil rights (for instance, freedom of speech) and social and economic rights (for instance, the right to an adequate education). The right of access to information is the focus of at least one international convention, the 1998 Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, but it is also recognized in a multitude of other international agreements including, but not limited to, the 1992 Rio Declaration on Environment and Development, principle 10, and the 2007 International Convention for the Protection of All Persons from Enforced Disappearance, article 12. Each of these instruments has resonance in EI sector projects. Where this right is missing or not enforced, as is the case in many developing countries, the resource curse beleaguers EI development across the value chain (Wenar 2008, 21 et seq.).

Access to information is also an essential feature of many mainstream development programs, and the IFC, again, has made great strides in spelling out the importance of this principle in its *Sustainability Framework: Access to Information Policy*, which outlines not only its responsibilities but also those of its clients (IFC 2012, 8–9). The policy begins with a presumption in favor of disclosure if there is no compelling reason not to disclose; nondisclosure is assessed on the likelihood of harm that might be caused to parties, not on the benefits of disclosure itself.

Finance

Lenders and credit rating agencies have a strong interest in transparency, and serious government commitments to transparency can improve access to both commercial and concessional finance (World Bank 2009, 2). Research by the IMF and others has found a significant positive correlation between transparency and credit ratings (Glennerster and Shin 2008).

8.4 CHALLENGES AND SPECIAL ISSUES

The major challenge to progress on transparency comes from entrenched interests—those with a significant stake in avoidance of transparency to advance their personal or political agendas. The low scores of resource-rich developing states in transparency assessments suggest the seriousness of this challenge: on one measure, only 11 out of 58 resource-abundant countries have satisfactory standards of transparency and accountability (Westenberg and George-Wagner 2015). In addition to the obstacle of entrenched interests, a number of special, more technical issues have arisen relating to the implementation of transparency. A number of examples that relate primarily to resource revenue transparency follow.

Mandatory versus voluntary

Admittedly, information disclosure, a key benefit of transparency, is complicated by the various standards of mandatory or voluntary disclosure.¹² The various principles put forward by the IFC, the IMF, and others are primary examples of voluntary information disclosure standards except on the occasion that they are integrated specifically in a contract. This is also the approach adopted by the EITI (see section 8.5). Critics object that this approach lets the most recalcitrant country performers off the hook (although the EITI showed its teeth by suspending four countries in early 2017 for noncompliance) and instead advocate mandatory transparency on the part of

EI companies, regardless of location, with respect to their payments to resource-rich countries. Transparency under this approach would become mandatory through laws and regulations in the home state of the EI sector companies, making disclosure a requirement for listing on major stock exchanges.

A state's decision to promote transparency and the practical measures that follow from that decision are sovereign matters and are generally considered to be voluntary at the state level. However, once a government decides to implement a transparency measure, it may well become mandatory for EI sector participants operating in that state. This approach has in fact been adopted in Liberian, Nigerian, and U.S.¹³ legislation, for example. Almost every EITI implementing country has embedded mandatory payment and revenue disclosure for companies and government agencies into its regulations, so EITI cannot easily be categorized as either voluntary or mandatory. Most recently, the European Union (EU) has introduced new disclosure requirements designed to increase transparency regarding EI sector businesses listed on EU regulated markets.¹⁴

Some argue that mandatory disclosure as required by inflexible rules, most often found in legislative acts or regulations, may place too great a constraint on commercial interests and distort competition, an argument voiced against section 1504 of the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act) (Sepp 2012).¹⁵ Section 1504, also known as the Cardin-Lugar Provision and formally as the Energy Security through Transparency Amendment,

would require EI project issuers who are otherwise obliged to report to the U.S. Securities and Exchange Commission (SEC) to report all information relating to any payment made by the resource extraction issuer, a subsidiary of the resource extraction issuer, or an entity under the control of the resource extraction issuer to a foreign government or the U.S. federal government for the purpose of the commercial development of oil, gas, or minerals. The aim of the section is to provide greater transparency in that the obligation attaches to every commercial, public, or private entity involved in an EI project, no matter how small its role. It was not until late 2015, however, that a revised proposal to implement section 1504 was adopted by the SEC to mandate certain types of disclosure and put the information in the public domain (see box 8.1). It had a short life. In February 2017, President Trump approved legislation that canceled the SEC rule.

Equally ambitious and far-reaching, the already mentioned EU Transparency and Accounting Directives specifically recall EITI standards in order to “provide civil society and investors with information to hold governments of resource-rich countries to account for their receipts from the exploitation of natural resources”¹⁶ through enhanced financial reporting procedures on the part of private EI sector participants. However, the directives have an element of reporting flexibility at the discretion of individual EU member states, and small to medium businesses have reduced reporting requirements. Other mandatory legal measures are discussed in section 8.6.

Box 8.1 Balancing Transparency Interests: Opposing Dodd-Frank

American Petroleum Institute v. Securities and Exchange Commission

U.S. Dist. Court for the District of Columbia, Civil Action No. 12-1668, 2 July 2013.

In 2013, the American Petroleum Institute (API) filed a civil action against the U.S. Securities and Exchange Commission (SEC) challenging its rule implementing section 1504 of the Dodd-Frank Wall Street Reform and Consumer Protection Act. The API is an association of EI sector actors, including BP, Chevron, ExxonMobil, and Shell, among many others. A primary argument advanced by API was that some information required under the new reporting procedures should be confidential and that the SEC should have greater discretion as to what entered the public domain. The argument reflected comments made during legislative debate on

section 1504. In a summary judgment, the District Court of Washington, DC, vacated the initial disclosure rule promulgated by the SEC, holding that the SEC rule would harm investors due to the “fundamentally miscalculated” lack of discretion in the rule’s current form. The SEC proposed a new rule in December 2015, which was subsequently struck down by the U.S. Congress. It is important to note that there is no unified corporate position on this matter in the oil, gas, or mining industries, with a number of companies (BHP Billiton, Rio Tinto, Statoil and Tullow, for example) providing detailed disclosures for some time.

Confidentiality

Almost all EI sector contracts contain clauses covering the confidentiality of certain financial and technical data, and these have acted to restrict transparency and information access (RWI and TI 2011). An important distinction needs to be made here between public disclosure of information produced or derived under a contract and disclosure of the contract itself. Much of the data derived from operations under the contract can reasonably remain confidential, although for limited periods of time only. After all, a government as the resource owner needs information to be confidential for a while as it builds a sound database for future licensing. Companies too may wish to limit disclosure for periods of time as a means for protecting what they see as sensitive commercial information.

With respect to contract disclosure, many observers favor lifting confidentiality restrictions, with limited exceptions, on the grounds that EI sector contracts relate to public assets, revenues, and expenditures—often on a very substantial scale—and to decisions that affect the public interest. Therefore, such contracts belong in the public domain (RWI 2010).

Confidentiality is an underlying concern, particularly when information disclosure deals with revenue reporting. Some information may legitimately need to be kept confidential in order to protect a government's security and strategic interests and investors' commercial interests (Waelde 1996). However, sometimes confidentiality provisions are invoked by the government or investors to control information without a legitimate justification for doing so. Confidentiality, particularly in the commercial context, is often put forth by investors as a counterargument against disclosure of data; thus, clearly defined parameters about what information should be deemed confidential is necessary. The IFC, for example, has included an outline of what materials will be considered commercially sensitive or confidential and will not be subject to a disclosure requirement. It is important that the need for confidentiality in some cases is not used illegitimately to protect corrupt practices and vested interests or to hide the kind of deals that would not stand up to public scrutiny. Confidentiality considerations can also be used to disadvantage communities particularly at risk from EI sector operations (Rosenblum and Maples 2009).

Credibility and auditing

If payments to governments are to be published in the interest of transparency and accountability, they have to be

credible and trustworthy. To this end, many argue that published payments should be subject to professional third party audits (Katz et al. 2004, 54). However, there are a number of issues that arise over audits: How are they to be conducted? How can it be ascertained whether a payment has been made or received? How is it to be determined whether the payment made was the payment that should have been made under existing legal contractual and fiscal requirements?

Level of aggregation

Many EI sector companies have suggested that publication of data on payments to governments should be restricted to sectorwide aggregate data. While this approach is likely to serve the objective of promoting accountability in government, it could also leave undetected irregularities at the individual company level. Civil society groups tend to take the position that disaggregated EI sector data is the best way to assess whether a company is actually paying what it should and to that end they argue that EI sector companies should disclose payments at the individual level (Ravat and Ufer 2010, 4–5). The Revenue Watch Institute (now the Natural Resource Governance Institute), for example, has issued a series of reports on EITI reporting that point to disaggregation as essential to good practice.¹⁷

Civil society engagement

Public disclosure of important information has little value if it cannot be easily accessed and used to promote government and company accountability. If transparency is to lead to accountability, civil society must be recognized and allowed to participate in the discourse. To achieve this, civil society must be able to analyze the information disclosed and be able to respond with policy recommendations. International civil society groups have played an indispensable role in the past, and local civil society groups in many resource-rich states are increasingly involved in promoting public participation in the development of the EI sector.

Social accountability

This approach, which is highlighted in box 8.2, is most effective where there are established coalitions of groups participating with both companies and government on EI sector issues across the whole sector (especially on licensing, fiscal, environmental, and social issues).¹⁸ However, civil society

Box 8.2 EIs and Social Accountability

Successful and sustainable EI sector management depends on the participation of all key stakeholders—parliament, government, industry, civil society, and international financial institutions. While objectives and focus may differ among them, constructive and successful models of collaboration are emerging. Social accountability represents one important good practice for governance. It can hold state institutions accountable by providing checks and balances and thereby help reduce the risk of state failure.

Social accountability has two basic principles:

1. Transparency, defined as the mandatory public disclosure of information to civil society at large
2. Participation, defined as the ability of and opportunity for civil society to engage with government and industry on issues of concern

Effective social accountability includes the following:

- A diverse range of civil society organizations that take on the role of forming coalitions that focus on specific issues across the EI Value Chain and that are supported with capacity-building activities to improve knowledge about what information to seek out and how to use it effectively
- A focus on social equity and achieving positive development outcomes on the ground by holding governments accountable for their development priorities and holding companies accountable for their management and mitigation of risks
- Tools such as media and letter-writing campaigns (to draw attention to public issues), hearings, formal

audits, enquiries by parliamentary subcommittees, independent budget analyses, participatory budgeting and public expenditure tracking systems, citizen report cards, community score cards (to develop and present information and analysis regarding issues of concern), policy statements, citizen charters, and legislative reforms, including grievance procedures and ombudsmen offices (to bring about improvements)

The achievement of effective social accountability may include the following:

- An initial approach that is confrontational and requires organizing media campaigns and seeking policy change through nonviolent protests (Once issue awareness is achieved, engagement of companies and governments can follow.)
- An evolutionary approach that progresses toward the recognition of common ground and collaboration with governments and companies to achieve policy and regulatory improvements and improved practices on the ground
- Important international stakeholder partnerships and networks such as the EITI, which publishes and reconciles tax payments by EI sector companies with the tax receipts published by governments, and the Publish What You Pay campaign (These partnerships can provide a vehicle for international nongovernmental organizations to transfer knowledge and build the capacity of local civil society participants.)

engagement can succeed only if government and companies are willing to facilitate civil society participation.

Where companies and governments do encourage civil society participation, effective engagement will also need civil society to be objective and constructive and to have realistic expectations about outcomes. Issues regarding the minimization of negative local community impacts from mining operations may improve rapidly from civil society engagement; issues relating to a mining company's

operational and marketing decisions are likely to be more difficult for civil society to engage with.

International financial institution conditionality

Often it is suggested that loans or support from international financial institutions (IFIs) like the World Bank or IMF be conditioned on credible government commitments to transparency programs such as the EITI. The IFIs have

resisted making this a blanket requirement, recognizing the multi-issue complexity of their relationships with client governments. In some cases, however, transparency has been made an explicit requirement and, more generally, IFIs—especially in resource-rich states—have mainstreamed transparency in their country dialogues. Strict conditionality provisions in IFI agreements have provided the basis for IFI intervention when governments fail to keep their end of the transparency agreement. For example, following amendments to the EI revenue management law in Chad, the World Bank froze the country's petroleum revenues held abroad (BWP 2006). It must be recognized, however, that conditionality has often been cited as the downfall of projects in developing, resource-rich countries, and many question whether the principle should endure (Koeberle 2003; Bird 1998).

8.5 TRANSPARENCY INITIATIVES

From the early 2000s there has been a significant proliferation in transparency forums and initiatives focusing on the EI sector (World Bank 2010, 18). EI transparency has been a regular item on the agenda of UN agencies, country groupings (such as the G8), and regional groupings (such as the New Partnership for Africa's Development). However, in terms of dedicated EI sector transparency initiatives, there are currently four major but varied forums that have been developed and each approaches the subject from a slightly different platform: the Kimberley Process Certification Scheme (Kimberley Process), the Publish What You Pay (PWYP) campaign, the EITI, and the World Bank Governance of Extractive Industries (GOXI) online platform.

Kimberley Process

Established in 2003, the Kimberley Process was one of the very first initiatives to use transparency requirements to track so-called blood diamonds (rough diamonds used by rebel movements to finance wars against legitimate governments) and restrict their import from states where they were used to support conflict.¹⁹ Under this scheme, member states can certify their diamonds as conflict free before entering the international market. This initiative was developed from UN resolutions aimed at limiting conflicts and atrocities linked to diamonds in states such as Angola, Côte d'Ivoire, Sierra Leone, and the Democratic Republic of Congo.²⁰ It has provoked controversy in its implementation, with opinions differing on its effectiveness.

PWYP campaign

Established in 2002, the PWYP campaign is an international coalition of more than 650 civil society organizations in more than 30 states.²¹ It undertakes public campaigns and policy advocacy to achieve greater transparency in EI revenue reporting and contracts. Its two main goals have been (1) to encourage companies to publish what they pay and for governments to publish what they earn as a necessary first step toward a more accountable system of resource revenue management and (2) to encourage public disclosure of EI contracts and transparency of licensing procedures in accordance with best international practice.

EITI

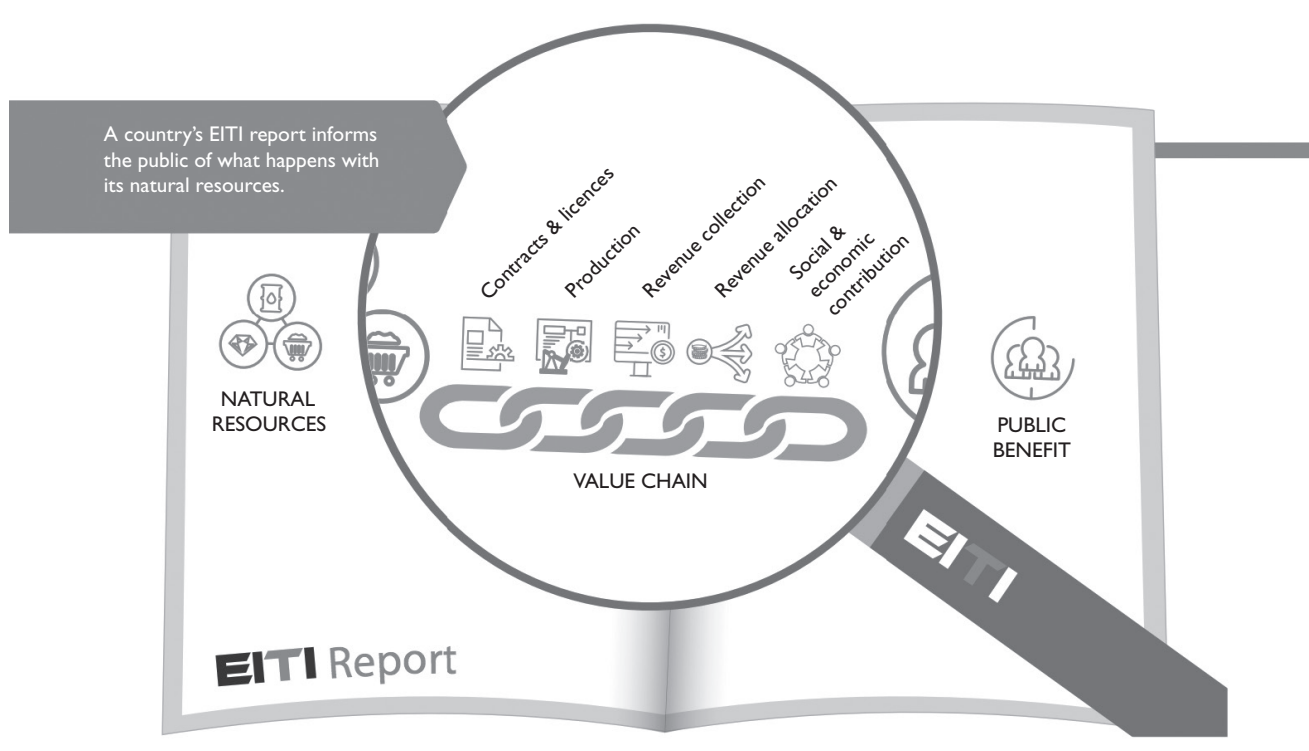
Established as an independent international body in 2007, the Extractives Industries Transparency Initiative is a multistakeholder initiative intended to promote accountability and good governance in resource-rich states through the generation and publication of credible data on payments made by EI sector companies to host-state governments.²² The number of petroleum and mining states compliant with or candidates for the EITI standards was 51 as of March 2017. Committed stakeholders include host and home governments, investors, industry, international organizations, and civil society. Its operation is linked to a version of the EI Value Chain concept illustrated in figure 8.1. A Standard for compliance with the EITI process has been agreed to, and procedures for validation of country performance have been established and are currently being applied. The seven requirements of the EITI Standard are summarized in box 8.3.

In many countries, the most important contribution of the EITI has come about because governments have decided to act on recommendations that have emerged from EITI reporting. Experience suggests that the nature of the recommendations in EITI reports and the extent to which the EITI multistakeholder groups and the government follow up on the recommendations significantly influence the impact of the EITI.

In many countries, EITI reports have been useful diagnostic tools identifying weaknesses in government systems. EITI reports have often made recommendations aimed at addressing such weaknesses and improving sector management. They are making an important potential contribution to policy reform and change.

However, even where EITI reporting has revealed shortcomings, the recommendations have often focused on

Figure 8.1 How the EITI Works



Source: EITI 2016a, 5.

Box 8.3 The Seven Requirements of the EITI Standard

1. Effective oversight by the multistakeholder group
2. Timely publication of EITI reports
3. EITI reports that include contextual information about the extractive industries
4. The production of comprehensive EITI reports that include full government disclosure of extractive industry revenues and disclosure of all material payments to government by oil, gas, and mining companies
5. A credible assurance process applying international standards
6. EITI reports that are comprehensible, actively promoted, publicly accessible, and contribute to public debate
7. A multistakeholder group that takes steps to act on lessons learned and reviews the outcomes and impact of EITI implementation

improving technical aspects of the EITI reporting process, such as reporting templates or data collection for EITI reports, rather than improving extractive sector governance. Failure to implement recommendations has too often contributed to lost opportunities for impact and reform.

There is increasing documentation on how EITI reporting has highlighted shortcomings in government systems and recommended actions for improvements (EITI 2016b). The stories illustrate the impact in countries that have acted

on these recommendations and highlight the potential and importance of considering EITI recommendations in the countries that have not yet done so.

The EITI was essential in turning around EI sector administration in Nigeria. Other countries such as Ghana, Liberia, and Norway have also achieved EITI compliance, and there are many candidate countries working toward satisfying the EITI Standard. EITI reports from the recently confirmed EITI-compliant Peru show that since the country

began implementing the initiative, reported figures on revenues received from EI projects have increased sixfold, a testament to the positive benefits of transparency and a boon to Peruvian citizens. However, important gaps remain among nonsignatories in the energy and mining sector: the Russian Federation, the República Bolivariana de Venezuela, and most Middle East resource-rich states.

Moreover, after more than a decade of operation, expectations of EITI's future contribution to transparency and accountability and to extractive sector governance more widely are a matter of debate. Transparency is, of course, not an end in itself. However, in terms of the transparency that the EITI had achieved, one interesting outcome is the volume of data that is now available in its reports. If properly analyzed, they offer the potential for contributing to policy making and public debate. This is discussed in section 8.8.

A key feature of EITI is the EITI Standard, which outlines the requirements applicable to countries implementing the EITI. In February 2016, a new standard was launched (EITI 2016a). It contains six notable features.

First, it allows countries the flexibility to mainstream disclosures into government and company reporting systems, such as portals, and webpages, instead of simply reproducing reports that they created to comply with EITI disclosure requirements. Stakeholders will be able to determine which aspects of the EITI Standard are mainstream priorities and focus on improving them (such as government and company information systems on license allocations or social and economic expenditure).

Second, all countries must now disclose the identity of those that own and profit from EIs. The companies that bid for, operate, or invest in extractive projects must declare who their beneficial owners are. This requirement will take effect January 1, 2020, allowing countries time to make the necessary preparations. A roadmap is to be produced by January 1, 2017, that outlines how countries will pursue these disclosures. Because a company has a complex or opaque structure of ownership does not mean that it cannot prove to be a reliable and reputable investor. However, secrecy can obviously benefit tax evasion and conflicts of interest and hide corruption. Information about beneficial owners' identities will have to be assured by the companies that provide it, and EITI reporting needs to disclose any companies that have failed to submit all or part of the beneficial ownership information.

Third, reporting has been required on commodity trading transactions since 2013, but the 2016 Standard enhances existing requirements so that data on commodity sales has to be broken down by the buying company (not by individual

sale). Oil, gas, and mineral transactions by governments and state-owned companies generate large revenues. This requirement can mitigate corruption, encourage oversight, and discourage self-dealing by government officials.

Fourth, recommendations that result from EITI reports must be actively considered by stakeholders. The recommendations have to be listed, and activities undertaken to address each have to be noted, as does the progress made in implementing each recommendation. The rationale behind any decision not to act on a recommendation has to be documented by the government. This has the potential to contribute to improving governance beyond transparency.

Fifth, an open data policy is included in the 2016 Standard. It encourages governments to release data under an open license and in formats that are interoperable with national and international standards. This goes some way to remedy the lack of open data in EITI reports, which limits use and analysis. Data standards are to be developed further on this basis.

Sixth, the 2016 Standard incorporates a revised civil society protocol which provides guidance on how to assess a country's civil society environment.

In March 2017, the EITI took a decision to implement more thorough project-level reporting by requiring it in all EITI reports covering fiscal years ending on or after December 31, 2018, at the latest. National multi-stakeholder groups are to devise and apply a definition of "project" that fits the specific national legal regime as well as the relevant international norms. The aim is to strengthen transparency and accountability.

GOXI

As of March 2017, the World Bank Governance of Extractive Industries (GOXI) community membership was in excess of 3,800. GOXI is "a space to share, learn and connect for action toward greater accountability and, in turn, better development outcomes of extractive industries."²³ For this greater accountability, enhanced transparency is a vital precursor, and hence transparency functions alongside accountability as the core focus of the GOXI. While the initial focus of GOXI was Africa, it is now a truly global initiative convened by the United Nations Development Programme. The *EI Sourcebook* website and the GOXI website are strongly aligned and mutually supporting in terms of content, links, and shared understanding.

Public-private alliance for responsible minerals trade (PPA)

The PPA is a new, joint initiative among governments, companies, and civil society to support supply chain

solutions to challenges related to conflict minerals in the Democratic Republic of Congo and the Great Lakes Region (GLR) of Central Africa. Leaders worldwide are calling for action to address conflict-mineral concerns while delivering solutions that benefit those involved in responsible minerals trade in the GLR. The PPA aims to demonstrate that it is possible to secure legitimate, conflict-free minerals from the region.

Fair trade

Specifically operating in the context of artisanal and small-scale mining (ASM), fair trade has been defined as “a trading partnership based on dialogue, transparency and respect that seeks greater equity in international trade. It contributes to sustainable development by offering better trading conditions to, and securing the rights of, marginalized producers and workers—especially in the South” (WFTO 2014). Fair trade organizations (backed by consumers) are engaged in supporting producers, raising awareness, and campaigning for changes in the rules and practice of conventional international trade. The Communities, Artisanal and Small-Scale Mining initiative’s document *Certification and Artisanal and Small-Scale Mining* considers a detailed analysis of ASM in the context of fair trade, including practical detailing steps for community-based mining engagement and drivers (CASM 2008).

8.6 EMERGING GLOBAL NORMS AND STANDARDS

As is true for good EI sector management in general, the effective introduction, implementation, and maintenance of EI sector transparency will depend on the participation of all affected parties. However, the diversity of approaches to transparency and accountability has been evident in the proliferation of governance-related initiatives in recent years.²⁴ In the previous section a number of voluntary initiatives were presented. This section focuses on efforts that states themselves have taken toward clarifying global transparency standards, such as article 10 of the UN Convention against Corruption, which requires signatory states to enhance transparency in the administration of their obligations (UNODC 2004). Both individually and collectively, states themselves are instrumental in creating a more transparent EI sector. The emerging norms and standards are summarized in the following material by reference to the players who drive them or who have a stake in them.

Host governments

Two kinds of national governments are involved: those in resource-producing states (host governments) and those in investor states (home governments). They are not mutually exclusive. Resource-producing states have a key role in any initiative to require transparency and to foster accountable processes. A significant number of these states have committed themselves to revenue disclosure through the EITI process,²⁵ as has been discussed. Some have considered a further step of contract disclosure. Increasingly transparent proactive host-government legislation, regulation, and administration across the EI Value Chain stands to provide instructive examples for other countries seeking to improve their own EI sectors.

Home governments

Among host governments, some investor states are compelling companies to disclose information and modify behavior according to legislative measures adopted in these states. Among the examples of this are the Canadian Extractive Sector Transparency Measures Act of 2015, the U.K. Reports on Payments to Governments Regulations of 2014 No. 3209, and the EU Accounting and Transparency Directives (see section 8.4). Norway has also been a leader with respect to transparency, having required since 2014 that extractives companies disclose payments to governments at the project level.

This supplements existing antibribery legislation in some countries, such as the U.S. Foreign Corrupt Practices Act, the U.K. Bribery Act, and other acts specifically prohibiting bribery of foreign public officials in Canada and Australia. Given the large percentage of extractives market share that is represented on international stock exchanges, the collective impact of the noted mandatory legal requirements is likely to be significant. Specifically, 68 of the world’s 100 largest oil and gas companies and 40 of the 100 largest mining companies are registered with the U.S. Securities and Exchange Commission (SEC) and therefore captured by section 1504 of the Dodd-Frank Act. Also of the 100 largest oil and gas companies and mining companies, 24 and 28, respectively, are listed on an EU-regulated exchange or incorporated in an EU member country and therefore captured by the EU Transparency and Accounting Directives; 14 and 16, respectively, are listed on the Toronto Stock Exchange; and 2 and 1 on the Oslo stock exchange, with similar effects from the national legislation (PWYP 2015).

The practices of some major stock exchanges underline the trend but perhaps also the limits of these efforts to promote adoption of mandatory rules. For example, the Hong Kong

Stock Exchange (HKEx) proposed changes to strengthen its Environmental, Social, and Governance Reporting Guidelines in 2015 that encourage increased transparency. Earlier, in 2012, the exchange decided to move from a “recommended practice” framework toward a “comply or explain” system by 2015 (HKEx 2012). However, the lack of mandatory rules addressing what is increasingly seen as the international transparency standard (as set forth by the EITI) at the HKEx was criticized by civil society (Oxfam 2012). Among the world’s top 100 mining companies, 13 are listed on the HKEx, as are 5 of the 100 top oil and gas companies (PWYP 2015).

Conflict minerals have been a particular focus for measures aimed at promoting accountability. In 2017, the EU introduced “due diligence” rules—to enter into force in 2021—that require EU companies to source their imports of tin, tantalum, tungsten, and gold responsibly and ensure that their supply chains do not contribute to funding armed conflict (EU 2017). Competent authorities will carry out inspections, and nonbinding guidelines to assist companies are to be drafted. The regulation builds on OECD Guidelines of 2011, which set the benchmark for supply chain due diligence.

All of this legislation might not have been adopted had it not been for the efforts of civil society groups (see box 8.4). The Cardin-Lugar and Conflict Minerals provisions in the Dodd-Frank Act demonstrated the power of nongovernmental organizations to influence the case for improved governance of the extractives sector, but arguably this has been given crucial support by the actions of various oil, gas,

and mining companies themselves, and their associations, and the leadership of several other key home governments (Germany, for example). The same civil society commitment to assisting governments in achieving greater mandatory transparency is evident in the efforts to promote contract disclosure (Rosenblum and Maples 2009).

Industry

For reasons having to do with reputation and legitimacy, industry has usually engaged in this process, especially through associations (see box 8.5). Industry initiatives have provided a platform for improved dialogue on transparency and accountability standards and norms. For example, in the mining sector the International Council on Metals and Mining promotes more transparent reporting through its Reporting and Assurance Work Program. The thrust of industry initiatives has been to press for voluntary standards based on, and aimed at, promoting more responsible corporate behavior and impacts. Initiatives include the widely adopted Voluntary Principles on Security and Human Rights,²⁶ an effort among states, industry, and civil society to offer practical guidance for strengthening human rights safeguards in company security arrangements in the extractive sector. Companies have also signed up to international initiatives such as the UN Global Compact, the Guidelines for Multinational Enterprises by the Organisation for Economic Co-operation and Development (OECD),

Box 8.4 Civil Society–Led Initiatives

Supply chain due diligence has the potential to do more than remove illicit material from supply chains. As in other commodities, “ethical trade” in the EIs can help protect the rights of artisanal and small-scale mining (ASM) communities and ensure they get a fair return for their labor. It can also influence the standards of environmental, health, and social performance in these communities and the welfare of the people working at mine sites. It generally promotes sustainable development and acts to counter the poverty and vulnerability of the miners. Ethically based certification assures buyers that minerals are mined, processed, and traded in ways that do not compromise defined ethical standards. The terms attached to such schemes illuminate their focus: fair trade, ethical, green, sustainable, development, responsible, origin, fair mined and fair made, and so forth.

Several initiatives have explored the prospect of certification as a tool for stimulating sustainable development in ASM communities—using procurement from artisanal miners that agree to adopt some basic standards as a tool for retailers to assure consumers of the provenance of their products and, of course, to establish a market niche.

One of the leaders in this field is the Alliance for Responsible Mining (ARM). ARM focuses on fair trade standards that provide a market niche for small-scale producers and develops standards following the ISEAL Code of Good Practice for standard formulation. ARM has partnered with the Fairtrade Labeling Organization—FLO—in developing and field testing of a Fairtrade and Fairmined standard for gold from artisanal and small-scale mining.

Box 8.5 Private Sector–Led Initiatives

The private sector has also undertaken initiatives to protect specific commodities. Chief among these are the International Tin Research Institute's iTSCi (International Tin Supply Chain Initiative) and the World Gold Council's Conflict Free Gold Standard.

iTSCi is a joint initiative of traceability and due diligence for cassiterite from Central Africa that assists upstream companies (from mine to the smelter) to institute the measures necessary to conform to the OECD's Due Diligence Guidance. Its focus includes small and medium-size enterprises, cooperatives, and artisanal mine sites. It is designed for use by industry but with oversight and defined roles for government officials in keeping with the OECD Due Diligence Guidance. It also takes into account the recommendations of the UN Security Council to expand due diligence to include criminal networks as well as armed groups and to include violations of the asset freezes and travel bans on sanctioned individuals and entities.

The iTSCi system supports companies wishing to maintain trade with responsible supply chain actors in the Democratic Republic of Congo and adjoining countries. iTSCi has three components: chain of custody data collection (traceability), risk assessment, and independent third party audits.

More recently the World Gold Council engaged in an extensive consultation exercise to develop a Conflict-Free Gold Standard, an industry-led approach to combat the potential misuse of mined gold to fund armed conflicts. The intention is to promote responsible mining practices throughout the gold-mining industry and to protect the (large-scale) legitimate suppliers in conjunction with other schemes, such as the Kimberly Process. The idea is that gold produced in conformance with the Conflict-Free Gold Standard would provide confidence that it has been extracted in a way that does not cause, support or benefit unlawful armed conflict or contribute to serious human rights abuses or breaches of international humanitarian law.

and the ILO Convention 169: the Indigenous and Tribal Peoples Convention.

Donors

Donors, too, have taken specific actions. An example is the Policy and Performance Standards on Social and Environmental Sustainability (IFC 2011), introduced in 2006 by the IFC with updated standards coming into effect in 2012. The standards apply to all investment projects, including those in the EI sector. The aim is to minimize the impact on the environment and affected communities. The standards have been extended to cover more governance issues, such as transparency requirements, and include phased-in requirements for disclosure of EI contracts. Several states are progressing toward contract transparency by mandating that contracts be publicly available, as in Niger, where the new constitution requires publication of all EI contracts in the official gazette (Heller 2011).²⁷ Another example is the IMF (2007a) Code of Good Practices on Fiscal Transparency. This sets out robust requirements for all member governments to inform the public about the use of public goods, which includes natural resources.²⁸

IFIs

International financial institutions have taken a growing interest in governance issues in recent years. The Equator Principles framework,²⁹ a credit risk management framework for determining, assessing, and managing risk in project finance, is based on the IFC Performance Standards and hence includes some transparency requirements for Equator Principle Financial Institutions,³⁰ although the principles focus primarily on after-the-contract issues such as community engagement and consultation and government-mandated reporting rather than licensing procedure or contract disclosure. The Equator Principles have now been adopted by 79 financial institutions in 31 countries and, de facto, have become an industry standard.

There is significant scope for cooperation and learning from related programs that have a wider or a different focus than on the EIs. Several initiatives that focus on better governance of natural resources focus on forestry, for example, and face similar challenges to the EI sector. Sharing learning experiences across the natural resource sectors is undoubtedly beneficial. Moreover, there is also potential to learn from broader anticorruption or good governance initiatives. An example of that would be the efforts to strengthen procurement and

public financial management processes, such as the Public Expenditure and Financial Accountability program.³¹

8.7 CONCLUSIONS

Transparency, by promoting accountability, minimizing waste and corruption, fostering democratic debate, guiding macroeconomic management, and enhancing access to finance is fundamental to good governance in the EI sectors (see box 8.6). Good practice in EI sector management in general depends on the participation of all affected parties in the effective introduction, implementation, and maintenance of EI sector transparency. For each of these parties, good practice with respect to revenue transparency suggests the following:

1. *All governments* should promote transparency and act to remove, to the maximum extent possible, any legal or political impediments to public disclosure of EI sector information. They should support international transparency initiatives, such as EITI, and the possibility of international treaties.
2. *Host-state governments* should be responsible for the publication and widespread, easily accessible dissemination of contract terms and credible data on EI revenues received and related allocation and expenditures.

3. *Home-state governments* should promote good transparency practice on the part of EI companies that they host, particularly with respect to the payments those companies make to resource-producing states.
4. *Companies* should be responsible for the public disclosure in a regular, timely, and disaggregated manner of all EI sector-related production, costs, and payments made to resource-producing state governments.
5. *Civil society*, both nationally and internationally, should strengthen capacity to collect, analyze, explain, and disseminate information. It should develop independent monitoring capability; lobby governments, companies, and IFIs; and form umbrella coalitions, such as PWYP, uniting the various constituencies affected by EI sector operations.
6. *IFIs* should continue to mainstream transparency objectives in lending and policy dialogues with all resource-rich client states and in international forums; where appropriate they should include transparency commitments in lending conditions.

Implementation Example: EITI. The key to leveraging extractive resources to attain beneficial development outcomes is to increase accountability and transparency as well as improve governance in the sector. A useful publication, *Implementing EITI for Impact: A Handbook for Policymakers and Stakeholders*, analyzes the importance of implementing

Box 8.6 Summary: Transparency and Accountability

Transparency, by promoting accountability, minimizing waste and corruption, fostering democratic debate, guiding macroeconomic management, and enhancing access to finance, is fundamental to good governance in the EI sectors and should do the following:

1. Apply to all segments of the EI Value Chain, providing
 - a. effective expenditure monitoring and reporting
 - b. sustainable development policies and projects
2. Establish formal and informal processes, such as the EITI Standard, and encourage more countries to implement such principles so that different stakeholders can hold EI sector producers and government agencies accountable
3. Involve mandatory information disclosure and public reporting to both regulators and the local community with regard to the following:
 - a. The obligations and the performance of EI sector producers, including the disclosure and public reporting of actual production figures and financial information regarding revenues and receipts, taxes, and costs associated with the production, processing, and sale of minerals and petroleum
 - b. The budget allocation and actual expenditure of government income alongside the ownership, management, fee structure, and performance of any sovereign wealth funds receiving mineral or petroleum funds
4. Facilitate public debate and dialogue and help prevent “commercial confidentiality” being invoked to restrict the release of information to other stakeholders without commercial justification
5. Support states enacting their own anticorruption laws
6. Support participation in initiatives such as the Kimberley Process Certification Scheme and the OECD Financial Action Task Force

the EITI to domestic economies, governance structures, and local populations and suggests measures to leverage its potential to ensure inclusive growth and sustainable development.

8.8 ACTION TOOLS

The benefits of transparency can be maximized by the use of EITI data. From almost 300 EITI reports published by over 45 countries up to October 2016, information has been collected by EITI and the Natural Resource Governance Institute in datasets and made publicly available (NRGI 2015). These classify data according to countries and projects, providing also a summary and list of sources used for production volumes, commodity prices, and macroeconomic and social indicators.

The datasets on both websites are accompanied by visualization tools that assist in placing EI revenues in perspective across countries and years. They might, for example, compare extractive revenues with total government revenues, with the estimated value of production, and with the government's overall spending on health, education, and aid receipts.

As mandatory reporting legislation takes effect in Canada, Europe, and other countries, the volume of this data will increase significantly and will require the development of similar tools for this to be effective in achieving the benefits that transparency can bring to global governance in the extractives sector.

NOTES

1. MacPherson and MacSearraigh (2007) explain the ways in which corruption appears in the links along the EI Value Chain in the hydrocarbons sector. The scale of corruption in developing countries has been estimated at around US\$500 billion a year in a study by the Center for Strategic and International Studies (Dawson 2014). This goes beyond the EI sector, however.

2. There are numerous studies to support these concerns at the website of the Natural Resource Governance Institute, <http://www.resourcegovernance.org/>.

3. See "Nigeria Overview," EITI website, https://eiti.org/implementing_country/32.

4. See the EITI website, <https://eiti.org>.

5. See the NEITI website, <http://www.neiti.org.ng/>.

6. See "Nigeria Overview," EITI website, https://eiti.org/implementing_country/32, and the NEITI Nigeria website in general, <http://www.neiti.org.ng/>.

7. To be EITI compliant, a country must satisfy EITI requirements in accordance with the EITI Standard. An independent validator makes an assessment of EITI implementation. The EITI board, through the secretariat, reviews all validation reports. Only if the board considers that the country meets all of the EITI requirements will the country be designated as EITI compliant. Compliant countries must undergo validation every three years or at the request of the EITI international board.

8. See the Transparency International website, <http://transparency.org/>.

9. For example, four articles in a special issue of the *Journal of World Energy, Law, and Business* (2014, vol. 7) addressed anticorruption laws and practices in Angola, Ghana, Mozambique, and Nigeria.

10. See the Government of Sierra Leone Online Repository, <http://sierraleone.revenuesystems.org/login/auth>.

11. See also IMF 2016b, "How Does the IMF Encourage Greater Fiscal Transparency?"

12. For a thorough account of the mandatory versus voluntary debate, see Gillies and Heuty 2011.

13. For Liberia, see the Act Establishing the Liberia EITA, July 10, 2009, <http://www.eisourcebook.org/cms/January%202016/Liberia%20EITI%20Implementation%20Act%202009.pdf>. For Nigeria, see the already mentioned NEITA. For the United States, see the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, Pub. L. 111-203, 124 Stat. 1376-2223 (July 21, 2010).

14. Directive 2013/34/EU of the European Parliament and of the Council, 26 June 2013, OJ L182/52 (2013) (2013 Accounting Directive), see particularly para. 44 and chapter 9; Directive 2013/50/EU of the European Parliament and of the Council, 22 October 2013, OJ L294/13 (2013) (2013 Transparency Directive), para. 7.

15. See Cardin-Lugar Provision (section 1504) of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, Pub. L. 111-203, 124 Stat. 1376-2223 (July 21, 2010).

16. 2013/109/EC of 22 October 2013 (Transparency Directive), para. 7 of Preamble.

17. See, for example, Gillies 2011.

18. For a successful example of coalition building relating to transparency issues, see the Publish What You Pay (PWYP) Campaign website, www.publishwhatyoupay.org.

19. See the Kimberley Process Certification Scheme website, <https://www.kimberleyprocess.com>.

20. It should be recognized the Kimberley Process has not been without its setbacks, such as the 2011 arguments over the scheme's approval of resumption of selling diamonds from the Marange mines in Zimbabwe. This decision was condemned by both the EU and the United States.

21. See the Publish What You Pay website, <http://www.publishwhatyoupay.org>.
22. See the EITI website, <https://eiti.org/>. An EITI factsheet is available in several languages at <https://eiti.org/document/factsheet>.
23. See the UN Development Programme and World Bank's Governance of Extractive Industries (GOXI) website, <http://goxi.org>.
24. Examples of these initiatives include the UN Global Compact, the Organisation for Economic Co-operation and Development Guidelines for Multinational Enterprises, the Ruggie Guiding Principles, and the Global Reporting Initiative. For more information on these initiatives, see the *Overview on Guiding Principles for Government and Industry* on the *Sourcebook* website, <http://www.eisourcebook.org/cms/files/Overview,%20Guiding%20Principles%20for%20Government%20and%20Industry.pdf>.
25. Fifty-one countries are EITI-implementing countries, 31 of which have completed validation and have been declared EITI compliant. See the EITI website, <https://eiti.org/countries>.
26. See the Voluntary Principles on Security and Human Rights website, <http://www.voluntaryprinciples.org>.
27. An important document that makes the case for contract transparency is "Contracts Confidential: Ending Secret Deals in the Extractive Industries" (Rosenblum and Maples 2009).
28. Government adherence to transparency requirements is monitored by civil society. For example, see "Revenue Watch Index" (RWI and TI 2010).
29. See the Equator Principles website, <http://equator-principles.com/>.
30. Equator Principle Financial Institutions are those international financial organizations that have officially adopted the Equator Principles.
31. See the Public Expenditure and Financial Accountability website, <http://pefa.org>.

REFERENCES

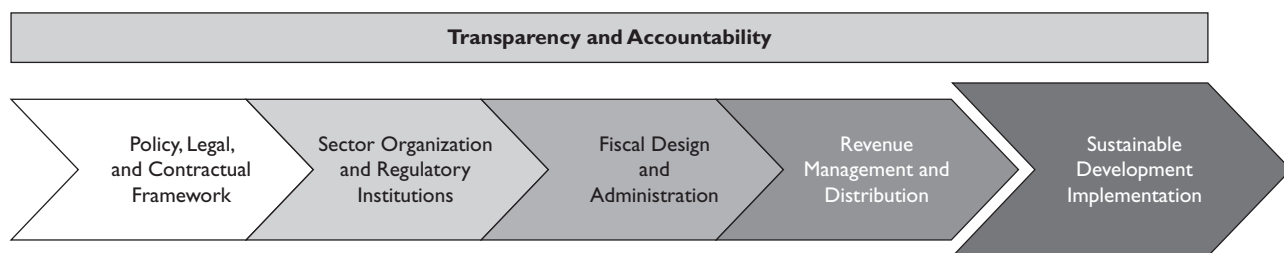
- Bird, G. 1998. "The Effectiveness of Conditionality and the Political Economy of Policy Reform: Is It Simply a Matter of Political Will?" *Journal of Policy Reform* 1 (1): 89–113.
- BWP (Breton Woods Project). 2006 "Bank Freezes Pipeline Funds to Chad." London: Bretton Woods Project. <http://www.brettonwoodsproject.org/2006/01/art-507557/>.
- Cameron, P. 2010. *International Energy Investment Law: The Pursuit of Stability*. Oxford, UK: Oxford University Press.
- CASM (Communities and Small-Scale Mining). 2008. *Certification and Artisanal and Small-Scale Mining: An Emerging Opportunity for Sustainable Development*. Washington, DC: World Bank. <http://www.eisourcebook.org/cms/Feb%202013/Certification%20and%20Artisanal%20&%20Small-Scale%20Mining.pdf>.
- David-Barrett, L., and K. Okamura. 2013. "The Transparency Paradox: Why Do Corrupt Countries Join EITI?" Working Paper 38, European Research Centre for Anti-Corruption and State-Building, Berlin.
- Dawson, Sella. 2014. "Private-Sector Corruption in Developing Countries Costs at Least \$500 Billion—Study." Reuters, January 22. <http://www.trust.org/item/20140122080813-9hfpw>.
- EITI (Extractive Industries Transparency Initiative). 2016a. "EITI Standard 2016." Oslo: EITI. <https://eiti.org/node/4922>.
- . 2016b. *From Reports to Reforms*. Oslo: EITI. https://eiti.org/sites/default/files/documents/from_reports_to_reforms.pdf.
- EU (European Union). 2017. Press Release 181/17. April 2, 2017. "Conflict Minerals: Council Adopts New Rules to Reduce Financing of Armed Groups."
- Gillies, A. 2011. "What Makes a Good EITI Report?" New York: Revenue Watch Institute. http://www.revenue-watch.org/sites/default/files/EITI_good_report_2011-02-23.pdf.
- Gillies, A., and A. Heuty. 2011. "Does Transparency Work? The Challenges of Measurement and Effectiveness in Resource Rich Countries." *Yale Journal of International Affairs* 6 (2): 25–42.
- Glennerster, R., and Y. Shin. 2008. "Does Transparency Pay?" IMF Staff Papers 55, no. 1, 183–209, International Monetary Fund, Washington, DC.
- Heller, P. 2011. "An Emerging Norm of Contract Transparency." London: Natural Resource Governance Institute. <http://archive.resourcegovernance.org/news/blog/emerging-norm-contract-transparency>.
- HKEx (Hong Kong Stock Exchange). 2011. "The Exchange Publishes Consultation Conclusions on Environmental, Social and Governance Reporting Guide." August 31. Hong Kong SAR, China: HKEx. <http://www.hkex.com.hk/eng/newsconsul/hkexnews/2012/120831news.htm>.
- IFC (International Finance Corporation). 2011. "Update of IFC's Policy and Performance Standards on Environmental and Social Sustainability and Access to Information Policy." Washington, DC: IFC. http://www1.ifc.org/wps/wcm/connect/fca42a0049800aaaaba2fb336b93d75f/Board-Paper-IFC_SustainabilityFramework-2012.pdf?MOD=AJPERES.

- . 2012. *Sustainability Framework: Access to Information Policy*. Washington, DC: IFC. http://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/IFC+Sustainability/Our+Approach/Risk+Management/IFCSustainabilityFramework_2012.
- IMF (International Monetary Fund). 2007a. "Code of Practices on Fiscal Transparency." Washington, DC: IMF. <http://www.imf.org/external/np/fad/trans/code.htm>.
- . 2007b. *Guide on Resource Revenue Transparency*. Washington, DC: IMF. <http://www.imf.org/external/np/pp/2007/eng/051507g.pdf>.
- . 2007c. *Manual on Fiscal Transparency*. Washington, DC: IMF. <https://www.imf.org/external/np/pp/2007/eng/051507m.pdf>.
- . 2010. "Guidance Note on the Fund's Transparency Policy." Washington, DC: IMF. <http://www.imf.org/external/np/pp/eng/2013/112613.pdf>.
- . 2016a. "Draft Natural Resource Fiscal Transparency Code." Washington, DC: IMF. <http://www.imf.org/external/np/exr/consult/2016/ftc/pdf/050916.pdf>.
- . 2016b. "How Does the IMF Encourage Greater Fiscal Transparency?" Fact sheet, IMF, Washington, DC. <https://www.imf.org/external/np/exr/facts/fiscal.htm>.
- Journal of World Energy Law and Business*. 2014. Vol. 7, Special Issue on Sub-Saharan Africa: Comparative Views on Anti-Corruption Legislation and Its Enforcement.
- Katz, M., U. Bartsch, H. Malothra, and M. Cuc. 2004. *Lifting the Oil Curse: Improving Petroleum Revenue Management in Sub-Saharan Africa*. Washington, DC: IMF.
- Koeberle, S. G. 2003. "Should Policy-Based Lending Still Involve Conditionality?" *World Bank Research Observer* 18 (2): 249–73.
- Kolstad, I., and A. Wiig. 2009. "Is Transparency the Key to Reducing Corruption in Resource-Rich Countries?" *World Development* 37 (3): 521–32.
- MacPherson, C., and S. MacSearraigh. 2007. "Corruption in the Petroleum Sector." In *The Many Faces of Corruption: Tracking Vulnerabilities at the Sector Level*, edited by J. E. Campos and S. Pradhan, 191–220. Washington DC: World Bank.
- NRGI (Natural Resource Governance Institute). 2015. "Dataset: Unlocking EITI Data for Meaningful Reform." London: NRGi. <https://eiti.org/event/unlocking-eiti-data-meaningful-reforms>.
- OSI (Open Society Institute). 2009. *Breaking the Curse: How Transparent Taxation and Fair Taxes Can Turn Africa's Mineral Wealth into Development*. Washington DC: World Bank.
- Oxfam. 2012. "Hong Kong Stock Exchange Adopts Second-Rate Reporting Guide for Hong Kong Companies." Oxford, UK: Oxfam. http://www.oxfam.org.hk/en/news_1949.aspx.
- PWYP (Publish What You Pay). 2015. *Transparency on the Move: Payment Disclosure by the World's Largest Oil, Gas and Mining Companies*. London: PWYP.
- Ravat, A., and A. Ufer. 2010. *Toward Strengthened EITI Reporting: Summary Report and Recommendations*. Washington, DC: World Bank.
- Rosenblum, Peter, and Susan Maples. 2009. *Contracts Confidential: Ending Secret Deals in the Extractive Industries*. New York: Revenue Watch Institute. <http://www.revenuewatch.org/analysis-tools/publications/contracts-confidential-ending-secret-deals-extractive-industries>
- Ross, M. L. 2012. *The Oil Curse: How Petroleum Wealth Shapes the Development of Nations*. Princeton, NJ: Princeton University Press.
- RWI (Revenue Watch Institute). 2010. *Contract Transparency*. New York: RWI. http://www.revenuewatch.org/training/resource_center/backgrounders/contract-transparency.
- RWI and TI (Transparency International). 2010. *Revenue Watch Index*. New York: RWI. <http://www.revenuewatch.org/rwindex2010/index.html>.
- . 2011. *Promoting Revenue Transparency: 2011 Report on Oil and Gas Companies*. Berlin: Transparency International. http://archive.transparency.org/publications/publications/other/prt_2011.
- Sepp, P. 2012. "How the Dodd-Frank Act Harms the U.S. Energy Industry." *US News & World Report*, February 22. <http://finance.yahoo.com/news/dodd-frank-act-harms-u-172731138.html>.
- UNODC (United Nations Office on Drugs and Crime). 2004. United Nations Convention against Corruption. http://www.unodc.org/documents/treaties/UNCAC/Publications/Convention/08-50026_E.pdf.
- Waelde, T. 1996. "International Energy Investment." *Energy Law Journal* 17: 192.
- Wenar, L. 2008. "Property Rights and the Resource Curse." *Philosophy and Public Affairs* 36 (1): 1–32.
- Westenberg, E., and M. George-Wagner. 2015. "From Reporting to Reform: Eleven Opportunities for Increasing EITI Impacts." EITI Briefing, NRGi, London. http://www.resourcegovernance.org/sites/default/files/nrgi_FromReportingtoReform.pdf
- World Bank. 2009. *Financial Infrastructure: Building Access through Transparent and Stable Financial Systems*. Washington DC: World Bank. <http://siteresources.worldbank.org/FINANCIALSECTOR/Resources/282044-1252596846652/FinancialInfrastructureReport.pdf>

- . 2010. *The World Bank Group in Extractive Industries: 2010 Annual Review*. Washington, DC: World Bank.
- WFTO (World Fair Trade Organization). 2014. "Definition of Fair Trade." Amsterdam: WFTO. <http://wfto.com/fair-trade/definition-fair-trade>.
- ## OTHER RESOURCES
- Burbank, J. 2006. *The Effect of the Kimberley Process on Governance, Corruption and Internal Conflict*. Washington, DC: Fund for Peace.
- Extractive Industries Transparency Initiative. 2011. "EITI Rules." Oslo: EITI. https://eiti.org/sites/default/files/documents/EITI_Rules_Validations_April2011_1.pdf.
- . 2016. "EITI Fact Sheet." Oslo: EITI. <https://eiti.org/document/factsheet>.
- Hentschel, T., F. Hruschka, and M. Priester. 2002. *Global Report on Artisanal and Small-Scale Mining*. London: International Institute for Environment and Development. <http://pubs.iied.org/pdfs/G00723.pdf>.
- International Bar Association (IBA) Mining Law Committee. 2011. *MMDA 1.0: Model Mining Development Agreement*. London: IBA. http://www.eisourcebook.org/2425_The+IBA+Model+Mining+Development+Agreement+MMD+A+Project.html.
- International Council on Mining and Metals (ICMM). 2009. "Position Statement on Transparency of Mineral Revenues." London: ICMM. <https://www.icmm.com/en-gb/publications/transparency-of-mineral-revenues-position-statement>.
- Kimberly Process. 2012. "Washington Declaration on Integrating Development of Artisanal and Small-Scale Diamond Mining with Kimberley Process Implementation, 2012." <http://www.relufa.org/documents/WashingtonDeclaration.pdf>.
- Maconachie, R. 2012. *The Diamond Area Community Development Fund: Micropolitics and Community-Led Development in Post-war Sierra Leone*. In *High-Value Natural Resources and Peacebuilding*, ed. P. Lujala and S. A. Rustad. London: Earthscan.
- Moore Stephens. 2012. *Afghanistan First EITI Reconciliation Report: 1387 and 1388*. Kabul: Afghanistan Extractive Industries Transparency Initiative. <http://mines.pajhwok.com/content/afghanistan-first-eiti-reconciliation-report-1387-and-1388>.
- Organisation for Co-operation and Development (OECD). 2013. *OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas*, 2d ed. Paris: OECD. <https://www.oecd.org/corporate/mne/GuidanceEdition2.pdf>.
- . 2013. *OECD Gold Supplement to the Due Diligence Guidance*. Paris: OECD. http://www.oecd-ilibrary.org/governance/oecd-due-diligence-guidance-for-responsible-supply-chains-of-minerals-from-conflict-affected-and-high-risk-areas/supplement-on-gold_9789264185050-5-en.
- Otto, J., C. Andrews, F. Cawood, M. Doggett, P. Guj, F. Stermole, J. Stermole, and J. Tilton. 2006. *Mining Royalties: A Global Study of Their Impact on Investors, Government and Civil Society*. Washington DC: International Bank for Reconstruction and Development.
- PWC. 2012. *Golden Opportunity: Building an Industry Commitment to Conflict-Free Gold Production*. London: PWC. <http://www.pwc.co.uk/industries/mining/insights/golden-opportunity-building-an-industry-commitment-to-conflict-free-fold-production.html>.
- . 2012. *Comparison between the OECD Gold Supplement and World Gold Council Conflict-Free Gold Standard*. London: PWC. <http://www.pwc.co.uk/industries/mining/insights/golden-opportunity-building-an-industry-commitment-to-conflict-free-fold-production.html>.
- Revenue Watch Institute. 2008. *Drilling Down: A Civil Society Guide to Extractive Industry Revenues and the EITI*. New York: Revenue Watch Institute.
- Rich, E., and J. Moberg. 2015. *Beyond Governments: Making Collective Governance Work—Lessons from the Extractive Industries Transparency Initiative*. Shipley, UK: Greenleaf.
- TRACE International (a global business bribery risk index that facilitates assessment of bribery risk so that compliance and due diligence programs can be designed to address them: <https://www.traceinternational.org/trace-matrix>).

CHAPTER 9

Sustainable Development Implementation



9.1 KNOWLEDGE CORE

Implementing sustainable development requires stakeholders to take a big-picture approach to extractives investment. They have to consider strategically the environmental and social as well as the economic aspects of development. The integrity of ecosystems and areas rich in biodiversity need to be protected, and the interests of poor, vulnerable, and marginalized communities need to be recognized in the planning of resource development if it is to be truly sustainable. This cannot be left to project-planning stages, when investments are committed and plans are well advanced. That is the road to costly delays (even cancellations) caused by conflicts with authorities, communities, and other members of civil society.

The larger goal defined

Although *sustainable development* means different things to different people, the generally accepted definition is from the Brundtland Commission (1987, 41): “Development that

meets the needs of the present without compromising the ability of future generations to meet their own needs.” It is now often associated with the United Nations Sustainable Development Goals, a set of 17 aspirational goals with targets set between them (United Nations 2015, 13).¹ With their emphasis on water, gender, and climate change, the goals are relevant to many of the issues in this chapter, even if they are couched in rather general terms.

The implementation of sustainable development (the process of getting to the common goal of sustainability) is less well defined and more a series of optional tracks. There are various ways of contributing to sustainability, and the way that exploitation of nonrenewable natural capital contributes is known as *nonrenewable natural capital conversion*.

Natural capital conversion

Essentially, extractives-led investment is a transformation of one class of assets—finite, nonrenewable natural capital in the form of oil, gas, or minerals—into financial, human,

social, manufactured, or other forms of capital. The capital conversion in the extractives sector must contribute to the creation of more sustainable opportunities and livelihoods if the sector is to have any legitimacy in the sustainable development agenda. The process should trigger the kind of economic and social development that generates wider effects and proves sustainable beyond the horizon set by the resources themselves.

In this process the extractives companies can be seen as development partners, especially for countries where development and poverty reduction are most urgent. During the capital conversion process (mining, drilling, refining, smelting, and so forth), actions need to be managed in ways that minimize negative environmental and social impacts and maximize benefits in these areas. If this does not happen, citizens will increasingly see extractives development as a Faustian bargain in which the gains prove temporary and unsustainable, and the long-term costs will impede the ability of the environment to sustain ecological and human welfare.

Sustainable development entails balancing and the interplay among social, economic, and environmental values. Often these values may seem to conflict with each other in the short term. For example, industrial growth might conflict with protecting renewable natural resources. However, responsible use of oil, gas, and mineral resources now will help ensure that there are resources available for human well-being and sustained economic growth far into the future. This confronts decision makers with difficult challenges, often involving trade-offs.

Cross-cutting themes

The challenges of sustainability arise at *all* stages of extractives operations, from the activities examined in the first chevron of the EI Value Chain in chapter 4 of the *Sourcebook* to those analyzed under the fourth chevron in chapter 7. It is quite wrong and contrary to current good practice to view sustainability policies as matters that can be left to a later stage, once production is well under way. Policies need to be thought through and designed at the very outset to address these challenges, and they need to be capable of evolving as development unfolds.

The role of research in sustainable development

Theoretically, the need is to ensure that extractives investments have, over their life, at least *not a net loss* to human and environmental welfare. Further, they should aspire to

result in *net positive outcomes*. These concepts are not easy to convert into practical figures in the implementation of truly sustainable extractives. Considerable research is under way into the metrics of these concepts to give them more practicality. Some stakeholders suggest that where there is much doubt about the potential to achieve sustainability goals from an investment, the resource should be left in the ground.

Managing the transformative effects of oil, gas, and mining development so that the balance remains a positive one for the long term will benefit from an awareness of the latest research and thinking about how to conduct extractive industry (EI) activity in a sustainable manner. This is an area that is rapidly evolving, with contributions from the private sector as well as civil society, international organizations, policy institutes, and government practice. For many states, such thinking will be useful only when adapted to their unique country contexts, integrated into policies developed, and approved by the government concerned.

Policies and rules

In the EI Value Chain framework, the “Implementation of sustainable development policies” chevron differs from the other four in at least two ways. First, elements of sustainable development are woven throughout the chain, especially in the first chevron. It does not simply follow on from the previous chevrons. Second, in certain areas such as environmental, health, and safety impacts, the notions of “good practice,” which have been used throughout the *Sourcebook*, and “good-fit practice” are insufficiently demanding when one is designing a response to a specific problem. They may have to be replaced by the more demanding standard of “best practice,” although for health and safety there already should be no option but to pursue best available practice.

Governance

For all countries, a strengthening of governance, institutions, laws, and regulatory policies is critical if sustainable development policies are to be effective. How the benefits are accrued, leveraged, and distributed requires attention to management and oversight. Securing the consent of communities in this process requires the establishment of mechanisms for consultation and cooperation. These challenges and their implications are examined in chapter 10.

Differential approach

This chapter makes three distinctions that help in understanding how sustainable development issues arise and can be addressed in the EI sector and with what instruments. These distinctions are between

1. hydrocarbons and mining activities,
2. social and environmental impacts, and,
3. where appropriate, the stages in the life cycle of the particular activity.

Oil, gas, and mining can be vastly different in the terms of their potential social and environmental impacts and of their management processes. Pollution from oil spills can be major challenges without parallels in mining (although tailings spills in large mining projects may be an equivalent). Issues associated with artisanal and small-scale mining (ASM) are equally important but have no parallel in the oil and gas sector. Oil and gas are almost exclusively capital intensive, while mining has various gradations from capital intensive down to ASM, which is labor intensive but has very little capital investment. Where these differences appear, they are treated separately. They sometimes involve different sets of actors, tools, regulations, guidelines, and analyses. These and other differences also vary in importance according to the life cycle of extractives projects. There are no one-size-fits-all solutions.

9.2 TWO KEY CHALLENGES

Of the various sustainability challenges in the EI sector, two have an overriding importance.

1. How does a government meet the challenge of identifying and implementing policies to ensure that EI sector investments lead to positive and sustainable impacts on growth and development (*the development question*)?
2. How can policies be developed to avoid, minimize, manage, and mitigate the environmental and social costs and risks that accompany a decision to develop a mining or hydrocarbons industry (*the environment and social question*)?

It is important to note that the two questions are not mutually exclusive or independent of each other. Successful environmental and social policies, for example, underwrite positive and sustainable impacts on growth

and development. Environmental protection puts the sustainable element into development.

The challenges are particularly stark in the case of emerging extractives producers, the countries identified as a key target group for the *Sourcebook*. Countries like Afghanistan, Ghana, Guinea, Mongolia, Mozambique, and Myanmar may be attracting investment in their extractives sector, but they suffer from deficiencies in areas such as transport infrastructure and a small pool of skilled labor. They also typically suffer from limited government capacity to manage the new developments. Rectifying this is a priority, but experience suggests it will not be easy or quick. Equally, all countries should be potential beneficiaries of integrated resource planning that takes into account environmental and social constraints and impacts.

The development question

The leveraging or catalytic effect of EI development was introduced in chapter 2 of the *Sourcebook*. EI sector development, through its links to other sectors, can generate benefits to the economy beyond the direct contribution of revenues and job creation. It can act as a catalyst for pro-poor job creation, poverty reduction, an end to aid dependence, and the establishment of forward and backward links, meaning sectors that deliver to and take deliveries from a particular sector (Liebenthal, Michelitsch, and Tarazona 2005, 1). The forward links can entail support for local or national small and medium-sized enterprises by involving them in the investors' supply chains and developing nonmineral-resource-dependent clusters of industrial activity. The backward links entail measures to process the resources or to use the resources to build local industry. The distinction is used largely to quantify the impact of changed output in the extractives sector on the rest of the economy.

As a lever for infrastructure development (such as roads, railways, water systems, and power delivery) in settings where it is seriously deficient, the EI sector can open up opportunities in new industries, including agricultural exports and tourism. These can endure long beyond the exhaustion of the resources of the initial anchor project. If one were to seek a single justification for supporting the EI sector in low- and middle-income countries, in spite of the undeniable risks discussed in various chapters of the *Sourcebook*, this could be the most persuasive. It is addressed in section 9.3. It should

also be noted that opening up infrastructure can result in the destruction of biodiversity and ecosystem integrity.

The environment and social question

The development of either the mining or the hydrocarbons industry entails risks but also benefits to the environment and always imposes costs in some measure. The importance of planning ahead to maximize the benefits, minimize the risks, and manage the impact of EI activity on the environment is much better understood in the 21st century than it was before. The overabundance of toolkits, guidance, and standards shows both an appreciation of the problems and a confidence that preproject preparation can bring about benefits. Alternatively, it may demonstrate a concern about poor standards that influenced decision making in the past.

However, in spite of greater knowledge, environmental and social questions remain enormously challenging, particularly when extractives activity occurs in sensitive or protected environments such as rainforest or coral reefs. (Areas needing attention can be expanded to include ecologically vulnerable environments; regions increasingly affected by climate change and prone to droughts and floods; or regions already depleted from previous exploration or extraction.) We cannot assume that mining should and will happen in all of these areas; it should not be allowed at all. Evidence of oil spills from tankers, pipelines or wells; of gas leaks; of mineral excavation; and even of disasters is all too abundant, in spite of important advances in technology and significant efforts by the respective industries. Damage may be long term and possibly irreversible. This is discussed in sections 9.4 to 9.5).

The potential impacts of EI development on local communities, indigenous peoples, and women are much better understood now than in the past but still require determined action by policy makers—and enforcers—to be translated into benefits and, where there are risks, to take preventive and remedial measures. In particular, there is greater appreciation of the risks to vulnerable and disadvantaged groups in society who, by definition, are likely to have little impact on the design of policies.

Based on all the foregoing considerations, governments have to decide whether or not to allow EI sector development. The decision should be guided by a comprehensive cost-benefit assessment and extensive public consultation incorporating best estimates of the social and environmental trade-offs of development.

9.3 CHALLENGE I: DESIGNING AND IMPLEMENTING POLICIES TO ENSURE THAT EI SECTOR INVESTMENTS CREATE POSITIVE AND SUSTAINABLE IMPACTS

The problem

Substantial research and debate has focused on the role of public policy in leveraging EI investments to create long-term benefits to the host country.² To some extent this level of interest is a reaction against previous thinking about development, in which the dominant policy objectives, recommended and often followed, were the attraction of inward investment and the use of oil, gas, and mining resources as a way of generating revenue. Not infrequently the benefits have enriched local elites at the expense of the general population, in contrast to the often implicit assumption that they would trickle down. The results of that narrowly economic focus are not generally regarded as having established a springboard for development.³

Instead of offering a range of benefits, extractives operations have all too often acquired an “enclave” character. They have been located in remote inland or offshore places far from the major population centers, and the economic development they have generated has been limited to a very tightly defined geographical area around the project. Moreover, the project has often involved a single company or consortium, managing a particular operation that is overwhelmingly dominant in the national economy. However, times have changed. In terms of environmental and social performance, operating “out of sight and out of mind” is no longer possible in the era of social media and instant news coverage.

The focus among some governments and their advisers has shifted to finding ways of embedding the extractive activities in the evolving local economy, guided by broad plans for economic growth in the countries that host them. The *African Mining Vision* (AU 2009) has been a seminal document in this evolution in thinking, most recently by introducing a Private Sector Compact. It is based on the idea that the mining sector in Africa has to be evaluated on a regular basis in terms of its contribution to long-term development goals. It is a small step from this to giving greater weight to the use of EIs like mining to assist in the development of economic links and diversification. The assumption, sometimes explicit but always present, is that the EIs have the potential to provide this leverage for development purposes. However, to achieve sustainable and long-term benefits, these opportunities need to be consciously identified and pursued.

EXAMPLE. The development of a mining project can depend on large-scale investment in infrastructure, including transport, power, and water supply. In landlocked countries, this is likely to be particularly challenging. In a country like Mongolia with the lowest population density in the world after Greenland, and with distances that are vast and transport networks that are minimal, infrastructure acquires enormous economic and social significance. The export of large quantities of copper and coal becomes impossible without a substantial upgrading of transport capacity. In turn this offers the prospect of substantial spin-off benefits if the parties can agree on an equitable formula.

The tools

What policies and practices (both public and private) should be adopted to promote sustainable development at the local, regional, and national levels? A key consideration is the development stage of the EI in a given country. Is it established, being established, or yet to be established? These stages exist, respectively, in Nigeria, Mozambique, and Kenya.

LOCAL BENEFIT. Job creation and the growth of small and medium-sized businesses are central components of the promise of extractives-led development. Without them, oil, gas, and mining activities cannot act as a springboard for diversification and wider development. They counter the enclave character that has historically seemed a feature of EI operations, with staff, goods, and services brought in from abroad and with limited impacts on the domestic economy. As a response, a policy of local benefit (often referred to as *local content* in the literature) seeks to create value added anywhere in the domestic economy, as a result of the actions of the foreign investor. It has grown in popularity to such an extent that it is now a central policy aim of most governments in resource-rich economies (for an example in the oil and gas sector, see Tordo et al. 2013). However, there is considerable debate about the most appropriate instruments to use to achieve it, and even the very definition of it. A company may be deemed “local” according to its place of registration, the percentage of local ownership, the presence of nationals on the company’s board and among its shareholders, its workforce, or its value-added activities carried out in the country. There is a spatial dimension too: how “local” is local benefit? Does it ultimately mean national? In most local benefit laws, such as those in Ghana, Kenya, and Nigeria, the term

local in local benefit is not defined. In the Nigerian Oil and Gas Industry Content Development Act, 2010,⁴ Nigerian content (benefit) is defined as “the quantum of composite value added to or created in the Nigerian economy by a systematic development of capacity and capabilities through the deliberate utilization of Nigerian human, material resources and services in the Nigerian oil and gas industry.” The Ghanaian Petroleum (Local Content and Local Participation) Regulations (2013) are less clear,⁵ favoring “locally produced materials” in their definition, but a national perspective appears to be the intention rather than the subnational locality or region where the oil and gas activities occur. The risk from this approach is that the investor will fail to obtain a social license to operate. Instead, the focus could be on “community content” described as “the interface between community investment programmes with local content” (Warner 2007). As a sub-component of a local benefit policy, “community content” may generate local community preferences in employment and procurement.

There is no universally agreed definition of local benefit (content). At best, it will be country-specific, but even then there may be variations. Nor is there any generally agreed body of good practice in local benefit, although that may not be far away.

Experience to date has often been disappointing. With only a few exceptions, such as Norway and Canada, the EIs have *not* proven to be engines of job creation for local people and have created few links to local firms. Much recent research has focused on why EI activities have failed to deliver in these areas and why in particular instances local benefit policies and laws have not met expectations. One important reason has to be that large extractives companies are becoming increasingly capital intensive, particularly in the mining sector, as well as more efficient and computerized. Reconciling this with local job creation is a challenge. This section reviews the main features of local benefit policies and practices.

What Local Benefit (Content) Includes. Allowing for a wide variation from country to country, the two broad categories of local benefit normally sought by a host government are local procurement and capacity building. Within these categories two further distinctions may be drawn: between upstream and downstream links. The first subcategory involves the promotion of local firms in the supply chains of foreign investors, the increase in local firms’ capacity in fields that often involve specialist skills, and the development

of clusters of economic activity that are not resource dependent. The second subcategory involves activities such as processing and refining, and even the use of the resource, particularly if it is coal, gas, or oil, to build local industry. An example of this is Anglo American South Africa's enterprise development and investment fund, Anglo Zimele. From 1989, it has supported more than 1,000 businesses providing jobs to more than 20,000 individuals.

OBJECTIVES. Usually, local benefit objectives fall into one of two types:

1. Those that set specific minimum targets
2. Those that set flexible goals

In the first type, objectives are typically set for local employment or suppliers in the form of minimum targets for the employment of local labor. In Angola's petroleum sector, for example, companies are required to ensure their workforces consist of at least 70 percent of Angolan nationals. Foreign workers may not be hired except in circumstances in which no national worker with equivalent qualifications is available. Tanzania takes a different approach. If a foreign national is employed in the petroleum sector, a succession plan has to be submitted along with the work permit application so as to ensure that a Tanzanian national "succeeds" to the job. Targets may be extended to senior managerial positions and be reserved for nationals. A specific percentage may be reserved, as in Ghana where, for a company to be treated as indigenous, no less than 80 percent of its executive and senior management positions have to be held by Ghanaian citizens.

In a Liberian mining contract, the targets are also fixed. The parties must agree on progressive implementation of an employment schedule so as to cause citizens of Liberia to hold at least 30 percent of all management positions, including 30 percent of its 10 most senior positions, within five years of the Effective Date, and at least 70 percent of all management positions, including 70 percent of its ten most senior positions, within 10 years of such date."⁶

Similarly, in Mongolia, the Oyu Tolgoi Agreement (2009) requires that "not less than 90% (ninety percent) of the Investor's employees will be citizens of Mongolia." This does not extend to subcontracting, however, where the investor is required only to use its "best efforts" to ensure that at least 60 percent of construction employees and 75 percent of mining-related employees are Mongolian citizens.⁷

As an example of flexible goals in the second type of benefit objectives, the Afghanistan Qara Zaghan mining contract requires the investor to "employ Afghan personnel, to the extent practicable in all classifications of employment, for its Gold Production Facilities construction and operations in Afghanistan."⁸

Objectives are also set for local participation but may be expressed as preferences or mandatory requirements. Usually, foreign companies will be required to form partnerships with local entities, but further conditions may be imposed. In Uganda, for example, if goods and services required by the investor are not available in the country, they have to be obtained from a company that has entered into a joint venture with a Ugandan company, which must have a stake of at least 48 percent in the venture.

Preferences may also be invited for the procurement of local goods and services to boost local supply chain development. However, this is usually accompanied by the condition that such goods and services are of comparable quality and quantity to international materials and services and that the price does not exceed that of foreign goods and services by a certain percentage. In Africa, such conditions are found in Angola, Mozambique, and Kenya. In Nigeria, local service companies are required to have exclusive treatment if they can demonstrate that they possess the requisite capacity.

Local benefit is an example of a policy where various stakeholders have a common interest. Governments seek to maximize the number of jobs created by the extractives activity and to introduce new skills, know-how, and technologies into the local economy. Investors have a shared interest in generating local jobs, skills, and industry. There are also complementary interests among the private and public sectors in areas such as training and access to finance.

Policies. Some governments include commitments to local benefit in broad policy statements. Ghana, for example, has a Local Content and Local Participation in Petroleum Activities Policy Framework,⁹ setting out its strategies on how the government intends to develop the oil and gas industry in these areas. In practice, these broad policies must be understood in combination with regulations and investor-state agreements such as concessions or production-sharing contracts, which usually contain the legally binding requirements on local benefit, such as the preparation of a detailed plan.¹⁰

A risk of legal measures to promote local benefit is that they conflict with the requirements of international

economic law, whether this is World Trade Organization (WTO) rules or the provisions of a bilateral or multilateral investment or trade agreement. This will depend on the circumstances of the country concerned. There has been research into the various barriers that local benefit regimes can erect and why they may invite a response from the WTO (Cimino, Hufbauer, and Schott 2014; Ado 2013). At the same time, this research suggests that WTO rules impeding the application of local benefit policies are rarely enforced.

Legislation. Two kinds of legislation are typically used (but not necessarily together) to give a legal form to local benefit.¹¹ Some countries have specific legislation to implement local benefit policies. In practice, this is done in the oil and gas industry but much less so in mining, where the contract instrument is preferred. An example of this in the oil and gas industry is the Nigerian Oil and Gas Industry Content Development Act (2010), which applies to all transactions or operations carried out in Nigeria's oil and gas sector and to all operators in it. There are four main objectives in the Nigerian legislation:

1. Development of indigenous skills across the oil and gas value chain
2. Promotion of indigenous ownership of assets and use of indigenous assets in oil and gas operations
3. Enhancement of the multiplier effect to promote the establishment of support industries
4. Creation of customized training and sustainable employment opportunities

Alternatively, there may be local benefit–relevant provisions in sector legislation, usually in rather general terms. For example, countries that have broad local benefit provisions for mining set out in their national legislation are Indonesia, South Africa, and Zimbabwe. Under Indonesia's Mineral and Coal Mining Law (2009),¹² companies are required to give priority to local employees and to domestic goods and services, and to divestment of foreign shareholdings in local companies after five years of production. The law also contains provisions to encourage development of processing and refining of mining products in Indonesia, with the promise that “the extent of the required local processing and refining are to be specified in the implementing regulations” (articles 95–112 and 128–133). This is discussed further in the subsection “Beneficiation.”

Regulations may also be issued to clarify the provisions in the legislation. These may be specific local benefit

regulations or sector regulations that contain specific local benefit obligations. Subnational governments may also set and enforce local benefit–relevant regulations, although that is unusual.

These links can also be promoted by regulatory controls and project approval requirements. Local benefit plans can be required as part of broader economic development plans.

Contracts. Many extractives contracts between investors and states include requirements to maximize the economic opportunities from investment (see chapter 4). The goal is to ensure that the extractives activity is aligned to sustainable growth and development. Typical provisions in a contractual clause would include the following requirements:

1. To promote participation by local firms (supply chain procurement)
2. To hire nationals for certain tasks (employment)
3. To provide programs of skills enhancement (training)

It is less common for the contract to require the investor to provide for downstream links, as in processing of minerals, for example. Such development links may be desirable but nevertheless prove to be not economically viable. This important consideration is evident in a provision of the Mongolia-Oyu Tolgoi Investment Agreement (2009),¹³ which states the following:

3.19 Within 3 (three) years after the Commencement of Production, the Investor will, if requested in writing by the Government, prepare a research report on the economic viability of constructing and operating a copper smelter in Mongolia to process mineral concentrate Products derived from Core Operations into metal (the Smelter). . . .

3.20 If the Government either alone or in conjunction with others or a third party plans for the construction of a Smelter in Mongolia, the Investor will, if requested in writing by the Government, provide on agreed terms, with preferential access, Rio Tinto's (or its Affiliates) Proprietary Technologies held in joint venture with Outokumpu, for the operation of the Smelter.

3.23 If the Investor constructs a Smelter in connection with implementation of the OT Project, that smelter will be in Mongolia.

This highlights the importance of design in local benefit provision. Downstream links can be highly capital

intensive, yielding low profitability for the investor. For countries with little comparative advantage (lacking inexpensive energy, proximity to the market for the finished product, or skilled labor or a stable currency), it may make no sense at all to seek to persuade an investor to embrace such links, and instead rely upon the more familiar upstream ones.

Investors seek to identify whether parties to contracts such as production-sharing contracts (PSCs)—such as national oil companies (NOCs) or national privately owned companies with political connections—can exert additional leverage on the pursuit of local benefit objectives.

The ambiguity of some approaches to enforcement is evident from the Mongolian OT contract (2009) which imposes fines on the company if it hires too many foreign employees (article 8.7):

If the Investor employs more foreign nationals than the specified percentage set forth in Clause 8.4, the Investor shall pay a monthly fee of 10 (ten) times the minimum monthly salary for each foreign national in excess of the specified percentage.

However, the contract also states that a breach of local hiring requirements will not constitute a breach of the overall agreement and cannot be used by the government as a ground for terminating the contract (article 8.9).

Community Development Agreements (CDAs). Local benefit requirements can be built into agreements reached by mining companies with local communities. These can be dedicated agreements such as are found in Australia and Canada or community development agreements (see World Bank 2012). Investors will be keen to learn if they are expected or required to commit to CDAs or similar benefit-sharing agreements with local community organizations or specific socio-economic groups.

Industry and Other Initiatives. Companies have an interest in supporting the development of local skills in their countries of operation. This is often associated with the idea of “shared value,” which “views the competitiveness of a company and the vitality of the communities where it operates as mutually dependent” (IPIECA 2016, 8). The idea can be extended to an understanding of shared value vis-à-vis natural resources in the region, such as the use of water resources in a watershed.

International organizations also encourage initiatives to support new solutions to fill skills gaps, such as the African

Skills Initiative, a private-public partnership comprising the United Nations Economic Commission for Africa, AngloGold Ashanti, and AusAID. In 2015 the African Development Bank set out a strategy for the African Natural Resources Centre to deliver capacity-building programs to regional member countries of the bank. Subsequently, the center has developed a generic roadmap to help policy makers formulate effective local benefit policies.

Such initiatives may prove more effective than ones that are based on a combination of mandatory primary and secondary law. They may be more sensitive to the need for the level of local benefit to be increased gradually as the availability of qualified local professionals and firms grows.

Making It Work. The use of mandatory legal requirements on local benefit (in terms of providing services and holding upstream equity shares) can be problematic. Various studies agree that two major challenges face many local benefit initiatives: poor design and weak enforcement.¹⁴ Particular failures identified in recent research include the following (McKinsey Global Institute 2013):

- A lack of sector-specific requirements, preferring blanket provisions that apply across all sectors
- A failure to set the correct value pools in terms of fit with local capabilities
- No time frames set or sunset clauses defined (An immediate fulfilment of local benefit shares is often preferred to a gradual build-up of local benefit shares. Local firms may have little incentive to reach global competitiveness due to the absence of any sunset clause on preferential treatment given to them.)
- No supporting government institutions for local benefit policies and regulations

“Forced marriages” are sometimes encouraged by governments, whereby foreign companies are required to support a particular local company, with little opportunity or ability to vet the local partner. On a number of occasions, investigations have been launched into transactions under the Foreign Corrupt Practices Act, in for example Angola. The beneficiaries of local benefit requirements can in practice be a small number of companies, often with political connections. This can lead to the phenomenon of “elite capture” of domestic economic entrepreneurs and is not going to lead to large-scale job creation (Nwapi 2016, 21–23).

Often capacity will be lacking, making enforcement of such regulations difficult. Nigeria, for example, lacks the personnel to replace expatriate workers, and its infrastructure capacity is

limited in, for example, steel production. There is no reason, however, why this should not be challenged by means of gap studies examining industry-specific weaknesses related to cost, quality, procurement readiness, and health, safety, and environmental compliance. In Tanzania, just such a mapping exercise was carried out in relation to local content development opportunities arising from the country's oil and liquefied natural gas (LNG) project.¹⁵ The idea was to prepare Tanzania to capitalize on oil and gas investments but also to support the economy in ways that made it sustainable independently of the investments linked to construction of an LNG facility.

In understanding what works and what does not, there is much to be gained by comparative analysis. In local content, there are many country profiles available for this purpose. The Columbia Center on Sustainable Investment (CCSI) has conducted surveys of local content frameworks in various countries, noting the legislation, regulations, contracts and non-binding policies and frameworks that have addressed local content in both the hydrocarbons and the mining sectors. Its series of Local Content Profiles examine each country's implementation, monitoring, and enforcement provisions as well as the relevant WTO agreements and investment treaty provisions that may impact on local content standards (CCSI 2016a).

Beneficiation. Beneficiation policies, which promise the addition of value in exports of EI commodities, have captured growing interest among governments. In mining, this might involve the prohibition of exports of unprocessed commodities, as has happened in Indonesia with copper and nickel. The Indonesian experience is salutary although not conclusive. The aim behind a blanket prohibition on exports (itself part of a wider reform of the country's Mining Law) was to increase participation by domestic companies in the mining sector. The coordinating economic minister stated that its intention was to "add value to mineral exports by having them processed in Indonesia and create more jobs" (Freehills 2016). Upstream producers would be compelled to refine minerals before export and so grow domestic processing businesses. A transition period of three years was set from January 2014. By early 2016 there had been a negligible increase in Indonesia's mining-processing capacity. Various factors can be attributed to this failure to date. For example, in the background commodity prices have been low, foreign investment has been directed at other emerging markets, and the capacity of the Philippines for nickel exports to China has increased. This context means that most of the current smelter projects are economically unviable and also adversely affected

by public infrastructure problems. The prohibition was also followed by supplementary government regulations, which add to the complexity of the measure and create greater uncertainty for investors. Finally, there is a planning approval system in place for foreign companies seeking to establish or increase in-country processing that duplicates provincial and national regulatory requirements.

The thinking behind the Indonesian initiative is not unique. Several African countries have taken a similar route. South Africa has imposed many export controls on unprocessed minerals; Botswana in diamonds; Zambia in copper; Zimbabwe in unrefined gold and raw chrome; Ghana in oil; and Mozambique in natural gas and coal. There are differences, however, within the policies. South Africa's policy aims at transforming final products of mineral processing into manufactured products, while Zimbabwe's, for example, is targeted mainly at a limited downstream change, particularly to include smelting and refining (Euromix Research 2015). A contrasting approach is that of Chile, where copper processing in-country has not been a focus and instead exports of copper to China and India as concentrate have been the overriding objective (Halland et al. 2015, 93–98). Similarly, Norway's policy on diversification selected sectors for which capacities already existed, such as construction and the provision of specialized technical services, and avoided most downstream industries (except oil refineries and gas processing plants). A challenge for the beneficiation approach arises from the very different kinds of industry involved in primary extraction and downstream processing and manufacturing. Having a comparative advantage in one does not imply a similar advantage in the other.

Unintended consequences of local benefit measures can include the risk of enhanced corruption as local benefit decisions align with local vested interests. Tensions arise from the perception that certain interests are being favored over others or dependence on demand from the extractives sector increases, only to prove vulnerable to the usual economic cycles discussed in chapters 2 and 7 of the *Sourcebook*.

Local Benefit Summary. None of the negative features of local benefit experience to date are fatal to the general idea behind it or the aspiration that it represents. Indeed, many shortcomings are linked to the stage of development of the EI in the country concerned: capacities can be built, institutions can be improved, and governance quality can be enhanced. Comparing and contrasting approaches to local benefit policy and implementation has never been as easy as it is today. We might usefully recall one set of

principles as a guide when designing effective local benefit (McKinsey Global Institute 2013):

- Identify areas where local benefit is likely to be effective; job creation differs significantly between oil and gas and mining, and within each from one stage of investment to the next.
- Understand competitive advantage; a lack of industrialization means that the opportunities for local benefit are limited, at least initially.
- Assess the opportunity cost of regulatory intervention; if regulations raise costs and cause delays, the impact will overall be negative.
- Enable local suppliers; the aim of local benefit regulation should be supportive by encouraging skills development, providing financing, and coordinating local suppliers.
- Monitor progress; ensure that a regulatory body can coordinate efforts with some enforcement powers.

RESOURCES-FOR-INFRASTRUCTURE. The lack of infrastructure required for extractives development in new resource-rich

countries has already attracted the attention of development advisers as a significant barrier to wider development from extractives projects. Mining projects, especially of low-value, high-volume commodities (coal, iron ore, and copper), require significant investment in infrastructure such as railways, roads, and ports. Oil and gas projects are less infrastructure intensive but still require ports and substantial networks of pipelines. Given the need for such investments among the new states, there is clear potential for leveraging extractive activities to the host country's advantage. Not only could they help address the obvious need for infrastructure in the wider economy, but they could also help link a country to financial services, logistics, and technological development. Excess capacity could be built into new grids to benefit industry and other users; similar provision could be made with respect to roads. Different operators could share the use of power capacity in mining projects and pipelines in oil regions. Examples can be found most readily in frontier areas, new to large-scale extractives projects, such as Mongolia, Guinea, Mozambique, and Sierra Leone (see box 9.1 for a summary of the Liberian approach).

Box 9.1 Liberia: Open Access Regime in Mineral Development Agreements

"The Government shall, in consultation with the Concessionaire, and on reasonable notice to the Concessionaire, authorize third parties' use of excess capacity of the Railroad (including the portion of the Railroad located within the Concession Area) and the Port Facility, *provided that the Concessionaire confirms that excess capacity exists and third party use of such excess capacity does not unreasonably interfere with the efficient and economic conduct of the Operation.* [emphasis added]

"The *technical and commercial* terms for such third party use of the excess capacity of the Railroad and the Port Facility *shall be mutually agreed to, in good faith,* among the Government, the Concessionaire and such third parties in accordance with applicable use and International Standards, it being understood that *third parties shall be treated on a nondiscriminatory basis. A formula to proportionately share the revenue fees to be derived from such third party use of the Railroad shall be agreed upon in good faith* between the Government and Concessionaire.

Source: Liberia, Mineral Development Agreement 2012.

"Such *third party access and use shall be at no cost to the Concessionaire and all related costs shall be borne by the third party.*

"In the event that the Government believes that the Concessionaire is withholding third party access to the Railroad or the Port Facility in contravention of this Agreement, *the Government may request a review of the Concessionaire's decision not to grant access.* The review shall be heard by the Committee described below.

"There shall be constituted a Committee with five (5) members. Two (2) members of the Committee shall be appointed by the Government and two (2) members shall be appointed by the Concessionaire. *The final member shall be appointed jointly by the Government and the Concessionaire.* The Committee shall hear and review all complaints regarding third party access to, and third party modernization or expansion of, the Railroad and shall forward its recommendations together with an explanation of its rationale for such recommendations, to the Parties to this Agreement."

Essentially, governments may be able to piggyback on large infrastructure investments by extractive companies to fill capacity gaps and save on their overall capital spending. Similarly, extractive companies “can share their infrastructure capital spending with others, thereby managing some of their capital exposure risk” (McKinsey Global Institute 2013, 53).

This idea of sharing may seem obvious and hardly surprising. However, in the past international investors have tended to be reluctant to invest in infrastructure other than in telecoms and energy in many countries and hesitant to invest in some social development programs, due to long paybacks and uncertain cash flow, as well as country risk premiums.

Partly because mining and hydrocarbons projects are often located in remote areas, on land or offshore, investors have long tended to adopt the enclave approach to development, gathering around them the power, water, information technologies, and transportation services they require to ensure reliable infrastructure for their operations. Contract provisions reflected this, requiring governments to ensure rights of access and a right to construct the necessary infrastructure. In recent years, the growing role of non-OECD investment funds from China, India, and Arab states and their preference for linking finance for infrastructure to resource access has underscored the limited developmental benefits accruing from the enclave approach. It has fallen from favor as a result.

There is now enthusiasm in using project finance to achieve development goals. For example, the African Union Commission and United Nations Economic Commission for Africa have argued in the *African Mining Vision* that using minerals as the core for infrastructure development planning will simultaneously co-opt private participation and unlock major sources of public finance (AU 2009; AUC and UNECA 2011). Governments should, in their view, engage mining companies, mining associations, and chambers of mines in partnerships for infrastructure finance. They should also undertake studies for mining spatial development initiatives. Other initiatives in this area have come from the African Industrialization and Development Strategy,¹⁶ the International Finance Corporation (IFC), and the OECD Development Centre (IFC 2013). There have also been guiding principles issued from the World Bank’s Energy and Extractives Group addressing mine-related infrastructure (Stanley and Mikhaylova 2011).

Against this, the IFC has noted the “dearth of examples of successful, relevant, greenfield transport mining” public-private partnerships, which “suggests that there are limited options with respect to commercial structures that will

result in successful project financing and execution.” It may be rooted in the “limited interest among mining companies to share infrastructure” (IFC 2013, 9). Among the projects discussed, only a few will progress and those probably at a slow pace, given the decline in investor interest following the commodities downturn and resulting capital constraints.

Practice. As much as the idea may be clear, the practice is not. Arguments abound over the most appropriate models for the ownership, operation, and financing of infrastructure, but two kinds of infrastructure arrangements can easily be distinguished:

1. Resources-for-infrastructure arrangements: this involves the granting of rights to provide infrastructure for green-field operations but also for providing infrastructure that is not necessarily related to a mining project (harbors, public buildings, and so on).
2. Infrastructure-related arrangements: this kind of infrastructure is directly associated with a mine or a petroleum project, such as transportation links.

Resources-for-infrastructure arrangements are the kind of deals associated with and championed by Chinese companies in Africa (see the Angola model mentioned in chapter 2). An example is the joint venture established between the governments of China and the Democratic Republic of Congo, with the foreign investors agreeing to finance up to US\$3 billion in infrastructure projects. International Monetary Fund (IMF) criticisms have been made of it, and the amounts have been reduced.

Other vehicles for resources-for-infrastructure have been discussed but none appear to be ideal. The use of foundations, trusts, and funds in the mining sector may offer a way forward.¹⁷ Usually, these entities are associated with community investment, compensation to mitigate impacts of projects, and government payments. They have several advantages, such as flexibility, transparency of governance rules, and assurances with respect to flows of money. They could therefore be used as funding structures to finance infrastructure projects and as a management tool for a variety of projects. Even if this model were to be adopted, the requirements for the infrastructure project would need to be set out in the tendering documentation, and an independent party would have to ensure or oversee the performance of the works. Provision would have to be made for early termination of the mining rights if performance was unsatisfactory.

For the host country, the identification of resource links is a task that has to be timed carefully. If it is not done at the outset, it will be very hard to amend the terms of the contract so that they are required if a project subsequently proves to be commercial. Yet both parties will face unknowns at such times. Will the project ever reach commercial discovery and development and, if so, what is the scale of the deposit and the market price for it? The *African Mining Vision* has underlined the importance of these links, noting that if rights are awarded at the outset the local economy may not yet be in a position to take advantage of the opportunities that the links offer. In particular, the *African Mining Vision* notes the importance of third party access to the resource infrastructure (transport, energy, and water) at nondiscriminatory tariffs. Further, at an early stage of the project, even when in development, it will be difficult for the parties to determine what infrastructure is necessary. Typical requirements will include power supply, extension of road and rail network, water supply, and port facilities. Without any open tendering, it will be difficult to attach economic value to the proposed infrastructure.

So far, the ways in which this infrastructure deficit has been addressed have enjoyed only very qualified successes in sustainable development terms. To begin with, the infrastructure has tended to be project focused only and restricted to privately owned assets. Financing has usually been obtained through government-to-government partnerships. The resource-for-infrastructure swaps are an illustration of this. This model can produce results in the near term, but questions have been raised about quality, environmental impact, transparency, and debt sustainability.

Obstacles to a strategy of promoting such deals are many:

- On the legal side, two may be noted. Sometimes the resource rights are awarded in ways that do not accord with the kind of tendering requirements normally applicable in public works contracts or concessions. In some countries there are legislative provisions that prohibit the implicit or explicit sale of planning or exploration permits in return for public benefits. However, the business-related obstacles are perhaps more fundamental. After all, the risks attaching to mining and infrastructure projects are different and require different skills. The key players are not the same in each field. Lenders will not accept a mixing of risks that have a different profile.
- Infrastructure projects will normally require costly design and feasibility studies that mining operators will not wish to undertake or support as long as the

profitability of the mining project is uncertain. The funding requirements of an infrastructure project will not usually fit well with the long payback period of a mining project.

- The companies involved will include both mining companies and construction companies, creating additional complexity for the contractual arrangements.
- It should also be noted that these arrangements do not imply local benefit. There is usually no guarantee or requirement that local labor or local companies would be employed on such infrastructure transactions. Indeed, the guiding assumption is more likely to be that foreign expertise, equipment, services, and even labor will be brought in to carry out the infrastructure project, with resulting losses in economic benefits.
- Finally, there will be a need for the parties to design and implement complex transactions and for government policies and approvals to be coordinated. Many projects rely on “regulation by contract” to compensate for the absence of a clear legal framework, but this will work only if the overall legal framework in the country is supportive (contracts will be legally enforceable, for example). Many of the new resource-rich countries are also ones in which the rule of law is weak and negotiating capacity for complex contracts is limited, so both of these features are likely to act as a deterrent for lenders. (See box 9.2 for a summary of parties’ objectives in negotiations for an infrastructure project.) As the IFC notes, “The magnitude of potential losses from discriminatory, unjust legal and regulatory action is so large that the presence of risk can overwhelm all other considerations and make the project nonbankable” (IFC 2013, 20).

Resource Corridors and Infrastructure Access. The idea behind the resource corridors concept is that the link between rigs and mines to port, rail, and road investments can catalyze supporting and ancillary economic activity, creating development corridors alongside extractives-related infrastructure.¹⁸ An example is the Nacala Corridor linking Malawi, Mozambique, and Zambia by rail and connecting coal-mining areas to the Nacala port. Linked to this idea is a requirement that third party access to such infrastructure be facilitated. Such shared infrastructure is thought to benefit sustainable economic growth.¹⁹ In many parts of the world there are regions that have been identified as having resource corridors that could act as platforms to catalyze and deliver economic growth and wider

Box 9.2 Objectives of the Parties to an Infrastructure Project

Project Sponsor Objectives

Critical

- Avoid disputes with government
- Have operational control over rail network, including access
- Have priority rights over acquired capacity
- Avoid any material adverse impact on operating costs:
 - Disruption of operations
 - Additional inventories
 - Repair and maintenance costs
- Avoid benefiting direct competitors
- Have flexibility in case of breakdown, force majeure, and so forth
- Have future expansion rights

Secondary

- Have access to cash flow from third parties for:
 - Recovery of portion of capital cost
 - Generating cash from third party
- Have ability to have joint venture or otherwise participate with local mining projects

State Objectives

Critical

- Promote open access in a manner that does not prevent the development of key projects
- Preserve possibility that marginal deposits can be developed
- Diversify exploitation of mineral resources among various sponsors
- Promote future uses by new industries (for example, agriculture)
- Ensure access rules are clear and transparent
- Maximize fiscal position

Secondary

- Minimize required regulatory oversight

Third Parties' Objectives

- Have bankable access rights:
 - Secure capacity
 - Long-term horizon
 - Predictable tariff

development, such as economic diversification, regional integration, increased trade, and improved livelihoods.

On the negative side, however, such corridors have the potential to open up areas to illegal trade in forest and wildlife products, create barriers to migration routes, and risk introducing invasive, alien species that can act as carriers of diseases or replace indigenous species (Hobbs and Kumah 2016). They also take years to develop, due to the phasing of extractives projects because they are not built in isolation but must compete for funding and interest with all other forms of economic activity. Price volatility will impact on the extractive activities in the meantime. Initial experience suggests the expected benefits are still far from being achieved.²⁰

One study has noted, “Concerns exist that to-date corridors have not been properly planned by governments, that infrastructure investments have taken place with little or no strategic consideration to environmental degradation and climate change resilience, and that this will ultimately reduce the positive economic and social development impact of the corridors. For this to change, the corridors need to be planned not only from an infrastructure and

investment feasibility perspective, but taking into consideration socio-economic and environmental factors, as well as the protection of critically important areas of high conservation value in situ” (IRCI 2015, 2).

The idea behind this critique is that such corridors require an integrated approach. For example, investment and policy decisions should build in adaptation to predicted impacts of climate change and should be screened for compatibility with a sustainability vision. From the very outset, a corridor project needs comprehensive baseline information that identifies the sensitive areas that need to be protected (Hobbs and Kumah 2016). They require development coordinated among multiple branches of government, in conjunction with the private sector, communities, and civil society organizations. With this level of integration, a resource corridor project should be driven by best practices and should be able to protect the integrity of the ecosystem.

Shared Use. A strong determinant of resource corridor definition is the potential for shared use of infrastructure. There are two ideas at work in the notion of shared use.

The first refers to a multiuser approach in which several companies in a region develop or use common infrastructure. This can lead to economies of scale among the various companies and increase tax revenues to the government. The second refers to a multipurpose activity, where nonmining users share the infrastructure with the mining company. This also offers efficiencies in terms of access to water, energy, transportation, and telecommunications services, all of value to economic development in the region.

The viability of a shared-use concept is dependent on ownership structures. Companies that have built their own infrastructure or bought it from a predecessor are unlikely to be willing to share it. For infrastructure that is strategic to the extractives operation, such as ports or railways, a shared-use approach may constrain capacity or entail high costs of coordination. Where such infrastructure is nonstrategic or less so, flexibility can be expected.

An alternative model of ownership would involve ownership by a third party or a state-owned company. The government will be better able to limit exclusive access to a particular company. The trade-off is that the project may be developed more slowly as a result. A government demand for such access is also likely to lead to a less favorable deal on fiscal terms.

It is important to note the differences in opportunity between various minerals. For example, a bulk commodity such as coal or iron ore will require the development of railways, while gold extraction will require only roads but correspondingly more access to water resources. Similar differences will arise with respect to energy demands. This will have an impact on demand patterns for third party access to infrastructure.

9.4 CHALLENGE 2: ENVIRONMENTAL AND SOCIAL IMPACTS

The conventional view is that the environmental and social footprint of mining is greater than that of the hydrocarbons sector. With the rapid expansion of the hydrocarbons sector in the early 21st century into many new countries around the world, both on land as well as in offshore waters, this view needs revision. During this period, many oil and gas companies have joined the international mining industry in designing and publicizing best practices in these areas. Sometimes the results have even been published jointly.

In the following subsections, the range of potential impacts are enumerated, first with respect to environmental

subjects and second with respect to social issues. In each case, those which are peculiar to oil and gas, and those peculiar to mining are noted, even though in the real world overlaps exist, and where possible these have been highlighted. Also noted are the different points in the life cycle of an investment at which they are likely to materialize and/or at which efforts need to be undertaken to mitigate and prevent them. In practice, environmental and social impacts will often be managed together rather than separately, but for analytical purposes, they are on the whole treated separately in the sections that follow. A legally binding approach to management of environmental risks with penalties for noncompliance is common, but for social issues this is less usual. The reason is that environmental risks are well understood and measurable, so that the compliance criteria can be clearly defined. Social impacts however, tend to be more complex and as a result are not always subject to quantification or empirically measured compliance criteria.

The environment

Good practice in managing environmental impacts of extractives activity involves the continued and dynamic development of an overall sector policy framework. An important part of that framework should concern how to address social and environmental impacts, health and safety, and the interests of internal stakeholders such as employees and contractors. Protection of vulnerable groups such as children should also play a role in the overall policy framework.

Identification of the likely or actual impacts of an oil, gas, or mining project is clearly one of the first orders of business, since the goal will be to avoid or at least minimize negative impacts and to maximize the potential positive impacts. Some impacts may be readily defined, while others are less known or are contingent on what may actually occur in the affected areas, and indeed they are dependent on whether an initial investment moves on from the exploration stage to full development. Even so, the process of identifying impacts is generally more straightforward for environmental than social concerns because they are at present better understood. Social impacts are more complex and elusive, and the tools for addressing them less tested than those for environmental impacts.

Environmental impacts take place along the entire EI Value Chain, but they will vary in their impacts according to the life of the project. Depending on the kind and size of extractives activity, and also their location and the

technology they deploy, they will generate a mix of positive and negative impacts. In general, the larger the project is, the greater the risk of environmental impacts. If it is located near ecologically sensitive areas, such as a national park or pristine rain forest, the impacts are likely to be more complex.

OIL AND GAS. Even at the early stages in the life cycle of an oil or gas investment, there can be environmental impacts. For example, the seismic testing and test drilling of exploration wells can generate various, short-term impacts, often in remote and environmentally sensitive areas. Seismic survey activity will generate loud and low frequency sound waves that can disorient marine life and affect its behavior and movement. Reduced catches of fish have been observed in areas of seismic activity.

If the activity moves on to other stages such as development and production, the impacts will grow. Their extent will vary according to several variables: the nature of the project, characteristics of the site and its environment, and the effectiveness of the implementation of environmental management instruments to prevent pollution and to mitigate and control impacts (UNCTAD 2012, 10). The main impacts from oil and gas activities are typically the following (E&P Forum and UNEP 1997, 12–16):

- Atmospheric impacts derived from flaring and venting of excess gas, combustion processes through the use of diesel engines and gas turbines, and fugitive gases from operations for loading and tankage

- Aquatic impacts through the generation of liquid waste in drilling fluids, chemicals for well treatment, drainage water, sewerage and sanitary waste, spills and leakage, and cooling water
- Terrestrial impacts by contamination from spills or leakage, solid waste disposal, or site construction
- Ecosystem impacts on various components of the biosphere that affect the animal habitat, which in turn affects the ecology of the site
- Deforestation from on-site operations; oil leakages spilling throughout the supply chain and accidents that have polluting effects on the natural life of the area, the land, and water; and the economic activities based on the environment, such as fishing or tourism, over a long period
- Decommissioning of installations and structures at the end of their commercial life, a potential source of negative environmental impacts, particularly if it involves structures in offshore waters

Some aspects of oil and gas activities require particular attention because their potential impacts are significant or particularly complex to address or both: oil spills, flaring of gas, climate change, and biodiversity effects.²¹

Oil Spills. The very large 2010 Macondo oil spill in the Gulf of Mexico, involving the Deepwater Horizon rig, drew attention to the risks arising from offshore exploration and production of hydrocarbons in frontier areas (see box 9.3). Spills of oil are not unusual, but the source is commonly from tankers, pipelines, storage tanks, and barges. Usually the

Box 9.3 The Deepwater Horizon Oil Spill

A major oil spill occurred in 2010 in U.S. territory in the Gulf of Mexico and led to a loss of 53,000 barrels of oil a day for many weeks. The spill covered 6,500 square kilometers and involved 5 million barrels of oil. The source, the Deepwater Horizon field, was operated by BP under a joint operating agreement with Anadarko Petroleum and Mitsui Oil Corporation. The owner of the rig was Transocean and the cementing contractor was Halliburton Oil Well Cementing Company. The blowout began on April 20, 2010, and the well was capped on July 15, with well cementing completed by August 5, 2010. The resources required to remove over 800,000 barrels of oil liquid and 265,000 barrels by controlled burns comprised 28,400 personnel, more than 4,000 vessels, and dozens of aircraft.

The financial consequences of the spill are still being managed. BP created a US\$20 billion escrow account on June 16, 2010, and the cost of response measures was at least US\$8 billion.

There is no international legal framework in place to deal with the question of liability arising from pollution following a blowout. In the past, international law on environmental pollution has usually been concerned with oil pollution from tankers. As a result of this lacuna, it is left to national laws to deal with this matter. Such laws vary enormously, both in the way that the law itself deals with it and with the way contractual indemnities are interpreted and enforced, or not.

spill occurs during transport, as oil is being loaded on a tanker or being taken from a railway to a storage facility, for example. The Macondo spill was not the first time a spill had occurred from a deepwater well, but spills from that source are unusual. For a growing number of countries, such as the emerging producers in West Africa, the fact that their hydrocarbons reserves are located in deep water, with complex geological structures, will raise concerns about the adequacy of available technology to address the risk of a well explosion and its consequences. The limited capacity in government institutions draws attention to this issue.

Flaring of Gas. About 5 percent of the gas produced around the world is being flared or vented on existing producing oil fields, mostly in developing countries (Le Leuch 2012, 11–12). Five countries are responsible for about 60 percent of the total (the Islamic Republic of Iran, Iraq, Kazakhstan, Nigeria, and Russia).²² The flaring of gas in association with oil is generally discouraged. It releases carbon monoxide, nitrogen oxides, and sulphur oxides, which can cause smog and acid rain. Where gas is not flared, it may be vented into the atmosphere, releasing large quantities of methane gas. The trend is for flaring and venting to be reduced, not least due to government policy and the influence of multi-lateral initiatives such as the Global Gas Flaring Reduction Partnership, a public-private partnership.²³

Climate Change. Climate change remains an important global environmental issue. Petroleum operations are major emitters of greenhouse gases, particularly through the flaring of natural gas. However, carbon dioxide emissions can occur in each segment of the oil and gas supply chain. Concerned governments have responded in a variety of ways, including taxes and penalties and mandatory flare reduction or “flares out” requirements (Liebenthal, Michelitsch, and Tarazona 2005, 123). The complex of issues involved in climate change concerns not only the countries that produce oil and gas but those that are highly vulnerable to the environmental impacts of climate change due to location or a lack of investment for mitigation: examples include island states or ones with low-lying territory vulnerable to flooding. A key to success in reducing greenhouse gas (GHG) emissions is engagement by oil and gas companies to develop best practice guidelines for emissions monitoring, reporting, and management and to develop and implement new technology for sustainable energy options.

Biodiversity. Oil and gas activities present challenges for biodiversity (the variability among living organisms within

an ecosystem). Protection requires identifying areas where biodiversity may be adversely affected by operations, which is not always obvious. It also requires a willingness to modify business practices to minimize risks and to maximize opportunities to contribute to biodiversity conservation and improve ecosystem services.

Decommissioning. Onshore oil and gas operations present few problems for decommissioning and require only a limited workforce and supplies. Offshore structures are, by contrast, very complex and require advance planning to be decommissioned. Over several decades the expansion of oil and gas activity into offshore waters has led to a proliferation of structures and pipelines that are likely to prove costly to remove.²⁴ The high costs may prove daunting to some foreign and domestic investors, depending on how the costs are shared between investors and governments. The risk of default on decommissioning obligations is to be taken seriously. In contrast to most infrastructure projects involving removal and disposal, it is the legacy hazard that marks these projects: toxic materials left in the installations need to be disposed of safely.

There is a body of international guidelines, and an established set of good industry practices, that requires companies and governments to make plans for decommissioning and carry out actions to ensure it is done to a high standard. Simply walking away from an operation that is no longer commercial is not an option for the company, and it is not an option for a government to let a structure rust. Decision making is complicated by oil price movements, which can accelerate or decelerate the timing of decommissioning. More and more governments have to prepare for eventual decommissioning and ensure that the costs are provided for according to a formula that the parties agree to in advance.

MINING. The typical environmental effects of a mining project are landscape alteration (erosion, formation of sinkholes, and so forth) and air, soil, and water pollution (both groundwater and surface water). Mining is a water-intensive industry (like fracking), and its utilization of this resource can be particularly critical in areas where water is scarce or is heavily used by other local activities, such as agriculture or drinking, or is needed by ecosystems. Later, the decommissioning and closure of mines can also be a source of negative environmental impacts, although there is considerable experience of this, yielding lessons about its optimal management. As is the case with hydrocarbons, there is an element of the unknown to grapple with: planning ahead is done on the assumption that a project will be

deemed commercially viable on the basis of data obtained at an early stage.

Thinking about environmental effects has also undergone a change with respect to the miners themselves. In the more recent literature, attention has shifted from a focus on the impacts of large-scale, capital-intensive mining to the major environmental challenges presented by the activities of artisan and small-scale miners. ASM communities often operate without any environmental safeguards, due to a country's lack of resources to manage environmental (and social) impacts. ASM activities therefore contribute either directly or indirectly to environmental degradation, through deforestation, loss of biodiversity, wildlife poaching for bush meat, soil erosion, dust, noise, habitat destruction, introduction of invasive species, siltation, and pollution of water bodies or alterations to rivers' regimes. As one commentator has noted, "Their activities leave legacies of hazards and dereliction" (Hobbs 2014).

Water. The most significant impacts of a mining project are likely to be in terms of water pollution and water scarcity. The very large consumption of water by mining activities is the source of the problem. Without a secure and stable supply of water the operations will be threatened. However, large-scale consumption will lower the water table and dry up rivers and lakes in parts of the world where water is scarce. The impact on water quality as well as availability will be very significant. Toxic elements such as mercury from ASM may well infiltrate the water table from surface mining and processing operations, especially in tropical or temperate countries with high water tables. The question then arises whether such water is fit for humans, plants, and animals. Downstream or nearby communities reliant upon agriculture can also be deprived of the water they need by the use, diversion, or pollution of water in mining operations, with destructive effects on farmland.

The challenges for the mining industry are growing: droughts and floods are becoming more common, due probably to the effects of climate change, and communities around mining projects increasingly oppose them or create disruption leading to shutdowns.

Toxic Materials and Acid Drainage. Mining operations produce large quantities of solid and slurry waste, with different kinds of waste being produced at different stages of the process. Large quantities of waste rock will be removed, so that the miner can reach the minerals, and stored on the land surface, in abandoned mine pits, or even underground. The amount of waste relative to the minerals extracted can be

very large (RWI et al. 2013, 116). Another waste product—tailings—results from concentration or treatment of the mineral and can include heavy metals, cyanide, chemical-processing agents, sulphides, and suspended solids. Such waste needs to be contained well beyond the life of the mine, sometimes for decades, to allow for decomposition and settling.

Air Pollution. Mining operations can generate significant amounts of dust, creating the risk of airborne pollution. If there is a smelting plant, there is the further risk of gas emissions, which can be toxic and present a long-term risk to human life and well-being. Where the smelters are older, as are many lead-zinc smelters in Australia and Peru, the risk is much greater.

Biodiversity. The impact on biodiversity from mining operations can change the relative populations of species in an ecosystem, but not evenly. Some species are more tolerant than others to land disturbance and loss of habitat and exposure to metals and acid. Habitat fragmentation is more likely than wholesale destruction of habitats. Fragile and pristine areas rich in biodiversity may be located far inland, in coastal zones or offshore: with the opening of resource corridors, such as the Southern Guinea Growth Corridor for the Simandou project to take iron ore from mine to port, they may be threatened.

Mine Closure and Rehabilitation of Mined Areas. Global practice has long been directed toward *progressive reclamation*, through which disturbed areas are reclaimed during the life of the mine as well as after closure. Good practice now is to design and finance closure from the project start-up to make reclamation easier and more effective. Monitoring is required, however, from the outset to ensure that mechanisms are in place to cover the ultimate costs of rehabilitation of the mine. This is sometimes complicated since there are residual minerals in tailings that may one day be valuable to rework. Legal issues also arise with mergers and acquisitions and the resultant responsibility.

Climate Change. Some forms of mining are intensive users of heavy fuel oil, a contributor to carbon dioxide emissions. Where coal mining is part of the chain for electrical generation, it is ultimately responsible for substantial quantities of GHGs. In these ways, mining is a major contributor to global warming. Countries that host mining activities may also be vulnerable to the effects of global warming, due to geographical location.²⁵ The ratification

of the 2015 Paris Agreement on climate change has lent urgency to the practical impacts of government actions for mining and other EI companies.

Areas of Particular Vulnerability. Governments may wish to protect certain terrestrial or marine areas of physical beauty or uniqueness, for maintenance of biodiversity, for protection of game, or for cultural heritage. Mining activities may be prohibited or permitted in these protected areas subject to rules and conditions. The International Union for the Conservation of Nature and Natural Resources (IUCN) defines a protected area as “a clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values.”²⁶ It can include a national park or wilderness area, a community conserved area, or nature reserves. There are also areas of high conservation value that do not yet have protected status but which may nonetheless be worthy of it. UNESCO’s World Heritage Sites are a starting point for designating areas in which mining would not be allowed. They are globally significant and must be left inviolate. The International Council on Mines and Minerals (ICMM) has agreed that such areas should be sacrosanct and encourages its members not to mine in them.

In Africa, for example, mineral operations in equatorial forest areas (rich in biodiversity) have been particularly controversial. It has been estimated that the global network of protected areas stores at least 15 percent of terrestrial carbon.²⁷ ASM is a particular problem for such areas, since it frequently encroaches into remote, pristine, protected areas, as the ASM–Protected Areas and Critical Ecosystems (PACE) program revealed (see box 9.4). A source of tension can arise between the short-term needs of governmental authorities and the influence of mining companies, on the one hand, and legitimate environmental concerns, on the other. This is a “charged context for decision making” (International Study Group 2011, 52).

Social impacts

Social impacts from the EIs vary according to the life cycle of the project. They can be positive as well as negative—positives can include job creation, education and skills development, fostering of urban and trade centers, and investment in the improvement of local infrastructure and services. The challenge is to ensure that these positive impacts are sustainable.

Box 9.4 Work of ASM-PACE Project: Artisanal and Small-Scale Mining (ASM)—Protected Areas and Critical Ecosystems (PACE)

ASM-PACE began as a partnership between Estelle Levin Limited and the World Wide Fund for Nature (WWF) to address the environmental impacts of ASM in some of the world’s most important ecosystems. Active since 2010, the program is focused, as its name says, exclusively on addressing the impacts of ASM in protected areas and critical ecosystems. ASM occurs in or impacts a wide range of critical ecosystems, including arctic landscapes (for example, Greenland), tropical rainforests (Brazil and Gabon), and coral reefs (the Philippines). It is practiced in approximately 80 countries and in 32 of 36 countries ASM-PACE has studied—and in or around 96 of 147 of the protected areas in those 36 countries. Affected sites include at least 7 natural World Heritage Sites and at least 12 WWF Priority Landscapes.

Some issues are common to oil, gas, and mining projects: community relations, rights of indigenous peoples, the acquisition of land and resettlement, human rights abuses, and community dependency, among others. Those social impacts that are more usually associated either with oil and gas or mining are addressed separately in the sections that follow. The impacts of each can differ. For example, the financial flows from royalties and taxes will be orders of magnitude greater in oil and gas than in mining, and the physical footprint from oil and gas extraction will usually be less than for solid mineral extraction, even though oil or gas infrastructure and processing plants take up land space. The impact of pipeline networks will be more linear in impact than with any comparable mining structures. The impact on employment will be less in oil and gas than in mining.

COMMON ISSUES

Community Relations. Given the high impact of extractives projects on the surrounding area, there have been instances when relations between investors and governments with local communities have been fraught with tension. Without a so-called social license to operate, or the free and informed consent of the communities concerned, the risk is that the project will become hard and even impossible to run. Oil operations in the Niger Delta are an infamous example of

this kind of tension and breakdown in community relations leading to youth violence and armed militias. Poverty too can follow from a degraded environment on which communities have to depend.

Indigenous Peoples. Indigenous peoples can be regarded as a distinct type of stakeholder for oil, gas, and mining companies. They have rights under international law and under some national legal systems and have often experienced marginalization and discrimination. They will usually have distinct cultural, economic, and political practices. Impacts on indigenous peoples will vary between oil and gas operations and mining activities, but both industries now understand that this group of stakeholders requires special attention when designing a project proposal.

Definitions of *indigenous* can be controversial. A recent study has noted four key elements in the concept of indigeness: early occupation and use of a specific territory; cultural distinctiveness, applicable to language, social organization, spiritual values, laws, and institutions; self-identification, as well as recognition by other groups or by state authorities; and experience of subjugation, including discrimination or marginalization (Max Planck and BGR 2016, 12).

The rights of indigenous peoples in the context of resource development pose special moral and political issues for investors and governments. The issues derive from the perception that indigenous peoples have inherent rights derived from their distinct ethnic and cultural identities and their close and special attachment to ancestral lands. Ideally, the rights and customs of indigenous peoples should be fully protected by law. Even in countries where this is not the case, investors will usually be encouraged to respect the rights and culture of indigenous peoples and undertake exploration or mining activity only if they have well-documented evidence that their activities have broad support of the concerned indigenous peoples. Resettlement of indigenous peoples with cultural ties to the land is particularly sensitive.

Land Acquisition and Resettlement. The displacement of populations and resulting disruption of livelihoods can be a source of social resentment toward a project. Disruption can be caused by land purchases, leading to forced evictions, which may extend beyond the area of the project to land needed for transport corridors and transmission lines. A physical relocation of communities may also be entailed if the project is to proceed, entailing a loss of livelihoods and sources of income. Resettling populations involuntarily to

allow a project to proceed “for the greater good” raises ethical issues and can have significant harmful effects for the local community if not well managed. Impoverishment of the communities may also happen. Good practice argues that it should be avoided, or at least minimized where feasible, by exploring all viable alternative project designs and mitigation strategies.

Resettlement may also affect the communities that receive people, both those resettled and others. New mining projects can lead to an influx of people from neighboring areas looking for jobs on the project or to set up businesses. Mining generates support and service jobs, and if it leads to greater infrastructure, that in turn attracts more people. The pressures on water, land, housing, sanitation, and social services that an influx can bring will have some negative impacts. Forward-thinking strategies by companies can minimize the negative impacts, however. Policies can be developed in cooperation with local and central government.

Economic displacement can also occur, whereby people’s livelihoods can be lost or disrupted. Governments and companies can anticipate this by providing alternatives. Local benefit measures may also generate opportunities.

Social problems can arise from artisanal miners working without a license in areas where large-scale miners operate, leading to confrontations and conflict if displacement is involved. Any such problems will be exacerbated by the fact that the artisanal miners are likely to be itinerant and even expatriate.

Human Rights Risks. Many different kinds of human rights abuses have allegedly been associated with oil, gas, and mining activities, and these vary considerably from one country to another. A list of commonly cited abuses would include arbitrary detention and torture, especially by private security units or militias; loss of land and livelihoods without negotiation or adequate compensation; forced resettlement; the destruction of ritually or culturally significant sites without compensation; violation of the right to a clean environment; labor rights violations; and the disappearance of people. Although it can reasonably be assumed that extractives companies will treat respect for human rights as part of their social license to operate, the scope and kind of the obligations imposed on them by international and many national laws is unclear, since many of the former are addressed to states not companies. Moreover, it should not be assumed that the human rights risks are identical in the large-scale mining sector and ASM. They are likely to exhibit important differences.

The scope of human rights risks is potentially very wide. One study has tried to capture this by identifying human rights risk areas, where the risk of adverse human rights impacts is most significant.²⁸ It examines risks in industrial and large-scale mining and in artisanal and small-scale mining, but even so, there is a vast field of particularly affected groups, such as women and children, that can raise complex issues (child labor, for example) and constitute a subset of risks to be identified and monitored.

Women and child-specific aspects of human rights are particularly important in the extractives sector and have been the subject of research.²⁹ Child labor in the mining sector is almost exclusively found in ASM operations in Africa, Asia, and Latin America, with more than 1 million children working in this sector (Max Planck and BGR 2016, 105). Although the risks to health are the same as those for adult miners, the risks to immature bodies are more intense. Violations to children's rights to health and to education are common.

Dependency. Many communities become overly dependent on EI projects in their area; and without advance measures to address this issue, they will become vulnerable to a 'boom and bust' cycle, suffering contraction or even collapse when production ceases or when profitability declines. The key to success for sustainable development is to prevent these from happening. Thus, social aspects and their associated costs should be included in decommissioning and closure plans, and initiatives should be taken from the earliest days of production to develop economic activities in the community that are independent of the EI sector activity. Alternative business development in the area needs to occur concurrently to foster links in and outside the community and reduce dependency. The aim should be for them to survive when production declines and eventually ceases.

OIL AND GAS. Oil and gas activities can have social and cultural impacts when they affect communities and indigenous groups by changes in their land use and traditional activities in local areas, their lifestyles, and their livelihoods, such as in agriculture, logging, and fishing (IPIECA 2011a; E&P Forum and UNEP 1997, 11–12). Disruption of community life will follow influxes of migrant workers, the introduction of changes and differences in income and social structures, and uneven distribution of benefits and liabilities. Health risks can arise from disease and the use of potentially hazardous chemicals. Like mining companies, oil and gas companies may be the first foreign investors that local communities encounter in areas in which services, health, and education are poor and government processes are still evolving.

More dramatic impacts can be seen in the Niger Delta, for example, where human rights abuses by security forces have been documented. Communities have been largely unable to redress their grievances in the absence of an independent judicial system. The resulting confrontations between communities and oil companies have been considerable and intense. One result of these conflicts is that the time required to bring an oil project online has nearly doubled over the past decade, leading to a significant increase in costs (Davis and Franks 2014, 11).

MINING

Positive Social Impacts. For example, both large-scale mining and ASM can contribute to local employment and income and poverty reduction, often where few alternatives exist (see box 9.5 and box 9.6) (Davis and Franks 2014, 14). However, it can also be negative, when during the exploration and development phases, disruption can occur in land tenure and access, road construction, river diversion and large numbers of people, including foreign workers,

Box 9.5 Reframing the ASM Debate: Integrating It into the EI Value Chain

Shifts in policy articulations of artisanal and small-scale mining (ASM) have generally corresponded to specific political and economic global periods. Pelon and Martel-Jantin (quoted in De Sa, Perks, and La Porta 2013) propose that since the postcolonial period, the position of ASM within mineral policy has transitioned from one of "isolation" to "integration." Such a transition was evidenced first by a firmer inclusion of ASM in national

mineral legislation and policy starting in the late 1980s and into the mid- 1990s. This legislative reform focus was accompanied in several instances by technical assistance, such as small grant programs or credit and loan schemes to establish more viable small-scale mining operations. Furthermore, specific ASM government departments or agencies, typically under the umbrella of the ministry concerned with mining, were established or

Box 9.5 Reframing the ASM Debate: Integrating It into the EI Value Chain (continued)

further supported to provide advisory and technical services to artisanal and small-scale operators.

Such a mineral-development-centered approach toward ASM further evolved in the late 1990s to one of poverty-alleviation and development. This approach took advantage of the Millennium Development Goals framework. By aligning ASM more closely to the poverty-alleviation agenda, ASM support strategies changed significantly. Nongovernmental organizations and even large-scale mining companies became more critical agents of intervention, with reduced visibility of government institutions. Issues such as fair trade

minerals and conflict management between ASM and large-scale operations were critically raised alongside concerns over child labor reduction and women's socioeconomic disenfranchisement (Pelon and Martel-Jantin quoted in De Sa, Perks, and La Porta 2013).

Earlier concerns from the 1970s and 1980s, such as improving environmental standards, appropriate technology, security of tenure, and access to finance remained highlighted agenda items. It was also an era in which the World Bank hosted a multidonor trust fund for ASM, called Communities and Small-Scale Mining (CASM).

Box 9.6 Potential Opportunities Generated by ASM

Job creation. The global employment gap has spurred renewed discussions on how jobs are defined and created. Of note in these discussions is evidence of the predominance of the informal sector as a main arena for employment at present. Artisanal and small-scale mining (ASM) participation has grown from 10 million in 1999 (ILO 1999) to potentially upward of 20 million to 30 million (Buxton 2013). This increase, largely still in informal employment, provides a rich policy ground for promoting a good job agenda. This agenda focuses on making available the necessary knowledge and technological resources to increase productivity coupled with provision of social protection and fair labor standards.

Rural development. Linked to the job agenda is ASM's added value as part of rural livelihood diversification strategies (Banchirigah and Hilson 2010; Maconachie and Hilson 2011), meaning the manner in which ASM is pursued alongside other income opportunities by individuals and families. Development research has demonstrated how ASM assists rural households in building more dynamic and resilient livelihood strategies portfolios by, for instance, dovetailing ASM and farming economies. It furthermore is a stimulus for trade and subsidiary business development around mine sites, similar to activity around industrial or larger-scale mining operations. The question of links—how mining interplays with other aspects of local economies—and how to promote more integrated rural development strategies to capture

mineral benefit distribution is equally an important question when concerned with ASM.

Renewed bilateral partnerships to assist national governments in ASM formalization. The work of the Communities and Small-Scale Mining (CASM) project and its partners over the past decade helped to generate an increase in national government demand for ASM technical assistance programs. Such assistance would entail capacity-building programs by international financial institutions and bilateral partners to address outstanding constraints facing ASM in mineral development. For instance, seven countries have specific ASM pillars in active World Bank projects. The Africa Governance Initiative provides national governments with mining experts to build internal ministry capacity, including capacity to address ASM in such countries as Rwanda. The International Finance Corporation is extending its business advisory service tools to include an ASM checklist for baseline studies for its investment partners. In 2012 the Kimberley Process adopted the ASM for Development framework, to be implemented by its member states. The African Union recognized ASM formalization as one of its six areas of engagement under its 2011 Africa Mining Vision. Other bilateral partners include GIZ, AusAid, and CIDA, who work not only with national governments but equally with nongovernmental organizations and regional governmental institutions.

moving into communities located near a project, creating resentments and conflicts.

Noise, Vibrations, and Blasting: Local Effects. These have an impact on the stability of infrastructure, buildings, and homes of people living near mining operations.

Gender. Increased gender inequality can result from unequal access to employment in mines or a loss of male support for household work. Women may need to expend increased time and energy to access clean or available supplies of water and food because of a degraded environment.³⁰ General disadvantages for women arise from issues surrounding the ownership and possession of land, mineral rights, capital, and equipment. As one study notes, in the “relatively few instances that they have access to resources, women do not control them or the resultant benefits” (International Study Group 2011, 74). Women are also often left out of community decision-making processes. In ASM they often have unique, specific roles that can lead to health and safety risks; in the ASM production chain, “most women take part in the activities allocated to them by society (mainly men) and are barred from others because of cultural taboos.”

AREAS OF PARTICULAR VULNERABILITY. Even when an EI sector project has support from community leadership and brings benefits to *them*, all too often such projects make life worse rather than better for the disadvantaged and the most vulnerable sections in the community. These can include women, youth, children, and the elderly, who might typically bear the risks of extractives activities while the benefits accrue to the more affluent and to men. However, impacts of EI sector projects on the poorest and most vulnerable are sometimes not part of the regular monitoring or reporting and all too often occur out of sight of the government, the EI sector company, financiers, and aid agencies (Ross 2001). Thus, proactive interventions are needed to gauge the impact on the poorest and most vulnerable and take corrective measures. Community leaders can make sure that representation is inclusive of the poorest (and not just an elite), and community women (not just men), have a voice in community decision making.

The movement of land by excavation and people by displacement or migration to industry sites can create risks to cultural sites, either archaeological or spiritual in character. Protection of such sites can be required by means of the mining agreement and local laws, by requiring surveys prior to the commencement of any activities, and by taking protective measures.

9.5 TOOLS: LEGAL AND REGULATORY

Governments can and do use legal tools to manage environmental and social impacts of development. From a perspective of sustainability, it is most important to use them to anticipate impacts and take action to minimize or avoid them. It is increasingly common to see social and environmental protection policies, together with related procedures, instruments, compliance standards, and assignment of responsibilities, spelled out in laws and regulations as opposed to contracts or agreements. Where this is done, the laws and regulations will typically stipulate the process by which the various data, impact assessments, and management plans will be reviewed and by whom; the process by which any needed corrections and improvements will be made; and the process and criteria for approvals to be given and by whom.

The array of legal and regulatory instruments that governments typically have at their disposal to manage impacts and ensure compliance with policy on extractives is wide. When determining whether a project will facilitate long-term sustainable development or not, the following four tools have particular importance.

Environmental and social impact assessments

Environmental and social impact assessments (ESIAs) have become standard preproject planning tools to assist in anticipating impacts, proposing actions for their management and mitigation, and for monitoring compliance. They are routinely required by project sponsors (for example, the majority of governments, the Equator Banks, and the IFC) per domestic legislation and/or contract. However, they are often also tied in to programs of corporate social responsibility. This would make them voluntary, whereas many countries have them as a legal requirement. Their findings can shape or even prevent a project from going ahead.

The primary intention of the ESIA is to analyze short-term and long-term impacts and risks, including (1) direct impacts (the project site and neighboring communities, infrastructure such as ports, pipelines, pumping stations, roads and railways, as well as all plant, equipment, landfills, and other facilities at the site); (2) indirect impacts; (3) cumulative impacts; (4) transboundary impacts; (such as from air emissions); and (5) global impacts (such as from GHG emissions). These impacts are identified through all stages of the planned EI sector project (predevelopment, development, production, abandonment, or closure and postclosure). Alternative ways of carrying out the project would typically be included.

ESIAs translate into Environmental Impact Management Plans (EIMPs) and Biodiversity Action Plans, against which a mining company will be audited for legal compliance. The EIMP is important as it includes the conditions under which a mine will legally be allowed to proceed.

Assessment of potential social impacts might include impacts on local communities and local land use, resettlement, rights based on custom or tradition, and issues affecting women, youth, and the elderly. Assessment of environmental impacts would typically include air and soil resources, marine resources, water and wetlands, and biological and biodiversity resources. Legislation usually requires that ESIAs be prepared by qualified and registered experts in accordance with international good practice standards³¹ and that the documents be made public, allowing sufficient time for review and comment before the EI sector project is given permission to commence or not. They can also identify and highlight positive impacts, such as eradication of invasive species and the protection of specific species of fauna and flora.

The manner in which the ESIA is carried out is important. Independence and public participation are essential. Sometimes a government will require the company to carry out the assessment and pay for it, such as in Mongolia, where it is done “in accordance with the Law on Environmental Impact Assessment prepared by a competent, independent, professional firm.”³² Unfortunately, this approach may call into question the independence of the ESIA process, if it is entrusted to the potential beneficiary to carry out.

Critics of these tools note that they are not always applied in an efficacious way, and that they may attempt to justify decisions and protect investments already made. The benefit is that they establish baseline conditions against which potential impacts will be anticipated and necessary avoidance, mitigation, and restoration measures recommended. An ESIA will highlight environmental and social risks to be managed and how the layout, design, and implementation of projects can be improved. It should also include, but rarely does, a “no go” option on mining activity if the impacts cannot be effectively predicted and managed (Hobbs and Kumah 2016).

Strategic environmental assessment

A commonly used tool to counter criticisms of the ESIA tools is the strategic environmental assessment (SEA) (OECD 2006). This involves an environmental assessment focused on policies rather than the project-focused approach of an ESIA. It is a governance tool that evaluates the

environmental risks and opportunities of proposals, whether they be policies, plans, or programs. It “assists decision makers to think through, with other stakeholders, how economic, social and environmental considerations can fit together, suggesting trade-offs should they be necessary. It provides a framework for more inclusive, transparent and better-informed decision making and is, therefore, an important contribution to good governance” (OECD 2006; Hobbs and Kumah 2016). It can counter the risk that stakeholders only read about project proposals in the media once they are approved by the authorities and the resulting response of reactive and adversarial positions. By thinking through how economic, social, and environmental considerations can fit together, decision makers and stakeholders can develop trade-offs if they seem necessary. In this way, a context can be created in which a project can be implemented.

Construction and operational planning

The project sponsor’s environmental and social impact management plan (ESMP) is also a standard feature of modern EI sector regulation. Based on the ESIA, the ESMP focuses on management and compliance with the conditions set forth in the project approval process. The relationship between the ESMP and the ESIA is explained well in the Afghanistan Qara Zaghan agreement of 2011 for a gold mining project. The ESMP is the plan proposed by Afghan Krystal & MoM [Ministry of Mines], and which must be accepted by the MoM, which details the measures to be taken to minimize or alleviate the Environmental and Social factors applicable to the Qara Zaghan Project that are identified and detailed in the ESPA (Agreement, 1.10).³³

The EIMP consists of operational policies, procedures, and practices designed to comply with applicable laws and regulations and reduce the risk of adverse impacts during each phase of a project. It should reflect international good practice standards, of which there are several examples available (see one example in table 9.1). Generally, it also includes an in-migration management plan, resettlement and compensation plan, biodiversity action plan, and so forth. The sponsor is expected to amend and update the ESMP as necessary to reflect changes in circumstances or applicable standards. ESMPs are required to include emergency preparedness and response measures designed to address both unforeseen and foreseeable accidents and events. As with the ESIA, ESMPs are meant to be disclosed to affected stakeholders for comment and feedback. This should not be a one-off exercise but a continuous dialogue.

Table 9.1 World Bank Group Social and Environmental Standards

Policy	Requirements	Consultation
Environmental assessment	Screen early for impacts. Select instruments to assess, minimize, and mitigate adverse impacts.	Affected groups and NGOs as early as possible.
Natural habitats	Provide no support to projects that degrade critical habitats. Support projects that affect noncritical habitats only if no alternatives are available and mitigation measures are in place.	Consult local people in planning, designing, and monitoring projects.
Indigenous peoples	Ascertain presence of indigenous peoples. Design policies based on expected impact and reflective of indigenous peoples' cultural preferences.	Conduct informed prior consultation and obtain broad community support.
Involuntary resettlement	Avoid where feasible. Assist those displaced in improving or restoring their living standards. Displaced persons should share in project benefits.	Resettlers and expected host community; incorporate views in resettlement plans.
Disputed areas	Ensure that claimants to disputed area have no objection.	No public consultation; claimants informed.

Source: World Bank, "Safeguard Policies," <http://www.worldbank.org/safeguards>.

Compliance standards

Many countries set compliance standards for environmental impacts. International institutions also set these for environment and social aspects of projects.³⁴ In addition to the World Bank's safeguard policies, directed at the identification and mitigation of potentially adverse environmental and social consequences of projects supported by the bank, the IFC has a set of policy and performance standards on social and environmental sustainability. These have become the global benchmark for managing environmental and social risk by financial institutions. There has also been uptake of these standards by private banks through the Equator Principles, a risk management framework for determining, assessing and managing environmental and social risk in projects.³⁵ Its aim is to provide a minimum standard for due diligence to support responsible risk decision making. Further, there is a series of International Standards Organization (ISO) standards on environmental management, including the highly influential standard ISO 14001 Environmental Management Systems. These standards have been widely adopted by national standards organizations. Although voluntary, they are a condition for obtaining IFC funding and can serve as a reference point for the definition of good practice in oil, gas, and mining activities (Wagner and Armstrong 2010).

Standards are most effective when they are achievable and set in line with good international practice. If they are unrealistically strict, the risk is that they will become meaningless given the institutional capacity limitations of most developing countries. Equally, if they are too lax, good enforcement will not accomplish very much. Indeed, it is the lack of effective enforcement that is the key issue in ESIA regulation. The best results are achieved when compliance standards are well set and the capacity to implement them is put in place.

Human rights frameworks

Protection of human rights has become an important matter for international legal frameworks,³⁶ both in the sense of hard legal rules such as the International Covenant on Civil and Political Rights, the International Covenant on Economic, Social and Cultural Rights, and International Labour Organisation conventions. More recently, standards have been developed that are expressly targeted at the conduct of business by extractives companies. The most important such event in recent years is the development and adoption of the United Nations Protect, Respect and Remedy Framework (the Framework) in 2008, which seeks to provide principles to guide states and businesses in protecting and respecting human rights.³⁷

The Framework establishes three pillars:

1. The state's duty to protect against human rights abuses by third parties
2. The corporate responsibility to respect human rights
3. Greater access by victims of human rights abuses to effective judicial and nonjudicial remedies

Although this is a generic framework applicable to all business, it has attracted particular interest in the EIs. It invites governments to view human rights protection against abuses by business as a responsibility that goes beyond the environmental protection, approval, and monitoring of projects. Instead, they could reinforce legal obligations and foster a culture of respect for human rights among public institutions as well as businesses, imposing reporting obligations on them for example.

With respect to contract provisions, the IFC and the UN Special Representative for Human Rights John Ruggie carried out a study of stabilization clauses that might constrain a government's ability to protect human rights (Shemberg 2008). It found that the EIs were likely to include the most constraining clauses. In 2011 the UN Human Rights Council considered a proposal for 10 principles that would integrate human rights risks into state-investor contract negotiations. One of the goals of the proposal was to reduce the risks of incoherence in the policies and actions of the host state.

Since the Framework was adopted, companies have both individually and collectively begun to implement its guidelines. One example is the Global Business Initiative, a company-led initiative of 14 multinational companies from the global North and South, aiming at implementing them internally. A group of international banks has publicly committed to working together to understand what the Framework means to them and to publish a related best practice guide on this (Thun Group of Banks 2013). Documentaries on the resolution of disputes between communities and major investment projects have been produced by Harvard University's Kennedy School of Government and Special Representative Ruggie.³⁸ The UN Office of the High Commissioner has also published further guidance for business (UNOHC 2012).

In 2015 new interactive platforms were launched for business and government by the Business and Human Rights Resource Centre,³⁹ an international NGO that tracks the human rights impacts of more than 6,000 companies in over 180 countries. The responses from many companies and governments on human rights commitments and practice is presented online so that users can view individual

responses, compare responses across regions and sectors, and search for specific issues or actions. The center notes that there is momentum among governments to develop national action plans on business and human rights.

It should be emphasized that extractives companies themselves often initiate a human rights policy. Mining companies, in particular, have done so for several years, and are constantly updating their policies. For example, Rio Tinto produces detailed human rights guidance for its business units. This covers local-level human rights considerations in dealing with communities, employees, and security. In a section titled "Difficult Issues," it considers the company's role and tactics in situations where it may have little control, such as abuse being committed by the government or third parties (ICMM 2009, 8; Rio Tinto 2015). Newmont, another mining company, underpins its commitment to the Universal Declaration of Human Rights with a policy of 19 management standards and 14 discipline-specific standards, several of which are relevant to human rights. A "Human Rights Primer" and a "Human Rights Training Guide" are available to sites to support their knowledge building on these subjects (ICMM 2009, 8; Newmont 2016). BHP Billiton, Glencore, and Goldfields are other examples of internationally operating mining groups that have explicit, formal commitments to human rights in their operations (BHP Billiton 2014; Glencore 2016; Goldfields 2014).

Summary of common tools

A modern environmental and social protection regime will have the following instruments prepared for each operation and submitted to the environmental authority for approval:

1. Baseline environmental and social data
2. Sector strategic environmental and social assessment (SESA or SEA);
3. Environmental and social impact assessments (ESIA)
4. Environmental and social management plan (ESMP)
5. Management plans for health and safety impacts
6. Hazardous material handling, transport and storage management plan
7. Community development agreement (CDA)
8. Biodiversity action plan
9. Decommissioning and closure management plan (including postclosure monitoring if needed)

The various baseline data, impact assessments, and management plans need to be prepared not only for the

core EI sector operation itself but also for (1) associated water storage; (2) product, fuel, and materials transport, handling, and storage facilities; and (3) processing plants and infrastructure associated with the operation including roads, railway routes, waterways, and ports along which hazardous materials may be transported and locations where they are stored.

For mining, waste dumps and tailings impoundments will also be included.

Environmental audits should also be required in all cases. The need is particularly evident in situations where there has not been strong enforcement of environmental requirements or where there are community or other stakeholder concerns about environmental performance and practice (INTOSAI 2010).

BASELINE STUDIES. Almost all social and environmental legislation today would require that, before any EI sector activity begins, baseline social and environmental data be collected and reported. Baseline data should include year-round measurement of environmental conditions, information on vegetation and animal life, and identification of established legal and customary community residents and users and their assets, crops, and livelihoods. The latter should be done at the earliest stage practical so that they can be identified separately from any newcomers who arrive as news of a potential development spreads. This might be conducted in parallel with an initial scoping study indicating the likely social and environmental impacts of development and providing a basis for initiation of consultations with affected communities (Liebenthal, Michelitsch, and Tarazona 2005, 15–16).

ENVIRONMENTAL PERMITS. Environmental permits should be required for all EI sector operations to manage and mitigate key environmental impacts such as (1) water use and wastewater discharge quality, (2) atmospheric emissions, (3) noise, and (4) mining-related waste such as tailings storage and disposal. Processing these permits according to a common timetable would enable investors and operators to plan construction and operation in an orderly manner. Environmental and social regulations can be used to provide clear guidelines and specify requirements for the preparation of baseline data, assessments, and management plans.

PENALTIES. The law and regulations should clearly present the penalties for violations of environmental requirements and compliance standards. These should range from fines

for minor violations to suspension of permits and licenses for the most serious violations. In the most extreme case, licenses would be subject to termination. Companies should pay penalties commensurate with the violation, and where other parties are harmed, they should provide compensation commensurate with the harm.

CORPORATE REPORTING. Corporate environmental reporting is an important tool. Investors, shareholders, and other stakeholders are increasingly requesting improved environmental disclosures in company reports. More and more organizations are seeking this kind of data from their suppliers, no matter what the size of the company. The idea behind environmental reporting by companies is that they will benefit from lower energy and resource costs and gain a better understanding of the risks such as those related to climate change. In the United Kingdom, regulations made under the Companies Act (2006) require companies to report on GHG emissions for which they are responsible, as well as on other environmental matters (DEFRA 2013).

Environmental concerns

OIL AND GAS. Two areas of environmental concern related to oil and gas are particularly worthy of note: cleanup and decommissioning. They arise when operations go wrong or where they approach closure for commercial or resource exhaustion reasons. In each case there is a body of legal rules and good practice, sometimes not particularly cohesive, but always relevant to policy makers in designing tools for prevention, avoidance, and mitigation. These cases are examined in the following subsections.

Cleaning Up. Many oil and gas jurisdictions have begun a review of contractual exclusion clauses, liabilities, and indemnities; definitions of gross negligence and willful misconduct; and other contractual terms, such as those relating to insurance, choice of law, and jurisdiction.⁴⁰ A major problem is the lack of any consistent national legislation in this field or an international convention that would guide or even require operators to adhere to the established industry practice. Further, there is a question as to which regulations imposing fines and penalties apply exclusively to operators and which apply to contractors as well. The result is that contractors could be heavily and perhaps fatally exposed. They may have no ability to fully mitigate the risk entailed, over which they have not enjoyed full operational control and decision-making powers.

For governments in *Sourcebook* target countries, there are likely to be three important considerations for these situations.

First, the existence of NOCs in most countries and the use of PSC and service contract arrangements have implications for the allocation of liability. It is far from clear that NOCs would accept the kind of liability that BP has in the event of even a more modest event than the Macondo spill. NOCs are very different from internationally operating companies, and their accountability for oil spills of this nature has yet to be tested. Their bargaining power vis-à-vis contractors in certain countries is such that they may assume they can impose whatever conditions they wish. Moreover, in some countries such as Russia and China there are service contractors that are part of vertically integrated NOCs, in contrast to international oil companies (IOCs) elsewhere, which do not usually have a service affiliate. This underlines the fact that there are different kinds of operators: some are IOCs and others are NOCs; some are large companies, some medium, and others small. The capacity of operators to pay for catastrophic risk will therefore vary.

Second, local law requirements are such that exclusions of liability are unlikely to be upheld. In some regimes, such as Brazil or Indonesia, local law will not allow the enforcement of indemnity provisions such as the ones currently used in the industry. Contractors would, therefore, be liable under local law in the event of negligence. Similar conditions can be expected in countries such as Russia and Argentina.

Finally, an important problem in many cases is a lack of capacity in ministries that have responsibility for oil spill prevention and response. Ghana, for example, has a national oil spill contingency plan (and already has had an oil spill offshore), but the country's legal regime does not clearly define the roles and responsibilities of the various stakeholders. It lacks the relevant bodies to complement the activities of the environmental authorities in addressing oil pollution. It is vague in its requirements on the funding of equipment to combat oil spills, and it has only general plans on the training of personnel.

Cleanup Rules: Europe. There is a regional, northwest European convention that may offer some guidance to countries seeking to adopt a regional approach. The Offshore Pollution Liability Agreement (OPOL) was set up in 1975 as a short-term measure and an alternative to a projected 1976 international convention that never came into effect.⁴¹

OPOL requires each operator to accept strict liability, with a few exceptions, for pollution damage and for the cost of remedial measures incurred from a spill from its

offshore facilities, up to a maximum of US\$250 million per incident. It requires that all claims have to be lodged against the operator who has caused the pollution and that the operator is solely responsible for meeting these claims. In the event that an operator defaults, OPOL provides for a mutual guarantee from all its other members that claims up to US\$250 million will be settled. It applies to offshore operators only, the majority of which are U.K. based. Although European in focus, it does not apply to the Baltic or Mediterranean seas, in which deepwater drilling is a prospect. Moreover, the scale of the costs arising from Macondo raises the question of whether the limit of US\$250 million is anywhere near sufficient to address a catastrophic oil spill.

OPOL applies to all offshore facilities from which there is a risk of a discharge causing pollution damage. It is not a fund nor is it a limitation of liability regime. The operator may be liable for losses that exceed the maximum recoverable under OPOL or those that go beyond the scope of OPOL. OPOL acts as a back-up to the individual company's own insurance provision if that proves insufficient to address compensation claims arising from offshore pollution incidents from exploration and production facilities. The scheme involves strict liability compensation with no need for proof of fault. Payment is to be rapid and there is no need for legal action. It is also secure: members must provide evidence of financial responsibility, and OPOL members give mutual guarantee of each other's obligations. There are two categories of claims: reimbursement of public authorities for remedial measures and compensation to third parties for pollution damage.

Cleanup Rules: The United States. In the U.S. regime, the principal national rules are contained in the Oil Pollution Act of 1990 (OPA). There is no need to show fault; strict liability applies. It authorizes the use of money and collection of revenue for the Oil Spill Liability Trust Fund, designed to ensure a rapid and effective response to oil spills. The OPA rules on compensation and liability over the loss of natural resources, removal, and cleanup costs, property damage, loss of profits or earning capacity, loss of government revenue, or increased public services costs. It includes liability caps that vary according to the type of spill and type of damage caused.

In addition, each state has its own environmental legislation with provision for damages. Tort claims may be made under state and federal law. The Clean Water Act permits a government to seek fines on a per barrel basis, which can increase if a judge finds that the company has been grossly

negligent in allowing the pollution to occur. In BP's case, this may lead to billions of dollars of liability.

Insurance. Most joint operating agreements (JOAs) require the operator to take out insurance for joint operations. Partners can join in the operator's insurance or take out their own. Some larger oil companies do not insure with the market. Usually, an operator will maintain various insurances relevant to blowout, including third party legal liability and control of wells, redrill, and cleanup of sudden and accidental pollution from a well out of control. For contractors, nearly all contractual liability insurance excludes blowout or subsurface pollution or below-wellhead risk.⁴²

Decommissioning. The framework of public international law obligations for the removal and disposal of offshore installations and structures is linked to the UN Convention on the Law of the Sea (1982). Article 60(3) refers to "generally accepted international standards established in this regard by the competent international organization." These were set out by the International Maritime Organization in "Guidelines and Standards for the Removal of Offshore Installations and Structures on the Continental Shelf and in the Exclusive Economic Zone."⁴³ This is a legally nonbinding document, like a recommendation. It sets minimum standards for removal and disposal and recommends a general removal principle on coastal states requiring that all disused installations and structures should be entirely removed, except when special circumstances consistent with the guidelines and standards can be shown to apply. It allows for the possibility of partial instead of total removal. A case-by-case approach is required to determine whether special circumstances permit a coastal state to do this.

This is a dynamic area, however, in which perceptions of appropriate action to protect the environment may change in the direction of increasing strictness. One step down from the global level, regional conventions also play a role, although the level of development of these varies a great deal from one region to the next, influenced by the degree of cooperation the states can achieve.

In 1995 an attempted decommissioning in the North Sea area led to a review of the regional requirements and had global repercussions. The proposed decommissioning was for a floating oil storage and off-loading facility called the Brent Spar, located originally in the Brent field in the U.K. North Sea in 140 meters of water. It commenced operations in 1976 and was decommissioned in 1991. Shell carried out the requirements for disposal under the then

domestic legislation, and a license for dumping was issued. Following extensive protests by environmental groups, these plans were shelved, and the structure was eventually taken away for disposal elsewhere. The process underlined the importance of having public participation in the design of a decommissioning plan.

Subsequently, the regional convention for North Sea states, the 1992 Oslo and Paris Convention for the Protection of the Marine Environment of the North East Atlantic (OSPAR), also covering the North Atlantic, was revised in 1998 to require all installations to be brought onshore for decommissioning and to make it much harder for installations or structures to be exempted from total removal. Exceptions remained for fixed steel jackets over 10,000 tonnes and concrete jackets. However, with advances in technology and contractor capabilities it can be expected that future applications for exemptions (derogations) will be scrutinized more and more carefully.

Who Pays? International law (and that includes regional conventions) does not specify who pays for decommissioning. This will be determined by the national regime, the JOA or unit operating agreement, the terms of any decommissioning agreement, and the security provided for costs. A key feature of international law and especially OSPAR Decision 98/3 is that it makes the government a decommissioner of last resort for disused installations and the ultimate payer if a company or companies default on their obligations.⁴⁴

In this light, and in line with rising environmental standards, some governments have taken action to introduce new legislative provisions addressing the problem or overhauling existing legislation to ensure that the problem is addressed properly. The minimum content of national legislation on this would include the following:

- Inclusion of an outline decommissioning plan when a development plan for the field is submitted
- Submission of a full decommissioning plan (covering costs, time, and instruments) at a specific date in advance of decommissioning
- Submission of a revised decommissioning plan at a specified date (for example, six months) prior to the start of decommissioning work
- Provision for government review and approval at the preceding stages
- Initiative to be taken by company to submit all plans and to include the preparation of options for removal to be reviewed by government

- Joint and several liabilities of the owners or joint venture partners
- Security provided for performance of the obligations
- Fixing of liability for decommissioning: on the licensee or contract holder but also the operator and/or owner of the installation, the parties to the JOA if different from the rights holders under the host-government agreement, and entities that may own interests in the installation such as banks, former rights-holders, and respective parent and associated companies
- Penalties for failure to do the work—the government could do the work directly or subcontract it and charge the companies for costs (Penalties will also apply where there is a failure in certain areas, such as to provide financial information or to comply with notices requiring remedial action to carry out a decommissioning plan.)

On the final point about liability, if the government takes the view that the joint and several liabilities of each company are to bear the costs of decommissioning even if they do not have a continuing interest in a field, this means that any transfer of interests requires the incoming company to provide an acceptable financial security for its decommissioning liabilities. For incoming investors, this is not a problem, but for established investors, much will depend upon the wording of the contract, probably concluded several decades earlier. At a postdecommissioning date, damage may be caused by remains exposed above the sea surface, remains called “footings,” drill cuttings, or debris. Ownership of residues left after the main installations have been decommissioned will typically remain with the owners and any liability remain with them in perpetuity.

How do they pay? On the contractual side, it would appear that any problems are likely to arise more from the design of appropriate funding instruments rather than from the type of state contract. Their design seems still to be quite embryonic. There are merits of trust funds, which provide a level of security for both the state and the oil company or consortium but leave open the question of how to ensure fairness between the state and its partner. Such funds can be established by the contractor in a bank of its choice in an interest-bearing U.S. dollar account—the decommissioning fund—with funds being paid in from time to time to meet the expected costs of implementing an approved decommissioning plan. Such payments should be treated as cost recoverable. Any payment should be considered an operating expense for the purpose of industrial taxes. However, money remaining in such a fund after the approved decommissioning plan is implemented

should be treated as income for tax purposes and as profit oil in the case of a PSC. The remaining balance could be shared out. However, there are merits, too, of opening escrow accounts, especially in countries that have fairly undeveloped legal and financial systems.

Planning Ahead. The role of environmental impact assessments and other forms of forward planning seems likely to increase. This will play an important part in predicting what sort of abandonment will be satisfactory and what forms of structure should be designed to facilitate decommissioning.

Governments may seek security from the start of an oil and gas project if necessary (that is, the development stage). For industry there is a clear additional cost in providing guarantees at such an early stage, whether in the form of letters of credit, cash, or fund provision. There are also difficulties in engaging in such preparations when the actual timing of decommissioning cannot be predicted with any certainty (and can often be postponed).

Warranties in the decommissioning plan may also be required for completion of abandonment or closure work in accordance with government requirements and with respect to liability for persistent postclosure risks. Governments should obtain both closure-related warranties (that the closure will be completed subject to government requirements and approval) and postclosure warranties that the company will remain legally responsible for any environmental risk that persists (such as acid mine drainage in the case of mining) or emerge (such as slope stability of impoundments for mining) and will be corrected by the company even after the license is handed back (World Bank 2010).

MINING. Closure of mines has been occurring for hundreds of years. Experience is therefore very much more advanced than with the decommissioning of oil and gas structures and installations. However, the kind of mine closure hundreds of years ago was often not done in a very responsible manner. Care about this is a relatively new development, brought about by the dereliction left by early mines. Toolkits are available on this topic (World Bank 2010).

Initial plans and cost estimates for rehabilitation of the site will typically be required (see box 9.7). Some contracts will require additional financial guarantees.

Provisions in a mine closure plan include decommissioning and removal of plant and equipment and land reclamation and restoration to an alternative use. Decommissioning and closure plans should also address the handover of potentially useful social assets such as buildings (for example, health or educational facilities

Box 9.7 Decommissioning and Environmental Protection Plans

A well-designed environmental protection regime will also require closure and a decommissioning plan and should

1. start as early as the feasibility stage (design with the end in mind) and continue on a regular basis throughout the life of the operation;
2. be completed with arrangements in place for any environmental hazard post closure site maintenance or environmental monitoring that might be needed after closure is completed;
3. include planning for the decommissioning and removal of plant and equipment, long-term land reclamation and stabilization and restoration to an alternative use; and
4. provide for handover to the community of any remaining useful social or productive assets.

and possibly even repair shops for small road vehicles) and equipment (for example, working vehicles) that can be used by the community after the mine is closed.

If any such buildings and assets are identified early in the project life, toward the end of the project they can be handed over progressively and operated and maintained by the community agency or organization that will eventually receive and use them, so that that this group is well equipped to own and operate them once the operation closes and the company has departed. Buildings that are not suitable to be handed over, such as laboratory or office buildings or workshops for large mining trucks and shovels, should be closed and removed. In situations where there may be legacy issues from past operations, environmental audits and surveys of the legacy sites should be undertaken on a regular basis to identify any environmental risks, set action priorities, and mobilize needed funding according to the severity of the risks (World Bank 2010).

The mining agreement can be used to require the mining company to provide funding for rehabilitation and mine closure. The Liberian Model Mineral Development Agreement (2008) states the following, for example:

The closure management plan must also set forth the means by which the Company proposes to ensure the availability of funds to finance its environmental

restoration and remediation obligations under Sections 8.2 and 8.3 of the Mining Law so that the cost of closure will be borne by the Company and not the public or the Government. If the Company does not agree in writing with the Government to a “pay-as-you-go” funding scheme, then a funding guarantee reasonably satisfactory to the Minister of Finance from a third party financial institution with a long-term credit rating of at least A (or its equivalent) from at least two internationally recognized credit-rating agencies with provision reasonably acceptable to the Minister of Finance and the Minister [of Lands, Mines and Energy] for redetermination of estimated closures costs at least triennially and adjustments in the amount of the funding guarantee will normally be acceptable.⁴⁵

Social concerns

While not all social impacts are amenable to regulation, requirements related to mitigating social risks should be included in laws and regulations to ensure they are implemented in an orderly and responsive manner. These requirements include community notification, information dissemination, community consultation, land acquisition, compensation, and involuntary resettlement.

HYDROCARBONS. Oil and gas companies have undertaken social investment programs in many of the countries where they operate. These are voluntary contributions made to benefit communities and broader societies, usually made in terms of transferring skills or resources (IPIECA 2011a). Initial experience of this has indicated that an approach limited to donations and infrastructural programs will not be effective and will likely lead only to short-term positive public relations in the local area. Day-to-day stakeholder management of such investment appears to be crucial and rather than programs of social investment. The way in which a social investment program operates can in practice create or feed into divisions between groups and even lead to community violence (IPIECA 2011a, 13). Some companies have adopted a regional rather than a local strategy to counter this. Companies have also found that partnering with NGOs, government agencies, and universities is a useful way to obtaining the expertise that they lack. Boosting the capacities of local authorities is also appreciated in communities as a worthwhile goal. It can increase transparency and improve the authorities’ ability to respond to demands and requests from their own citizens.

Evidence of evolving practices is evident in the *Oil and Gas Industry Guidance on Voluntary Sustainability Reporting*, published by the International Petroleum Industry Environmental Conservation Association (IPIECA), the American Petroleum Institute, and the International Association of Oil and Gas Producers (IPIECA, API, and IOGP 2015). It incorporates feedback from public consultations and improvements in reporting practices. A key change is an alignment of the social and economic issues with the UN Guiding Principles on Business and Human Rights. It also includes a new issue area on water, with comprehensive updates to two water indicators and a new indicator covering planning and execution of decommissioning activities. Similarly, IPIECA (2015a, 15) has created a library of questions and resources to assist procurement officers in identifying and managing human rights and environmental risks in the supply chain. It addresses company concerns about labor practices and environmental issues, such as child labor and young workers, forced labor and human trafficking, health and safety, and environmental responsibility.

MINING. Alongside the economic opportunities it brings, the opening of a mine in or near a community may lead to economic and social disruption. The mining company may be required in its contract to provide some social services to the affected communities, or even financial compensation. This is an area of great sensitivity for a mining project and guidance on actions is available in various forms: the ICMC has toolkits, the IFC has principles and standards, the International Bar Association has a community toolkit, and there is guidance from *Sourcebook* partner institution, the University of Queensland's Centre for Social Responsibility in Mining.

A further step in providing this kind of social engagement with a legal basis is the requirement that the company conclude a dedicated agreement on cooperation. For example, the 2009 Mongolian agreement for the Oyu Tolgoi mine states:⁴⁶

The Investor shall establish cooperation agreements with local administrative organizations in accordance with article 42 of the Minerals Law and these agreements may include the establishment of local development and participation funds, local participation committees and local environmental monitoring committees.

A CDA is used to formalize agreements relating to the improvement of economic development at the local

community level. This can be done through a variety of measures, processes, and structures as vehicles for delivering development benefits to communities.⁴⁷ CDAs can include the preparation and implementation of community economic development plans, incorporating or supported by building local planning capacity, job skills training programs, microfinance schemes, provision for community-controlled trusts and development funds, undertakings with respect to local employment and local procurement, and sourcing of goods and services. The CDA is normally concluded between the local community and the project sponsors and is a vehicle for building mutual trust and understanding.

The CDA practice reflects the growing importance assigned by investors to close and regular consultation and communication with affected communities on EI sector projects and their social and environmental impacts. This is not always done well, but even so it can act as a catalyst to further effort. To do this properly requires building local capacity (of both government and community) to plan well and implement the mining project effectively and with good accountability. It also requires checks and balances and capacity regarding local expenditure control systems—a substantial task—and the avoidance of elite capture of the processes and economic benefits.

Representation. Two critical aspects require further concerted efforts. First is overall representation for miners in the sector and its dialogue with national policy makers. Latin and South America are considerably more advanced in this regard than Africa, with viable cooperatives, unions, and federations in place that truly represent the interests of their members. Second is the representation of women. Though women make up at a minimum 30 percent of the ASM sector (Hinton, Viega, and Beinhoff 2003), and much more in certain materials such as coal and salt (Lahiri-Dutt 2008), they continue to face a range of discrimination—some is gender neutral but some is gender specific and has to do with health and sexuality. Efforts to promote organizational representation through cooperatives, unions, federations, and trade associations should be a key policy focus moving forward.

9.6 THE RESPONSES

To help countries respond to the kinds of issues described in sections 9.4 and 9.5, there is a wide range of industry guidelines, voluntary initiatives, tools, international standards, and frameworks for evaluating, measuring,

managing, or preventing specific types of impacts. A feature of these diverse guides to good practice is that many of them are voluntary and are not based on legislation or the provisions of binding agreements. Improvements in managing environmental and social impacts have often been attributable to extractives companies themselves in subscribing to and following international corporate responsibility schemes. These not-legally-binding initiatives are the subject of this section.

Ideally, extractives policy and project design should provide support to, or encourage, beneficial externalities while mitigating or offsetting any negative consequences. Pursuit of these objectives is in the interest of investors and governments alike. In the case of the former, appropriate attention to social and environmental issues provides a social license to operate from the EI project host country or community; this goes beyond the strictly legal license. From a government's perspective, it demonstrates responsiveness to the legitimate interests of its citizens.

There is an institutional aspect to the design of effective responses. Good policies and good project-specific decisions may be ineffective in the face of limited institutional capacity to pursue or enforce them. In some instances, if certain outcomes are desired, there will have to be additional resources available. This means that resource requirements have to be identified and developed at an early stage or as early as possible.

Good industry practice may be referred to in a contract and may even refer expressly to a set of standards such as the IFC performance standards or to a standard-setting body such as the ICMM. The aim in such cases is to clarify the kind of good conduct that is expected. Many of these standards exist in the extractives sector, based on intergovernmental, multistakeholder, and industry association sources. While most of these are voluntary initiatives, they are highly influential in thinking about good practice.

One of the best-known examples of standards is that adopted by the IFC in 2006 and updated since then. These performance standards have been adopted by many other internationally operating institutions including the more than 80 financial institutions that have signed the Equator Principles. These standards cover social and environmental baseline and impact assessments as well as environment management plans, safeguards for indigenous peoples, and land acquisition and resettlement.

An emerging standard for the certification of mine sites has to be mentioned. The Initiative for Responsible Mining Assurance (IRMA) is a group of nongovernmental organizations, businesses that purchase minerals and metals for

resale in other products, affected communities, mining companies, and trade unions and seeks to develop standards for environmental and social issues related to mining. These issues include labor rights, human rights, indigenous peoples and cultural heritage, conflict response, pollution control, and site closure. The goal is to produce a system of independent, third party verification to enable mines to “credibly demonstrate that they are operating in a manner that is consistent with healthy communities and environments and that leaves positive long-term legacies” (IRMA 2016). Already it has a draft Standard for Responsible Mining aimed at industrial-scale mines. This outlines a set of best practice requirements that mining companies are expected to adhere to; companies are expected to demonstrate compliance by participating in IRMA's independently verifiable responsible mining assurance system. It should be noted that IRMA does not provide assurance for oil, gas, uranium, and other energy fuels.

With respect to decommissioning and closure, there are distinct differences between the decommissioning of a petroleum structure and the closure of a mine. The learning database differs greatly between mining and hydrocarbons in this area. While mining has been carried out for hundreds, indeed thousands of years in some places, the issues arising from decommissioning of hydrocarbons fields are relatively recent, particularly with respect to the many structures located in offshore fields. There is very little experience of actual decommissioning outside of the on-land and offshore activities of the United States. For countries with operations in deeper waters than the Gulf of Mexico, the North Sea provides some indications of the nature of the problem.

It is also generally understood as a series of processes that start at the time of project design and continue throughout the life of project operation. Preparation well in advance is crucial to effective decommissioning and closure.

Research too has demonstrated some particular challenges with respect to ASM (see box 9.8). Whenever possible, ASM has been separated out from large-scale mining in this chapter.

Environmental

The reduction of environmental impacts can have a positive benefit for employment. It can provide opportunities to develop local skills while mitigating the carbon footprint of EI activities and their effects on climate change. Promoting renewable fuel sources of energy and energy efficiency are important initiatives in this respect. Local producers of

Box 9.8 Challenges Associated with Artisanal and Small-Scale Mining (ASM)

Access to suitable deposits and security of tenure:

Whereas small-holder farmers can gain recognized communal rights to land, small-scale miners must conform to the same principle established for industrial mining operations. This principle, often enshrined in national law, confers sole ownership rights to the state of all mineral endowments found within its given territory. The state then has the right to lease prospective mining areas to third parties capable of extracting these resources. Given the potential contribution such endowments can make to national development—whether through export earnings, taxes, or, to a lesser extent, employment and subsidiary business development—it is natural that the state would wish to control extractive activities. However, it can lead to a situation in which permit areas are prioritized for industrial mining. The effect of this is to leave artisanal and small-scale miners with few suitable areas to work, forcing encroachment onto industrial concessions, or worse, into protected areas such as national parks and reserves. When artisanal zones or areas are established, they often are an afterthought and prove to have few valuable resources suitable for small-scale development.

Enforcement of mining codes and legislation:

While governments have made significant strides in integrating ASM into legal instruments such as mining codes and legislation, there is still abundant work needed to enforce these instruments and to make people aware of the rights and opportunities conferred on them by legislation. Furthermore, there is continued need to strengthen the government institutions responsible for promoting ASM through capacity-building programs.

Adequate market conditions: There is a critical gap that leads to the undercapitalization of mineral assets. In the absence of robust financing options, many ASM operations rely on prefinancing arrangements with buyers, which have both benefits and disadvantages.

Access to finance: Whether access is through small revolving loan facilities, self-savings groups, local banks, local finance markets, or mining federations, this remains a significant policy challenge, requiring a much more robust and coordinated effort with other national ministries and the private sector to widen options. Lessons from Rwanda's village banking

system have proven to be a suitable starting point for providing Rwanda mining cooperatives with entry level capital that could serve as a replication model elsewhere (Perks 2012).

Environmental, social, and labor standards: The lack of enforced standards in most ASM areas remains one of the subsector's largest and most critical areas of criticism. Despite efforts by international agencies such as the International Labour Organisation or the World Bank to develop mine site standards, few countries have sufficient mechanisms in place to enforce and monitor adherence. ASM marginalization explains further the lack of appropriate incentives and capacity to mine in a more environmentally and socially sensitive manner. Without effective formalization of the sector, adhering to industry standards remains economically unattractive for many operators.

Market links: The International Institute for Environment and Development estimates that 15–20 percent of global minerals and metals derive from ASM (Buxton 2013, 3). Although globalization of mining processes is not new, it has led to new sourcing of raw materials in resource-rich but also more isolated areas of Sub-Saharan Africa, Latin and South America, and Southeast Asia. This more pronounced penetration of mineral buyers and small investors into isolated regions of the world gives rise to further concerns over how ASM is affected by these markets demands and how it accordingly responds. Piloted efforts to model clean supply chains, or fair trade minerals, are reemerging as a means to diffuse the principle of responsibility across the supply chain—companies, manufacturers, smelters, buyers and traders, and national governments. It is yet to be seen, however, whether such initiatives will be capable of driving deep structural change needed to the sector, as noted in the formalization framework.

Natural resource management and biodiversity: The global rise in specific mineral prices, such as gold, has precipitated recent pockets of mining rushes worldwide. Some of these environments include previously untouched places that are ecologically sensitive, including protected areas and critical ecosystems such as arctic landscapes (Greenland), tropical rainforests (Brazil and Gabon), and coral reefs (the Philippines). Environmental impacts of mining methods—such as clear-cutting forests, river dredging, or use of toxic

(Box continues on the following page)

Box 9.8 Challenges Associated with Artisanal and Small-Scale Mining (ASM) (continued)

chemicals—are compounded by livelihood practices that support mining populations—gathering firewood, hunting for food, or trading goods. Furthermore, on a global scale, artisanal and small-scale forms of gold production remain the biggest environmental challenge due to mercury use. The Minamata Convention on Mercury 2013 to further limit and in some cases

ban mercury use in countries presents a renewed opportunity to tackle its use in ASM. However, the environmental agenda surrounding ASM must be integrated into broader governance discussions, as often environmental degradation caused by ASM occurs within a vacuum of government regulation and presence.

Box 9.9 Essentials of a Good Environmental Protection Regime

If well designed, a regime will provide for the following:

- Coverage of both the mineral or hydrocarbon operation and all related infrastructure
- Environmental permits that cover key impacts such as water use and waste water discharge quality, waste storage and disposal, atmospheric emissions, and noise
- Community hearings open to the public where all data collection, impact assessments, and management plans are presented as part of the approval process—final, approved documents should be provided to communities
- Participatory community monitoring that can help reduce community concerns
- Identification of assets for handover at an early stage and setting up of arrangements for them to be jointly operated and maintained by the community agency or organization that will receive them
- The establishment of financial assurance mechanisms needed to ensure that sufficient funds are in place for plant removal and disposal and land reclamation and rehabilitation at the time of closure and decommissioning—they should also require that reclamation and restoration be built into the production plan to take place on a progressive basis, in which case there is less to do during closure and decommissioning
- Penalties that are clearly stipulated for violations of requirements and compliance standards, and compensation set out for harmed parties where needed, all of which should be commensurate with the seriousness of the violation
- Environmental audits and surveys of any legacy issues from past operations as well as identification of environmental risks and action priorities and mobilization of any funding required

technology can be stimulated to produce energy solutions using local renewable energy sources.

In this context, companies have an interest in drawing on industry good practice standards and generally becoming proactive; this includes working with communities to build the skills necessary for resource employment and the provision of goods and services. At the same time, companies are able to draw on the growing body of standards and soft-law mechanisms that require a voluntary response from the players for compliance. A summary of the essentials of a good environmental protection regime is contained in box 9.9.

OIL AND GAS. In the field of petroleum sector governance, a distinct initiative should be mentioned. Given the impressive track record and global influence of the Norwegian approach to resource governance, it is perhaps unsurprising that the Government of Norway should have supported a Petroleum Governance Initiative (PGI) with the World Bank. Based on three pillars (transparency and revenue management, environmental sustainability and community development). It provides support to countries undertaking oil and gas activities by assisting in the implementation of appropriate governance frameworks. Environmental implications are considerable: organizing support for

environmental management systems; support for a toolkit providing guidance on decommissioning policies and building specific country experience through a Social and Environmental Strategic Assessment in Mauritania.

Oil Spill Cleanup. Where a significant environmental accident occurs, it is crucial to have funds available to meet the costs. Some contractual provision will usually have been made to help address this: deposits paid into funds, parent guarantees, or a requirement that the company obtain insurance. This is a way of ensuring that the government is protected from having to make payments for such eventualities if they happen, and if the company defaults. Very significant differences are found in levels of preparedness between countries, with areas of particular vulnerability in institutional capacity, interagency cooperation, detail of available rules, and company mix. The Gulf of Mexico incident involving BP's Macondo well involved a large privately owned oil company; in many cases, the operating company will be a NOC or a smaller company, with less predictable outcomes in the event of a large spill.

For industry it is important for reputational and cost reasons to engage in oil spill preparedness and response activities. Knowledge is pooled through associations.⁴⁸ Prevention is treated as the priority, and it requires cooperation with regulatory authorities. A particular action is the joint IPIECA and International Maritime Organization Global Initiative, which brings together industry and governments to enhance oil spill preparedness and response. This is an umbrella program that encourages and facilitates the development and implementation of oil spill contingency plans and the ratification and implementation of oil spill-related international conventions. Three regions are active in this arrangement: the Caspian and Black Sea Region, West and Central Africa, and Southeast Asia.

A series of 24 good practice guides has been produced by a joint industry partnership comprising IPIECA and the International Oil and Gas Producers Association, established following the Macondo incident, to implement learning opportunities about oil-spill preparedness and response. These guides are available online and are being translated into French, Spanish, Portuguese, and Russian.⁴⁹

The industry has also established so-called tier 3 response centers worldwide. These sites offer resources such as specialist equipment and trained personnel, as well as funding mechanisms, held in readiness to combat an oil spill. The idea is to integrate them rapidly into a local response where a spill is already under way. Some mock oil spill response

exercises have already been held in the Latin American and Caribbean region.

Gas Flaring. Two principles are generally accepted. First, flaring of associated gas should not be authorized by governments, except in cases of emergency for operational reasons or when no alternative economic solutions exist. This is usually supported by the domestic legal and regulatory framework. For example, Mozambique has adopted the following wording in its amended Petroleum Law:⁵⁰

1. The flaring of natural gas shall only be permitted on terms to be defined by the Government and only if it is demonstrated that all the alternative methods for the disposal of the natural gas are unsafe or unacceptable for the environment.
2. Authorization shall be required when the natural gas is flared for the purpose of testing or verification of infrastructure, on terms to be regulated.

Second, a priority should be to use associated gas when it is produced. Operators can be required to identify on a case-by-case basis the possible uses of associated gas in the country. They should select the most viable use for oil recovery, but in the absence of any such use, the gas may be temporarily reinjected in the oil reservoir. In this way, the gas is not lost and is stored in the oil reservoir for use at a later stage of the field production life. An example of this is the Republic of Yemen's reinjection of associated gas over a 20-year period, in the absence of commercial uses for the gas. Subsequently, the construction of a pipeline and a liquefied natural gas plant allowed the export of both associated and nonassociated natural gas, and the supply of gas to a power plant in the country and to other end users (Le Leuch 2012, 13).

Research has been carried out into how particular countries address the challenge of associated gas, and has resulted in various publicly available case studies that are relevant to the topic of flaring (CCSI 2016b). This may furnish guidance to regulatory authorities, policy makers, and industry when considering practical steps to address this issue.

A major initiative in this area is the Global Gas Flaring Reduction Partnership (GGFR). This is a public-private partnership comprising national and international oil companies, 18 national and regional governments, and 3 international institutions.⁵¹ A major goal is to remove technical and regulatory barriers to flaring reductions. The partners to the GGFR have established a collaborative Global

Standard for gas flaring reduction. This provides a framework for consultation, as well as collaborative action, and aims to reduce barriers to associated gas utilization. Over 15 GGFR partners have formally endorsed the Global Standard. They have committed to zero flaring in new projects, except where no feasible alternatives exist.

The Clean Development Mechanism may also assist in the reduction of gas flaring. It allows funding of projects specifically aimed at reducing associated gas flaring in developing countries and can therefore improve the economics of such projects. Under article 12 of the Kyoto Protocol on Climate Change, an international agreement committing its signatories to reducing carbon emissions, a country with an obligation to reduce or limit its emissions can implement an emissions reduction project in a developing country and thereby gain credit equivalent to a tonne of CO₂ and set that against its emission-reduction target. This clean development mechanism might involve a rural electrification project using solar panels or the installation of more energy-efficient boilers. It might also allow the funding of projects.

Climate Change. The oil industry association for environmental and social issues, IPIECA, participates in the Intergovernmental Panel on Climate Change and the United Nations Framework Convention on Climate Change activities. Through this means it provides its members with updates on the actions that governments are taking and the arguments made with respect to climate change. IPIECA has a working group that has been developing GHG emissions management guidelines as well as other documents that assist in raising the level of oil industry best practice on this matter. In 2015 it published a guidance document, jointly with the American Petroleum Institute, *Addressing Uncertainty in Oil and Natural Gas Industry Greenhouse Gas Inventories* (IPIECA and API 2015). This summarized the technical considerations that are important for understanding and calculating GHG emission inventory uncertainty, and assists companies to navigate the uncertainties around establishing a corporate carbon footprint, publicly reporting on emissions, and assessing life-cycle emissions. A further step was taken in 2015 with the release of a pilot Climate Change Reporting Framework, providing voluntary guidance for oil and gas companies developing climate related sustainability reports. It assists companies in disclosing relevant data in a simple, straightforward manner using a consistent methodology.

When the Paris Agreement entered into force on November 4 2016, a group of 10 oil and gas companies including Saudi Aramco, Statoil, and the China National Petroleum Corporation, announced a plan to spend US\$1

billion on climate change mitigation measures (Clark 2016). As the Oil and Gas Climate Initiative (OGCI), they plan to invest the funds in supporting start-ups and developing and demonstrating innovative technologies that have the potential to reduce GHG emissions significantly.

Individual companies continue to take actions to limit GHG from their own operations and to help their customers use their products more efficiently. This includes working with governments, research organizations, and other sectors to develop innovative ways of supplying energy in an environmentally sustainable manner, deploying low carbon technologies, and investing in new fuel technologies, including renewable, hydrogen, biofuels, and fuel cell technologies.

Biodiversity. Oil and gas companies take individual actions, but best practice achieves momentum through the more systematic actions of industry associations such as IPIECA. It has a working group to improve the way that the industry recognizes and manages biodiversity conservation issues. The aims of the working group include the integration of biodiversity and ecosystem service concepts and management into oil and gas operations by developing science-based good practice tools using a mitigation hierarchy and a reference framework. The main contribution of this kind of industry body is to develop tools and guidance while at the same time organizing workshops to raise awareness of industry action. In particular, there is a Cross-Border Biodiversity Initiative, a collaborative partnership between IPIECA, ICM, and the Equator Principles Association. This aims at integrating biodiversity conservation mechanisms into the EIs. It has published guidance documents such as *Good Practices for the Collection of Biodiversity Baseline Data* (Gullison et al. 2015), which is designed to help companies incorporate biodiversity indicators into their environmental and social impact assessments; *Biodiversity and Eco-system Services Fundamentals*, bringing together information essential to informing biodiversity and ecosystem services strategy development and decision making at the corporate level (IPIECA and IOGP 2016); and *Cross-Border Guide for Implementing the Mitigation Hierarchy* (Biodiversity Consultancy 2015), which defines four clear steps to manage biodiversity throughout the life cycle of a project. IPIECA has also been monitoring the concept of natural capital—an emerging approach to assessing the monetary value of natural wealth and its ecosystems.

Decommissioning. For governments new to oil and gas developments, it makes sense to review the practice of countries with mature hydrocarbons areas, where the issues

of closure have become pressing and actions have already been taken to prepare for decommissioning. Sometimes decommissioning is a legal requirement and not a matter of choice. In Brazil the Petroleum Law (1997) provides that the concessionaire shall “adopt the industry international best practices,” and the PSA Law (2010) refers twice to industry best practices, requiring the regulatory agency to enforce them and requiring all operations under the production-sharing agreement (PSA) to be carried out in accordance with industry best practices. It thereby imposes the requirement on the state company, Petrobras, as the only entity allowed to operate under the PSA. There is also extensive literature on the principles and practice of decommissioning, albeit with still relatively few examples of actual removals and disposals.⁵² Two common themes stand out in the literature in its analysis of decommissioning:

1. Funding of costs: How is decommissioning to be paid for?
2. Timing of response: When is the best time to start preparations for decommissioning?

The major concern of a government is to ensure that payment for the costs falls mostly if not entirely on the contractor or licensee and not on the state. Since the actual timing of decommissioning is rarely foreseeable, a variety of issues need to be addressed well in advance to improve the likelihood of a good outcome. It is particularly important to ensure that when costs are due the obligation to pay has been clearly linked to a specific company or consortium and that the funds are available to meet the costs.

For government, the risk is that once production declines, one or more investors will default on their decommissioning obligations. This has already happened in the U.K. sector of the North Sea, where companies developing the Ardmore field defaulted.⁵³ When the defaulting company is part of a consortium, the obligation to pay can be shared among the remaining parties.

Determining exact liabilities involves making estimates far in advance of the event, and these will include a margin of error. Moreover, each decommissioning is unique, with its particular combination of technical, commercial and environmental features. Given this uncertainty, if a party wishes to leave the JOA early, it may prove hard to agree on a security for its decommissioning obligations. The continuing parties will have to rely upon the covenants and indemnity that are in the JOA.

Timing will also present challenges because contractors will have difficulty knowing exactly when to commence

preparations, given variables such as the international oil price, technological developments leading to potential for enhanced recovery, and environmental knowledge. All may change, or some. ConocoPhillips began the process of decommissioning the Maureen field in the U.K. North Sea in 1993. The platform was not removed until 2001.

There are a variety of country experiences to learn from when designing a decommissioning regime. Some countries, like India and Cyprus, opt for a relatively simple set of provisions. Most others, however, prefer to provide for the establishment of a fund, the possibility of abandonment agreements, some provision of security against default and the form of such security, residual liabilities, trust funds and their fiscal treatment, and a measure of public accountability, clearly evident after the Brent Spar experience.

There is a potential for jurisdictional conflicts among the various ministries and agencies involved in the decommissioning process. This is a real issue and needs to be prepared for. Given the wide-ranging effects of a decommissioning, several government departments will at some stage become involved, including those responsible for navigation, fisheries, defense, energy, communications, transport, environment, ports, and scientific research. State-owned companies will also be involved in many cases. Channels and priorities need to be created and identified, something that only the government, not the company, can do. In the U.K. case, this has involved the identification of one ministry as the lead in decommissioning matters.

For countries that operate a production-sharing system, there are likely to be some specific problems. The first arises from the operation of the contract mechanism by which a share of the produced oil is received by the investor to compensate for costs incurred (cost oil). In any well, production volume reaches a plateau, after which it declines. The removal of installations and structures will generally occur when no more oil remains to be produced. The question then arises of how the contractor is going to recover the cost of removing the structure or installation when oil is no longer being produced—in other words, when there is no income from which the contractor can finance the removal cost. If it is seen as a problem for the NOC as the asset owner (as seems likely under many present arrangements) and not a problem for the contractor, the company is left to make provisions to finance the cost of removal.

The second problem involves the accounting period for cost oil recovery (see the discussion of this subject under production sharing in chapter 4). This occurs every quarter when, for example, 20 percent (perhaps as much as 50 percent in recent PSAs) of oil produced in the first

quarter of production is recovered as cost oil. When such expenditure is not recovered it is carried forward to the next quarter when a further 20 percent (in this example) of the oil produced may be treated as cost oil. This process continues for every quarter. Ideally, all of the contractor's expenditure should be recovered by the end of the PSA. This might not occur, however. A situation could arise in which the contractor may have unabsorbed cost oil at the end of the PSA. In such cases, if the contractor then has to finance the cost of the removal of petroleum installations and structures, there is no mechanism to permit the contractor to recover its own expenditure or to pay for the cost of the removal.

A third problem arises from the operation of those cost oil recovery mechanisms that permit recovery of cost oil based on contract areas. Each PSA has its own contract area, and the contractor is not allowed to recover expenditure incurred in one PSA area from the income produced in a different area. Therefore, if a contractor has two PSAs in a single country, the oil in the first contract area cannot be utilized as cost oil in the second contract area. The recovery of cost oil from different contract areas is discouraged in some countries by a ring-fencing mechanism that treats each PSA as separate from the other even when the contracting company is the same in both cases. The second problem outlined above will be further exacerbated by this feature of the PSA system.

There are a number of countries in which the PSA has been combined with a decommissioning regime: Cyprus, India, Tanzania, and Trinidad and Tobago, for example. In Malaysia the approach in the more recent PSAs has been to require the contractor to prepare an estimate and secure agreement on the cost of decommissioning. The cost is then multiplied by the annual production or future reserves. Cost recovery is granted, and the amount provided has to be paid in cash to the government. On decommissioning an application has to be made to the government for a return of the fund to settle decommissioning costs. An interesting feature of the Trinidad and Tobago PSC is that the contractor is required to restore the surface of the land during the exploration phase, before relinquishing the areas on which no commercial discovery has been made or from which production has commenced.

MINING. Among industry associations in the extractives sector, collaborative responses to environmental and social challenges have become more common. An example is the Cross-Sector Biodiversity Initiative between ICM on the mining side and IPIECA on the oil and gas side, joined by

the Equator Principles Association. The guidance outputs, already discussed, aim broadly at developing and sharing good practices relating to biodiversity and ecosystem services in the EIs (Biodiversity Consultancy 2015; Gullison et al. 2015; IPIECA and IOGP 2016).

Funding Rehabilitation and Closure. One or more financial mechanisms, contained in legislation or the petroleum or mining agreement, should be put in place to ensure that funding is in place for work related to closure once production—and therefore revenue—ceases. Such mechanisms can include cash held in trust, bonds, and certificates of guarantee; letters of credit; securities; deeds; and assignments. The value should be built up progressively over time so that sufficient funds are available at closure. Funds should be tax deductible at the time they are irrevocably committed. The amount of funding needed should be updated and approved each time the decommissioning and closure plan is updated, and the financial assurance provisions adjusted accordingly. Where cash or comparable financial instruments are used, they should be held by an independent trustee, satisfactory to both the government and the license holder, and kept in a safe but income-bearing form in a stable currency so that value is preserved and increases over time.

Social

COMMUNITY RELATIONS. Obtaining broad community support is a social license to operate and one of the most important issues in EI development (see boxes 9.10 and 9.11). Despite improvements in social impacts, there are many communities that oppose EI sector operations in their vicinity. Companies are much better able to manage their operations, and are at far less risk of unexpected opposition that can cause work stoppages, if they have obtained broad-based community support for their activities. Such support is generally built on four pillars:

1. Good information dissemination so that local communities are satisfied with information from, and communication and consultation with, the company operating in their vicinity
2. The adequacy of compensation for land required and lost assets and livelihoods due to EI investments and operations
3. Good access to local economic benefits from EI activities, such as direct and indirect employment, and company-based community programs for local health, education, sanitation, and other services by the government

Box 9.10 Social Impacts: Special Issues

There are a number of special social risks and benefit-sharing opportunities that require very close attention. These require tripartite engagement among the investor, the government, and the community—not just the community leaders and elite but representatives of the most vulnerable groups, such as women and youth.

Well-designed social mitigation measures will do the following:

1. Include the identification of established legal and customary community residents and users and their assets, crops, and livelihoods at the earliest stage practical so that they can be identified separately from any newcomers who might arrive as news of a potential development spreads
2. Specify mandatory requirements related to mitigating social risks such as community notification, information dissemination, and community consultation
3. Ensure that any involuntary resettlement takes place according to applicable laws, guidelines, and agreements in an acceptable manner to those being resettled, with acceptable forms of replacement or compensation for lost land, dwellings, crops, and livelihoods
4. Require the preparation of in-migration management plans and management plans for any community-related health and safety impacts and for site security arrangements
5. Ensure that social audits take place if required
6. Undertake initiatives to reduce the dependency of the community on the mineral or petroleum operation to avoid the community collapsing when production ceases (including developing economic activities that will survive cessation)

7. Fully protect citizen populations by law, but even in countries where this is not applicable, companies should respect the rights and culture of indigenous peoples and only undertake exploration or mining activity only if they have well-documented evidence that their activities have the broad consent of all concerned peoples
8. Ensure that petroleum and mineral operations offer real economic development opportunities

Well-designed benefit-sharing arrangements will include the following activities:

1. Developing a shared understanding among the government, the company, and the community of how benefits can be increased, improved, and shared and including related commitments in the development agreement among the three parties
2. Preparing and implementing community economic development plans supported by job-skills training programs, microfinance schemes, and agreements with the company regarding community programs, local employment, local procurement, and sourcing of goods and services—all linked to the community economic development plan
3. Building the local capacity (government and community) to both plan and effectively implement EI sector projects with good accountability in order to avoid elite capture of the benefits
4. Identifying opportunities for growth through resource clusters and or resource growth corridors, where mineral and petroleum development can contribute to broader regional growth

4. Adequate mitigation of potential impacts that may adversely affect local living conditions, including land reclamation, environmental protection, safety, and crime

Another social consideration that should be taken into account is EI development's impacts on salaries and taxes.

INDIGENOUS PEOPLES. The leading guidance in this area is IFC Performance Standard 7 on Indigenous Peoples (PS7), as updated in 2012 (IFC 2012b). It applies to any private sector project that seeks IFC financing. Some oil and gas

companies have chosen to follow IFC PS7 explicitly, while others have adopted their own specific policies and standards and others still have approached the issue by means of implementing broader human rights and community relations policies (IPIECA 2011b). The mining industry has had extensive experience in this area. Its association, ICMM, adopted the "Position Statement on Mining and Indigenous Peoples" in 2008, updated it in 2013, and subsequently launched a *Good Practice Guide: Indigenous Peoples and Mining* to support its members in implementing the underlying vision and particular commitments set out in

Box 9.11 Goal Setting and Community Participation

Community participation in addressing social and environmental impacts and concerns has been mainstreamed to all aspects of EI sector management, impact assessment, and mitigation plans. Community and institutional capacity to enforce good practice are critical to success.

EI sector projects can have significant environmental and social impacts that need to be identified, monitored, managed, and mitigated. A regulatory and or audited oversight approach is often needed.

However, in countries with a large EI sector and effective capacity, an approach placing more responsibility on operators (those with a good track record working within agreed codes of conduct) may be equally effective and more practical. The key is to have an outcome-oriented approach to reducing and managing risks while maximizing development benefits. A well-designed environmental and social regime will do the following:

1. Have environmental standards and compliance criteria that are in line with good international practice, including the environmental and social requirements of international finance institutions, particularly the IFC performance standards
2. Give particular attention to monitoring and reporting arrangements, including public reporting of, and government verification of, company-reported environmental and social data

Given that most of EI development impacts take place at the local level, a second key principle is that development should have broad-based community support and prior informed consent of the local population.

A well-designed consultation and consent regime will do the following:

1. Specify regulatory requirements for a high degree of information disclosure and dissemination, notification, and consultation at the local level prior to decision-making points—for example, starting at the exploration stage and continuing through project life
2. Ensure very close collaboration and cooperation between the environmental and social authorities and EI sector ministries and agencies in view of the nature of the risks involved
3. Require full EIAs and SIAs or combined ESIs including baseline assessments and associated ESMPs to be prepared for all commercial-scale investments and submitted for verification and approval
4. Include separate consultations with women, youth, and other potentially vulnerable and disadvantaged groups and rather than limiting consultation to just the local male leaders and elite
5. Require that information be provided to local groups in a form that is readily accessible and understandable
6. Encourage company officials to develop trust-building relationships with leaders of a broad range of local community groups, to include effective grievance mechanisms
7. Give due consideration to cross-border and/or regional and global environmental protection issues
8. Provide direct support, and encourage others (such as donors) to provide support, to communities for capacity building so that communities can respond effectively in an informed manner to information received from companies

the position statement (ICMM 2013, 2015). This comprehensive guide highlights good practice principles and provides examples of how mining companies have addressed particular challenges.

In addition to corporate policies there are reporting guidelines for companies such as the Global Reporting Initiative,⁵⁴ which has reporting requirements for companies that operate in areas where there are indigenous peoples. Companies with express recognition of policies and initiatives to respect and promote the rights of indigenous peoples include BHP Billiton, Newmont, Rio Tinto, and Xstrata.

LAND ACQUISITION AND RESETTLEMENT. Resettlement or land displacement tends to be influenced by expectations about consultation with the affected communities and support for resettled people. International companies now subscribe to the IFC's Performance Standard 5 on Land Acquisition and Involuntary Resettlement (IFC 2012a), which sets out an express framework for consultation, planning, implementation, and monitoring of resettlement, including income restoration. There may be international rules or standards that are relevant to resettlement of peoples that governments have to take note of. Individual companies may well develop tools, policies, and standards within their suite of global

management standards to assist operations where resettlement is required.

Resettlement of indigenous peoples is addressed in IFC Performance Standard 7, in which it is stated that no such resettlement may take place without the consent of the people concerned.

Where it is unavoidable, resettlement should take place according to applicable laws, guidelines, and agreements in an acceptable manner to those being resettled. These generally include details on acceptable forms of replacement or compensation for lost land, dwellings, crops, and livelihoods and government-approved compensation standards for lost assets including land. Requirements on this subject are increasingly found in mining contracts themselves (RWI et al. 2013, 130).

HUMAN RIGHTS. An interesting human rights-based approach has been adopted in Mongolia to assist in the formalization of ASM. By means of the Sustainable Artisanal Mining Project, a bilateral cooperation between the Swiss Agency for Development and Cooperation and the government of Mongolia, an enabling regulatory and policy environment was created in which Mongolia's artisanal miners were able to formalize their status (Singo and Levin 2016). In about six years, the approximately 7,000 miners (about 11 percent of the total) have done so. The adoption of a rights and duties approach took the following form. Government agents were encouraged to be first movers or enablers by providing an appropriate framework for ASM and helping miners to comply with it by understanding and claiming their rights. Miners were also encouraged to become aware of what their rights and duties were and what they could expect the government to deliver. Structures and relationships of mutual accountability between government officials and miners and other citizens emerged.

In a different use of human rights language, local communities in Turkey brought a case against their government in which they alleged that the operation of a gold mine violated their human rights. The Turkish Supreme Administrative Court concluded that rights had been awarded in ways not compatible with the public interest, given the location and use of sodium cyanide. In a separate case involving the mine, the European Court of Human Rights found that the approval by the government and its lack of oversight of the operations, including cyanide and use of explosives, constituted a breach of the villagers' right to privacy and family life (Southalan 2012, 118).

GENDER. There is a growing appreciation of the benefits of treating gender issues affected by extractive operations

right across the EI Value Chain. There are distinct features of mining or oil and gas activities that have an impact on gender. Rather than treating these in isolation, the trend is to analyze these within a wider framework. An example is a study by Publish What You Pay and UN Women (2014), *Extracting Equality—A Guide*. Using a value chain concept, it combines gender with good governance. At each stage of the chain the guide summarizes the considerations that should be made and the questions that should be asked to ensure that women are not left out of natural resource governance. For example, are women as well as men being trained in contract monitoring? Have women been consulted about and participated in impact assessments? The driver behind such studies is an appreciation that women are often the first to bear the negative impact of extraction.

Mining companies, for example, can act to promote, conduct, and/or require gender-sensitive social baseline assessments and social mapping to determine the potential impacts of mining operations on gender relations in the relevant communities. Capacity-building opportunities can be provided by governments and mining companies for women so that they can take advantage of business and employment opportunities in the mining sector.

There have been case studies in countries where women and girls play an important role in the ASM sector. The Democratic Republic of the Congo is one example, where women represent between 20 and 50 percent of the total population at mineral extraction sites (Partnership Africa Canada 2014). Mongolia is another country that has attracted researchers to study gender issues in relation to mining.⁵⁵

OIL AND GAS. Industry has taken initiatives in addressing social impacts both through associations and through companies acting individually. The main association that has contributed to studying and addressing social impacts from oil and gas activities is IPIECA, the oil industry association for environmental and social issues. There have been corporate programs such as prevention of mother-to-child transmission of HIV/AIDS in the Republic of Congo and the use of insecticide-treated mosquito bed nets for malaria prevention in Sub-Saharan Africa. Among individual company programs, Chevron, for example, has promoted awareness of HIV/AIDS prevention to African women journalists and a health care program in Nigeria that involves the use of river boat hospitals.

Another initiative taken at the industry level is the publication of a manual of practical step-by-step guidance on how to plan and implement community grievance mechanisms (IPIECA 2015b). This is linked to the industry's

response to the United Nations Guiding Principles on Business and Human Rights. It is based on the recognition that social and environmental impacts can vary, no matter how much a company seeks to implement best practice, and that complaints and concerns can arise that need to be addressed in a prompt, fair, and consistent manner. Guidance on voluntary sustainability reporting has also been updated by the oil and gas industry to reflect, among other things, a need to align with the UN Guiding Principles.⁵⁶

MINING

Water. Mining companies like Rio Tinto and associations like ICMM have recognized the importance of water impacts and have issued their own standards and best practice guidelines for responsible water management (Rio Tinto 2011; ICMM 2012).⁵⁷ Water stewardship involves business cooperating with governments, other businesses, NGOs, communities, and others to protect shared water resources (WWF 2015). It is an opportunity for businesses to demonstrate environmental responsibility and leadership. Among recent initiatives, CCSI has done research on how water-related infrastructure investments can be leveraged by mining companies to address water needs in surrounding communities and thereby help the companies to obtain a social license to operate (Toledano and Roorda 2014).

Resettlement. Usually, a mining company has the right to move residents if that proves necessary. The mining agreement might set forth the conditions for doing so. For example, article 15.8 of the Guinea-Koumbia contract (2010) states the following:

If the Company judges the presence of Users incompatible with its mining operations under the Mining Concession, it must indemnify these Users before the date of signature of the agreement and to help them to relocate. The Company must disburse an indemnity to the Users for every resettlement or for every loss of use, habitation and crops. The above-mentioned indemnity must correspond to the amount necessary to relocate and reinstall the said Users and must encompass the fair market value of every loss (RWI et al. 2013, 132–33).

A key aspect of resettlement involves protecting the interest of the poorest and most vulnerable populations in regard to land tenure and use. This means ensuring not only that land owners are compensated but also that compensation is paid

to land users where these users are not also owners, and those with housing or livelihoods dependent on the land. These include customary land owners and users, who may not have formal rights. All too often, however, providing cash compensation as an exclusive remedy is not sufficient. An additional requirement is the provision of viable alternative livelihoods and replacement land and structures for housing.

Tools that mining companies use include, in Anglo American's case, the use of resettlement planning implementation in its *Socio-Economic Assessment Toolbox* (Anglo American 2003, Brooks 2015) and a resettlement policy. This is to be used in conjunction with best practice guidelines, such as those of the IFC (2012c).

Dealing with social and environmental impacts presents a number of challenges and special issues. Over the past several years, general principles have evolved and been largely accepted as good practice in this area. Specific instruments have been designed to ensure their effective practical implementation.

Areas of Particular Vulnerability. Many mining operations are located near or adjacent to traditional lands of indigenous peoples or communities, triggering conflicts about a social license to operate. Relevant to this problem is the principle of free prior and informed consent (FPIC), which was formally introduced through the UN Declaration on the Rights of Indigenous Peoples of 2007. It states, "No relocation shall take place without the free, prior and informed consent of the indigenous peoples concerned" (article 10). This should be sought by means of good faith consultations with indigenous peoples before governments adopt legislation or other measures that may affect those people. This is authoritative but not legally binding. IFC Performance Standard No. 7: Indigenous Peoples requires IFC clients to seek FPIC for projects that involve their relocation, have an impact on the lands and resources that are in traditional ownership or customary use, or that significantly have an impact on critical cultural heritage. This does not necessarily require unanimity and may be achieved even where individuals or groups in the community are in express disagreement.

The FPIC concept has recently been applied more generally to major development projects. There has sometimes been confusion about who is the responsible party for conducting and implementing FPIC: the host state or the company. Ultimately the leading role should be taken by the host state, but absent the necessary capacity it may be necessary for the mining company to assist if effective consultation and consent processes are to be established.

For protected areas, particularly with respect to the natural environment, an initial response is to designate such areas according to an internationally accepted scheme such as that laid down by the IUCN. The IUCN protection area management categories are an attempt to classify protected areas according to their management objectives (IUCN 2013). They are recognized by international bodies such as the United Nations and by many national governments as the global standard for defining and recording protected areas.

An indication of the importance that the international community sets on this is given by the resolution adopted by the World Conservation Congress in 2000 recommending that its members “prohibit by law, all exploration and extraction of mineral resources in protected areas corresponding to IUCN Protected Area Management Categories I to IV” (IUCN 2000).⁵⁸

For culturally significant sites, there are codes of industry good practice guidelines such as the IFC’s performance standards and the ICMM principles.

9.7 SUMMARY AND RECOMMENDATIONS

The fifth chevron in the EI Value Chain is unique in the sense that it does not follow sequentially from the preceding ones. For EI operations to be truly sustainable, they need to have social and environmental elements added throughout, particularly in the first chevron.

To achieve development that is sustainable, policies must be designed to

- produce clear and lasting (sustainable) benefits from extractive industry (EI) activities, and
- address, in a comprehensive and integrated way, the potential and actual impacts on environment and society.

Comprehensive ESIA and mitigation plans should be required of all EI sector projects, and they usually are. Very few countries do not have such regulations. Governments should also work to ensure the institutional capacity to enforce SEAs (or SESAs) and related regulations. The reasons for this are clear enough. EI sector policies, plans, and programs can have significant externalities or spinoff impacts—both positive and negative—on society and on the physical environments.

Sustainability in the extractives sector has become a matter of maximizing the social and economic benefits from an investment while at the same time minimizing the negative

impacts on communities and the environment. There are now various ways of leveraging extractives projects for wider development gains: resources for infrastructure arrangements, resource corridors, and local benefit initiatives. An attraction of these is that they envisage a partnership relationship between the host government and the investors and the relationship is therefore less “legalistic.” However, sustainability goes much beyond mitigation. It also asks questions about the relevance of a mine or commodity in a sustainable future. In some cases the answers will be “no” to a proposed mining or oil and gas development.

The relevance of international law in this area is considerable. This extends well beyond the influence of international or regional conventions and encompasses the design, adoption, and use by countries and non-state actors like companies of standards. Many issues are increasingly perceived as being common concerns since they have cross-border effects and therefore require joint action in such areas as human rights, environmental protection, gas flaring, and climate change mitigation, to name only the obvious examples. International best practice is being shaped not only by law making in the traditional sense (by states) but by international initiatives deliberately aimed at involving a variety of actors or stakeholders, generating a wide consensus and rich body of knowledge in specialist areas.

Attempts to tackle the long-standing enclave character of mining and oil and gas projects are well under way, with resource corridors being one of these, aimed at transforming and leveraging a large but enclave commercial project or industry investment and its needs for infrastructure and goods and services into a sustainable and diversified economic space. Key features in this are the creation of a viable financial structure based on expected government revenues as a result of the EI activity and the establishment of government, private sector, and civil society capacities to develop and implement agreed plans. Currently, resource corridors have been constrained by a lack of proper ex ante consideration of environmental and community factors, by insufficient government capacity to plan in an integrated fashion, and by a lack of political rationale based on sound economic grounds.

Project-specific decommissioning and closure plans should be available for each operation. If a commercial-scale operation does not have, or is not required to have, a decommissioning and closure plan, this should be corrected and a plan prepared without delay. A decommissioning and closure plan is essential even for an operation at the start of

production or for an operation with many decades of remaining life, since even a conceptual or highly preliminary plan will inform present operating practices and planning and indicate possible benefits of reducing both short-term and long-term land and water course disruption and undertaking ongoing reclamation and restoration (INTOSAI 2010, 17–20).

Summary of good practice

Good practice suggests a number of general principles to be respected by investors and governments alike in responding to social and environmental issues.

STAKEHOLDER INVOLVEMENT. Involve all key stakeholders—government, investors, civil society, and affected communities—to the maximum extent feasible in critical decisions with respect to EI sector project development. All key documents submitted to government for approval by investors and operators, as well as data collection reports, impact assessments, and management plans, should be made available to communities in the local language. Where communities are largely illiterate, meetings should be held to present the documents and findings to communities verbally—especially to the poorest and most vulnerable segments of communities. Finally, approved documents should be provided to communities. If needed, this should include summaries in local language or understandable form for all the community members.

GRIEVANCES AND DISPUTES. While much attention is given to broad community support at project approval, there is often less attention during project implementation and operation. Governments, and ideally also companies, should ensure that there are easily accessible and affordable environmental and social grievance or dispute resolution mechanisms that address the needs of the community and give an effective voice to the poorest and most vulnerable.

BUILDING TRUST. Communities are often concerned about the following: will the tailings impoundment collapse and harm those living below it; will local water sources be polluted or poisoned; will we lose our food self-sufficiency and livelihoods because of deforestation and soil degradation? Participatory community monitoring can go a long way to reducing community concerns about environmental risks and building broad-based support for the EI operation through social accountability.

EARLY AND CONTINUOUS ENGAGEMENT. Engage with stakeholders in a consultation process as early as possible, beginning at, or before, license award and continuously through the EI project cycle.

MAXIMUM ACCESS TO INFORMATION. To make intelligent decisions or contributions and to make those decisions or contributions politically legitimate, stakeholders must have access to information relative to the EI sector project: historical, current, and forecast.

LEGAL CONTEXT. Legislation, regulations, and guidelines setting out required responses to social and environmental impacts in line with international practice should be in place, together with credible assurances of enforcement, including penalties for noncompliance.

CAPACITY DEVELOPMENT AND TECHNICAL ASSISTANCE. Governments should build domestic capacity to deal with social and environmental impacts; pending completion of that process, they should seek technical assistance from qualified international consultants.

RECOGNITION OF THE LONG TERM. Stakeholders should recognize that social and environmental safeguarding of a project is a long-term process, given project lives of 30 to 50 years (INTOSAI 2010, 7). Stakeholders should likewise recognize that environmental and (negative) social impacts must be addressed even after the resource has been depleted and should continue through the sensitive phase of project decommissioning or closure. Land sterilized by mining could be used for other purposes, such as renewable energy production sites, horticulture, and water treatment plants. This would enable active site management on a long-term basis.

FAIR TRADE AND ASM. Those miners falling within the ASM category may benefit from engagement with large, supportive organizations such as Fair Trade. The CASM project analyzed how practical steps could be taken to foster community-based engagement in this context of fair trade (CASM 2008). Fair Trade has been defined as “a trading partnership, based on dialogue, transparency and respect that seeks greater equity in international trade. It contributes to sustainable development by offering better trading conditions to, and securing the rights of, marginalized producers and workers—especially in the South. Fair Trade organizations (backed by consumers) are engaged actively

in supporting producers, awareness raising and in campaigning for changes in the rules and practice of conventional international trade” (Fair Trade 2009).

NOTES

1. Officially known as Transforming Our World: The 2030 Agenda for Sustainable Development. See <https://sustainabledevelopment.un.org/index.php?page=view&type=111&nr=8496&menu=35>.
2. Examples include McKinsey Global Institute 2013; Barma et al. 2012, particularly chapters 5 and 6; AUC and UNECA 2011; and Stanley and Mikhaylova 2011, which touches on the subject of mine-related infrastructure; and IFC 2013, page 1.
3. This dissatisfaction is documented in many sources from the governments themselves, most notably in the African Mining Vision (AU 2009). See also citations throughout chapter 2 of the *Sourcebook*.
4. Nigerian Oil and Gas Industry Content Development Act, 2010. <http://www.placng.org/new/laws/NIGERIAN%20OIL%20AND%20GAS%20INDUSTRY%20CONTENT%20DEVELOPMENT%20ACT,%202010.pdf>.
5. Ghana Petroleum (Local Content and Local Participation) Regulations 2013 L.I. 2204. <http://www.reportingoilandgas.org/wp-content/uploads/PETROLEUMLOCAL-CONTENT-AND-LOCAL-PARTICIPATION-REGULATIONS2013.pdf>.
6. Mineral Development Agreement between the Government of the Republic of Liberia, China-Union (Hong Kong) Mining Co. Ltd., and China-Union Investment (Liberia) Bong Mines Co. Ltd. Dated January 19, 2009, article 11.1 (a): <http://www.leiti.org.lr/uploads/2/1/5/6/21569928/152412379-mineral-development-agreement-between-the-government-of-the-republic-of-liberia-china-union-hong-kong-mining-co-ltd-and-china-union-investment.pdf>.
7. Investment Agreement between the Government of Mongolia and Ivanhoe Mines Mongolia Inc LLC and Ivanhoe Mines Ltd and Rio Tinto International Holdings Limited, October 6, 2009, articles 8.4 and 8.5. http://www.turquoisehill.com/i/pdf/Oyu_Tolgoi_IA_ENG.PDF.
8. Qara Zaghan Gold Project Contract between Afghan Krystal Natural Resources Company and the Ministry of Mines of the Islamic Republic of Afghanistan, 2011, article 14.1. https://mom.gov.af/Content/files/Mineral%20Contracts/File_211_QaraZaghan_Contract-English.pdf.
9. Republic of Ghana, Ministry of Energy, Local Content and Local Participation—Policy Framework, February 26, 2010. http://ghanaoilwatch.org/images/laws/local_content_policy.pdf.
10. Nigerian Oil and Gas Industry Content Development Act, 2010. <http://www.placng.org/new/laws/NIGERIAN%20OIL%20AND%20GAS%20INDUSTRY%20CONTENT%20DEVELOPMENT%20ACT,%202010.pdf>.
11. For examples of local content laws and contractual provisions see “Local Content Laws and Contractual Provisions,” Columbia Center on Sustainable Development. <http://ccsi.columbia.edu/work/projects/local-content-laws-contractual-provisions/>.
12. Law on Mineral and Coal Mining, Law NQ.4/2009, January 12, 2009. <http://faolex.fao.org/docs/pdf/ins85947.pdf>.
13. Investment Agreement between the Government of Mongolia and Ivanhoe Mines Mongolia Inc LLC and Ivanhoe Mines Ltd and Rio Tinto International Holdings Limited, October 6, 2009: http://www.turquoisehill.com/i/pdf/Oyu_Tolgoi_IA_ENG.PDF.
14. See RWI et al. 2014, *Mining Contracts: How to Read and Understand Them*, 159–60. In the second category, the authors refer to “the challenge of monitoring compliance” and “the consequences of a breach.”
15. DAI Energy and Resources Group. 2016. “Assessing the Local Content Landscape for Liquefied Natural Gas in Tanzania.” <http://dai.com/sites/default/files/erg/wb.pdf>.
16. African Development Bank 2016. “Industrialization Strategy for Africa.” <http://www.afdb.org/en/news-and-events/article/board-approves-afdb-groups-industrialisation-strategy-for-africa-2016-2025-15981/>.
17. This view was proposed by a leading mining lawyer, M. Stephane Brabant, in a presentation to the mining *indaba* at Cape Town, February 4, 2013, “Resources for Infrastructure Swaps.” <https://www.google.co.uk/#q=Brabant+Stephane+infrastructure+mines>.
18. For a discussion of the resource corridor concept and analysis of several case-studies, see Mtegha et al. 2012.
19. For a discussion of this see Toledano et al. 2014.
20. Concern about this is the motivation behind the Integrated Resource Corridors Initiative of 2015, funded by the U.K. Department of International Development and carried out by the World Wide Fund for Nature and Adam Smith International.
21. For a more detailed overview of the environmental effects of the oil and gas industry, see Waskow and Welch 2010.
22. For a recent review of gas flaring rules and practices, with a case study of Kazakhstan, see Nurbekov and Van de Putte 2014.
23. For more on the Global Gas Flaring Reduction Partnership, see its website, <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTOGMC/EXTGGFR/0,,menuPK:578075~pagePK:64168427~piPK:64168435~theSitePK:578069,00.html>.

24. A contrast is with the U.S. territory in the Gulf of Mexico, where more than 1,000 small structures have been removed to date with no significant adverse effects. This cannot be taken as a precedent for decommissioning in deepwater areas.
25. For further discussion of coal mining and climate change, see Halland et al. 2015. It may be appropriate for companies to consider some divestment for environmental reasons.
26. IUCN Definition 2008, from “What Is a Protected Area?” <https://www.iucn.org/theme/protected-areas/about>. IUCN categorizes protected areas on its website.
27. IUCN Definition 2008. Industry has been sensitive to issues arising from activities in protected areas. For examples of literature on oil and gas activities in protected areas, see APPEA 2013; IPIECA 2003; E&P Forum 1991.
28. Max Planck and BGR 2016. The focus of the study is on mining alone, “leaving aside oil and gas, which would require a stand-alone study” (7).
29. See, for example, Eftimie, Heller, and Strongman 2009a; Lamber 2007; and Ayassou Sawadogo and Córdova Montes 2015.
30. For a review of these issues in the mining sector, see Eftimie, Heller, and Strongman 2009a, 2009b.
31. The World Bank, the IFC, and institutions subscribing to the Equator Principles have all published requirements for the content of ESIA.
32. Oyu-Tolgoi (2009) Investment Agreement.
33. Qara Zaghan Gold Project Contract between Afghan Krystal Natural Resources Company and the Ministry of Mines of the Islamic Republic of Afghanistan, Definition 1.10: https://mom.gov.af/Content/files/Mineral%20Contracts/File_211_QaraZaghan_Contract-English.pdf
34. For example, the World Bank has environmental assessment as one of its 10 environmental, social, and legal safeguards policies. It is used in the World Bank to identify, avoid, and mitigate the potential negative environmental impacts associated with the bank’s lending operations. See World Bank, “Environmental Assessment,” <http://web.worldbank.org/WBSITE/EXTERNAL/PROJECTS/EXTPOLICIES/EXTSAFEPOL/0,,contentMDK:20543912~menuPK:1286357~pagePK:64168445~piPK:64168309~theSitePK:584435,00.html>
35. See Equator Principles, <http://www.equator-principles.com>.
36. There is a wide body of human rights law at global, regional, and national levels. There have also been authoritative interpretations of treaties over the years.
37. See UN Secretary-General’s Special Representative on Business and Human Rights, “Reports to the UN Human Rights Council,” <https://business-humanrights.org/SpecialRepPortal/Home/ReportstoUNHumanRightsCouncil>.
38. These can be found on Vimeo, <http://vimeo.com/25199195>.
39. Business and Human Rights Resource Centre, London, <http://business-humanrights.org/>.
40. In the United States, there is a growing body of academic commentary on the issues in relation to federal and state law. Some of the notable contributions include the following: Foley 2010; Perry 2011; and Force, Davies, and Force 2011.
41. See Offshore Pollution Liability Agreement, <http://www.opol.org.uk/agreement.htm>.
42. The only insurance that is available for blowout is Operators’ Extra Expense (OEE) insurance, which, as the name suggests, is designed for operators. The only time a drilling contractor would procure OEE is when drilling is carried out on a turnkey basis. For nondrilling contractors (cementing, logging, drilling, fluids, casing, and so on), OEE is not available as it is designed for drilling and priced per foot drilled. This is not taken out by most contractors, as the premiums are prohibitive and only low insured limits are available, the maximum capacity post-Macondo being in the region of US\$500 million, and that would have to cover control of well, redrill, and pollution cleanup. Obviously, this limit is woefully inadequate in a Macondo-type scenario or any major blowout spill.
43. Resolution A.672 (16), adopted October 19, 1989. There are no international guidelines on the removal of disused pipelines.
44. OSPAR 98/3 entered into force on February 9, 1999, and prohibits the dumping and leaving wholly or partly in place of offshore installations. The United Kingdom is a party to the OSPAR. Derogations are possible but are tightly drawn. The existence of this decision is a principal reason why interest in decommissioning by nongovernmental organizations has been muted in recent years, in sharp contrast to the days of the Brent Spar incident. A further decision was adopted in 2006 to address the management of drill cuttings piles.
45. *Mineral Development Agreement between the Government of the Republic of Liberia and []*, November 28, 2008, clause 5.5 (c): <http://www.sds.org/wp-content/uploads/2011/06/liberiadevelopmentagreementtemplate.pdf>.
46. Investment Agreement between the Government of Mongolia and Ivanhoe Mines Mongolia Inc LLC and Ivanhoe Mines Ltd and Rio Tinto International Holdings Limited, October 6, 2009: http://www.turquoisehill.com/i/pdf/Oyu_Tolgoi_IA_ENG.PDF
47. For a discussion of CDAs, see Brereton, Owen, and Kim 2011; and World Bank 2012.

48. IPIECA has a working group on oil spills enabling the exchange of information and best practices. It supports industry and promotes government cooperation. For IPIECA's work in social responsibility, see "Social Responsibility," <http://www.ipieca.org/our-work/social-responsibility/>.
49. For example, IPIECA and IOGP 2015.
50. Petroleum Law, March 2012 (draft), article 17.
51. Global Gas Flaring Reduction Partnership: <http://www.worldbank.org/en/programs/gasflaringreduction#1>
52. See, for example, Altit and Igiehon 2009; Hammerson 2011; Association of International Petroleum Negotiators (AIPN) Model International Operating Agreements 2002 and 2012: www.aipn.org (agreements only available to members); AIPN Model International Unitization and Unit Operating Agreement 2006: <http://www.aipn.org> (agreement available only to members); Duval et al. 2009, 147–49.
53. The decommissioning costs were relatively low at £5 million. See DTI 2007, 30.
54. Find the Global Reporting Initiative's numerous resources on its website, <https://www.globalreporting.org/Pages/default.aspx>.
55. Several studies of gender and mining in Mongolia can be found on the University of Queensland website, <https://www.csr.uq.edu.au/research/browse-by-theme/gender-and-mining>.
56. See IPIECA, "Sustainable Reporting," <http://www.ipieca.org/focus-area/reporting>.
57. See the 2011 Rio Tinto Water Disclosure Project, http://www.riotinto.com/documents/CDP_Water_Disclosure_2011_Information_Request_-_Rio_Tinto_response.pdf. Also see ICM 2012.
58. The IUCN had a membership at that time of 78 States, 112 government agencies, 735 NGOs, of which 65 are international, 35 affiliates, and some 10,000 scientists and experts from 181 countries.

REFERENCES

- Ado, Rabi. 2013. "Local Content Policy and the WTO Rules on Trade-Related Investment Measures (TRIMS): The Pros and Cons." *International Journal of Business and Management Studies* 2 (1): 142.
- Altit, F. T., and M. O. Igiehon. 2009. "Decommissioning of Upstream Oil and Gas Facilities." In *Oil and Gas: A Practical Handbook*, edited by Geoffrey Picton-Turbervill, 257–79. London: Global Law and Business.
- Anglo American. 2003. *Socio-Economic Assessment (SEAT)*. London: Anglo American. http://www.angloamerican.com/development/social/community-engagement/~media/Files/A/Anglo-American-Plc/siteware/docs/seat_toolbox2.pdf.
- APPEA (Australian Petroleum Production and Exploration Association Limited). 2013. *Australia's Oil and Gas Industry Operating in Protected Areas*. Canberra. http://www.appea.com.au/wp-content/uploads/2013/05/Protected_Areas_Policy.pdf.
- AU (African Union). 2009. *African Mining Vision*. Addis Ababa: AU. <http://www.africaminingvision.org/reports.html>.
- AUC (African Union Commission) and UNECA (United Nations Economic Commission for Africa). 2011. *Exploiting Natural Resources for Financing Infrastructure Development: Policy Options for Africa*. Addis Ababa: AU. http://www.africaminingvision.org/amv_resources/AMV/Financing_mining_related_infrastructure.pdf.
- Ayassou Sawadogo, K. A., and R. Denisse Córdova Montes. 2015. *Women's Perspectives on the Impact of Mining on the Right to Food: The Human Right to Adequate Food and Nutrition of Women and Children of Communities Affected by Mining and Displacement in Essakane, Burkina Faso*. Heidelberg: FIAN. http://www.fian.org/fileadmin/media/media_publications2015/FIAN_Essakane_270315_Ansicht.pdf.
- Banchirigah, S. M., and G. Hilson. 2010. "De-agrarianization, Re-agrarianization and Local Economic Development: Re-orientating Livelihoods in African Artisanal Mining Communities." *Policy Sciences* 43 (2): 157–80.
- Barma, Naazneen H., Kai Kaiser, Tuan Minh Le, and Lorena Vinuela. 2012. *Rents to Riches? The Political Economy of Natural Resource-Led Development*. Washington, DC: World Bank.
- BHP Billiton. 2014. "Code of Business Conduct." Melbourne, Australia: BHP Billiton. <https://business-humanrights.org/en/bhp-billiton-0>.
- Biodiversity Consultancy. 2015. *Cross-Border Guide for Implementing the Mitigation Hierarchy*. Cambridge, UK: Biodiversity Consultancy. <http://www.ipieca.org/publication/cross-sector-guide-implementing-mitigation-hierarchy>.
- Brereton, D., J. Owen, and J. Kim. 2011. *Good Practice Note: Community Development Agreements*. Washington, DC: World Bank. <http://www.eisourcebook.org/documents.php>.
- Brooks, L. 2015. "Learning from Resettlement: Anglo American's Resettlement Working Group." Part of the CSR Occasional Papers: Mining Induced Displacement and Resettlement Series (eds. Deanna Kemp and John Owen), University of Queensland.
- Brundtland Commission (World Commission on Environment and Development). 1987. *Our Common Future*. Oxford, UK: Oxford University Press.

- Buxton, A. 2013. *Responding to the Challenge of Artisanal and Small-Scale Mining. How Can Knowledge Networks Help?* London: IIED.
- CASM (Communities and Small-Scale Mining). 2008. *Certification and Artisanal and Small-Scale Mining*. Washington, DC: CASM. <http://www.eisourcebook.org/cms/Feb%202013/Certification%20and%20Artisanal%20&%20Small-Scale%20Mining.pdf>.
- CCSI (Columbia Center on Sustainable Development). 2016a. "Local Content Profiles." New York: CCSI. http://ccsi.columbia.edu/work/projects/local-content-laws-contractual-provisions/?utm_source=CCSI+Mailing+List&utm_campaign=200cda0b59-Oct_newsletter_2016&utm_medium=email&utm_term=0_a61bf1d34a-200cda0b59-57390425.
- . 2016b. *A Regulatory, Operational and Commercial Framework for the Utilization of Associated Gas*. New York: CCSI. <http://ccsi.columbia.edu/work/projects/a-regulatory-operational-and-commercial-framework-for-the-utilization-of-associated-gas/>.
- Cimino, Cathleen, Gary Clyde Hufbauer, and Jeffrey J. Schott. 2014. "A Proposed Code to Discipline Local Content Requirements." Policy Brief PB14-6, Peterson Institute for International Economics, Washington, DC.
- Clark, Pilita. 2016. "Leading Oil Groups Focus on Climate Change Plan on Carbon Storage." *Financial Times*, November 5. <https://www.ft.com/content/d3764126-a287-11e6-aa83-bcb58d1d2193>.
- Davis, R., and D. Franks. 2014. "Costs of Company-Community Conflict in the Extractive Sector." Corporate Social Responsibility Initiative 66, Harvard Kennedy School, Cambridge, MA. <https://www.csr.m.uq.edu.au/publications/costs-of-company-community-conflict-in-the-extractive-sector>.
- De Sa, Paulo, Rachel Perks, and Daniele La Porta. 2013. "Beyond Illegality: Concepts and Approaches towards Improved Governance of Informal Mining." *International Mining and Oil and Gas Law, Development, and Investment*. Westminster, CO: Rocky Mountain Mineral Law Foundation.
- DEFRA (Department for Environment, Food, and Rural Affairs). 2013. *Environmental Reporting Guidelines: Including Mandatory Greenhouse Gas Emissions Reporting Guidance*. London: DEFRA. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/206392/pb13944-env-reporting-guidance.pdf.
- DTI (Department of Trade and Industry, UK). 2007. *Decommissioning Offshore Energy Installations*. London: DTI.
- Duval, C., H. Le Leuch, A. Pertuzio, and J. L. Weaver. 2009. *International Petroleum Exploration and Exploitation Agreements: Legal, Economic and Policy Aspects*, 2nd ed. New York: Barrows.
- E&P Forum (Oil Industry International Exploration and Production Forum). 1991. *Oil Industry Operating Guideline for Tropical Rainforests*. Report No 2.49/170. London: E&P Forum.
- E&P Forum and UNEP (United Nations Environment Programme). 1997. *Environmental Management in Oil and Gas Exploration and Production. An Overview of Issues and Management Approaches*. London and Paris: E&P Forum and UNEP.
- Eftimie, A., K. Heller, and J. Strongman. 2009a. "Gender Dimensions of the Extractive Industries: Mining for Equity." Extractive Industries and Development Series 8, World Bank, Washington, DC.
- . 2009b. "Mainstreaming Gender into Extractive Industries Projects: Guidance Notes for Task Team Leaders." Extractive Industries and Development Series 9, World Bank, Washington, DC.
- Euromix Research. 2015. *Zimbabwe's Beneficiation Policy*. Sandton, South Africa: Euromix Research.
- Fair Trade. 2009. "Charter of Fair Trade Principles." Brussels: Fair Trade. <http://fairtrade-advocacy.org/about-fair-trade/what-is-fair-trade/charter-of-fair-trade-principles>.
- Foley, Vincent J. 2010. "Post-Deepwater Horizon: The Changing Landscape of Liability for Oil Pollution in the United States." *Albany Law Review* 74 (1): 515–30.
- Force, Robert, Martin Davies, and Joshua S. Force. 2011. "Deepwater Horizon: Removal Costs, Civil Damages, Crimes, Civil Penalties and State Remedies in Oil Spill Cases." *Tulane Law Review* 85 (4): 889–982.
- Freehills. 2016. "Indonesia's Ban on Exporting Unprocessed Minerals Begins to Bite." <https://www.herbertsmythfreehills.com/latest-thinking/indonesia-s-ban-on-exporting-unprocessed-minerals-begins-to-bite>.
- Glencore. 2016. "Code of Conduct including Human Rights Policy." Barr, Switzerland: Glencore. <http://www.glencore.com/assets/who-we-are/doc/Code-of-Conduct-2015-EN-Final.pdf>.
- Goldfields. 2014. "Human Rights Policy Statement." Johannesburg: Goldfields. https://www.goldfields.com/pdf/policies/human_statement.pdf.
- Gullison, Ted, Jared Hardner, Stuart Anstee, and Mike Meyer. 2015. *Good Practices for the Collection of Biodiversity Baseline Data*. London: International Petroleum Industry Environmental Conservation Association. <http://www.ipieca.org/publication/good-practices-collection-biodiversity-baseline-data>.
- Halland, H., M. Lokanc, A. Nair, and S. P. Kanna. 2015. *The Extractive Industries Sector*. Washington, DC: World Bank.

- Hammerson, M. 2011. *Upstream Oil and Gas*. London: Global Law and Business.
- Hinton, J. J., M. M. Viegas, and C. Beinhoff. 2003. "Women and Artisanal Mining: Gender Roles and the Road Ahead." In *The Socio-Economic Impacts of Artisanal and Small-Scale Mining in Developing Countries*, edited by G. Hilson and A. A. Balkema, chap 11. Netherlands: Swets. <http://siteresources.worldbank.org/INTOGMC/Resources/336099-1163605893612/hintonrolereview.pdf>.
- Hobbs, J. 2014. "ASM in Africa: 10 Policy Principles and their Environmental Relevance." Unpublished paper presented at the Inter-Governmental Forum on Mining, Metals and Sustainable Development's Regional Meeting on Artisanal and Small-Scale Mining, Cape Town, February 5.
- Hobbs, J., and F. K. Kumah. 2016. "The Extractives Slowdown in Africa: A Window of Opportunity?" *Africa Policy Review*. <http://africapolicyreview.com/analysis/extractives-slowdown-africa-window-opportunity/>.
- ICMM (International Council on Mining and Metals). 2009. *Human Rights in the Mining and Metals Industry: Overview, Management Approach and Issues*. London: ICMM. <http://hub.icmm.com/document/8331>.
- . 2012. "Water Management in Mining: A Selection of Case Studies." ICMM, London. <http://www.icmm.com/en-gb/publications/water-management-in-mining-a-selection-of-case-studies>.
- . 2013. "Indigenous Peoples and Mining Position Statement." ICMM, London. <http://www.icmm.com/en-gb/members/member-commitments/position-statements/indigenous-peoples-and-mining-position-statement>.
- . 2015. *Indigenous Peoples and Mining Good Practice Guide*. ICMM, London. <http://www.icmm.com/en-gb/publications/indigenous-peoples-and-mining-good-practice-guide>.
- IFC (International Finance Corporation). 2012a. "Performance Standard 5: Land Acquisition and Involuntary Resettlement." IFC, Washington, DC. http://www.ifc.org/wps/wcm/connect/3d82c70049a79073b82cfaa8c6a8312a/PS5_English_2012.pdf?MOD=AJPERES.
- . 2012b. "Performance Standard 7: Indigenous Peoples." IFC, Washington, DC. http://www.ifc.org/wps/wcm/connect/1ee7038049a79139b845faa8c6a8312a/PS7_English_2012.pdf?MOD=AJPERES.
- . 2012c. "Environmental and Social Performance Standards and Guidance Notes." IFC, Washington, DC. http://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/IFC+Sustainability/Our+Approach/Risk+Management/Performance+Standards.
- . 2013. "Fostering the Development of Greenfield Mining-Related Transport Infrastructure through Project Financing." IFC, Washington, DC.
- ILO (International Labour Organisation). 1999. *Social and Labor Issues in Small-Scale Mines. Report for Discussion at the Tripartite Meeting on Social and Labor Issue in Small-Scale Mines*. Geneva: ILO. <http://www.ilo.org/public/english/dialogue/sector/techmeet/tmssm99/tmssmr.htm>.
- International Study Group. 2011. *Minerals and Africa's Development: The International Study Group Report on Africa's Mineral Regimes*. Addis Ababa, Ethiopia: UN Economic Commission for Africa and African Union.
- INTOSAI (International Organization of Supreme Audit Institutions) Working Group on Environmental Auditing (WGEA). 2010. *Auditing Mining: Guidance for Supreme Audit Institutions*. Vienna: INTOSAI and WGEA.
- IPIECA (International Petroleum Industry Environmental Conservation Association). 2003. *The Oil and Gas Industry: Operating in Sensitive Environments*. London: IPIECA. <http://www.ipieca.org/publication/oil-and-gas-industry-operating-sensitive-environments>.
- . 2011a. *Creating Successful, Sustainable Social Investment: Guidance Document for the Oil and Gas Industry*. London: IPIECA.
- . 2011b. *Indigenous Peoples and the Oil and Gas Industry*. London: IPIECA.
- . 2015a. *Annual Review*. London: IPIECA.
- . 2015b. *Community Grievance Mechanisms in the Oil and Gas Industry*. London: IPIECA. <http://www.ipieca.org/publication/community-grievance-mechanisms-oil-and-gas-industry-manual-implementing-operational-level>.
- . 2016. *Local Content: A Guidance Document for the Oil and Gas Industry* (Second Edition). London: IPIECA.
- IPIECA (International Petroleum Industry Environmental Conservation Association) and API (American Petroleum Institute). 2015. *Addressing Uncertainty in Oil and Natural Gas Industry Greenhouse Gas Inventories*. London: IPIECA. <http://www.ipieca.org/publication/addressing-uncertainty-oil-and-natural-gas-industry-greenhouse-gas-inventories-technical>.
- IPIECA, API, and IOGP (International Association of Oil and Gas Producers). 2015. *Oil and Gas Industry Guidance on Voluntary Sustainability Reporting*. London: IPIECA. <http://www.ipieca.org/news/20150909/third-edition-sustainability-reporting-guidance-oil-and-gas-industry>.
- IPIECA and IOGP. 2015. *Oil Spill Preparedness: An Introduction*. London: IPIECA. <http://www.oilspillresponseproject.org/wp-content/uploads/2016/02/GPG-Oil-Spill-Preparedness-and-Response-an-introduction.pdf>.

- . 2016. *Biodiversity and Eco-System Services Fundamentals*. London: IPIECA. <http://www.ipieca.org/publication/biodiversity-and-ecosystem-services-fundamentals-guidance-document-oil-and-gas-industry>.
- IRCI (Integrated Resource Corridors Initiative). 2015. *Are Resource Corridors Fulfilling Their Development Potential whilst Protecting the Integrity of Ecosystems?* London: IRCI.
- IRMA (Initiative for Responsible Mining Assurance). 2016. "IRMA Background." IRMA, Washington, DC. <http://www.responsiblemining.net>.
- IUCN (International Union for the Conservation of Nature and Natural Resources). 2000. *Protection and Conservation of Biological Diversity of Protected Areas from the Negative Impacts of Mining and Exploration*. Gland: Switzerland: IUCN. https://portals.iucn.org/library/sites/library/files/resrecfiles/WCC_2000_REC_82_EN.pdf.
- . 2013. *Guidelines for Applying Protected Area Management Categories, Including Best Practice Guidance on Recognizing Protected Areas and Assigning Management Categories and Governance Types*. Gland, Switzerland: IUCN. http://www.iucn.org/about/work/programmes/gpap_home/gpap_capacity2/gpap_pub/gpap_catpub/?13959/Guidelines-for-applying-protected-area-management-categories.
- Lahiri-Dutt, Kuntala. 2008. "Digging to Survive: Women's Livelihoods in South Asia's Small Mines and Quarries." *South Asian Survey* 15 (2): 217–44. <http://asmasiapacific.org/wp-content/uploads/2014/07/KLD-South-Asian-Survey.pdf>
- Lamber, J. 2007. *Girls in Mining: Research Findings from Ghana, Niger, Peru and the United Republic of Tanzania*. Geneva: International Labour Organisation.
- Le Leuch, Honoré. 2012. *Good Practice Note on (Upstream) Natural Gas*. Washington, DC: World Bank. <http://www.eisourcebook.org/cms/files/Upstream%20Natural%20Gas%20-%20H%20LeLeuch%20-%20updated%20Sept%202012.pdf>.
- Liebenthal, A., R. Michelitsch, and E. Tarazona. 2005. *Extractive Industries and Sustainable Development: An Evaluation of the World Bank Group Experience*. Washington, DC: World Bank. <http://www.ifc.org/wps/wcm/connect/c019bf004f4c6ebfbd99ff032730e94e/Mine+Infra+Report+Final+Copy.pdf?MOD=AJPERES>.
- Maconachie, Roy, and Gavin Hilson. 2011. "Artisanal Gold Mining: A New Frontier in Post-Conflict Sierra Leone?" *Journal of Development Studies* 47 (4): 595–616.
- Max Planck Foundation for International Peace and the Rule of Law and BGR. 2016. *Human Rights Risks in Mining*. Bonn: BGR. https://www.bmz.de/rue/includes/downloads/BGR_MPFPR__2016__Human_Rights_Risks_in_Mining.pdf.
- McKinsey Global Institute. 2013. *Reverse the Curse: Maximizing the Potential of Resource-Driven Economies*. San Francisco: McKinsey Global Institute.
- Mtegha, H., P. Leeuw, S. Naicker, and M. Molego. 2012. *Resources Corridors: Experiences, Economics and Engagement: A Typology of Sub-Saharan African Corridors*. Washington, DC: World Bank. <http://www.eisourcebook.org/cms/files/EISB%20Resources%20Corridors.pdf>.
- Newmont. 2016. *Beyond the Mine: Sustainability Report 2015*. Greenwood Village, CO: Newmont. http://sustainabilityreport.newmont.com/2015/_pdf2print/pdfs/newmont-beyond-the-mine-sustainability-report-2015.pdf.
- Nurbekov, A., and A. Van de Putte. 2014. "An Ambitious Yet Realistic Roadmap to Virtually Eliminate Gas Flaring and Venting in Kazakhstan." *Journal of World Energy Law and Business* 7 (4): 499–526.
- Nwapi, C. 2016. *A Survey of the Literature on Local Content Policies in the Oil and Gas Industry in East Africa*. Canada: School of Public Policy, University of Calgary.
- OECD (Organisation for Economic Co-operation and Development). 2006. *Applying Strategic Environmental Assessment: Good Practice Guidance for Development Co-operation*. Paris: OECD.
- Partnership Africa Canada. 2014. *Women in the Artisanal Gold Mining Sector in the Democratic Republic of Congo*. Ottawa, Ontario: Partnership Africa Canada. <http://www.cirdi.ca/wp-content/uploads/2014/01/Women-in-the-Artisanal-Gold-Sector-in-DRC.pdf>.
- Perks, Rachel. 2012. "Mining Cooperatives: Re-invigorating Small-Scale Mining Participation and Benefit in Rwanda." (Unpublished draft). <http://www.open.ac.uk/socialsciences/bisa-africa/files/bisa-isa-perks.pdf>.
- Perry, Ronan. 2011. "Deepwater Horizon Spill and the Limits of Civil Liability." *Washington Law Review* 86 (1): 1–68.
- Publish What You Pay and UN Women. 2014. *Extracting Equality—A Guide*. London: Publish What You Pay. <http://www.publishwhatyoupay.org/pwyp-resources/extracting-equality-a-guide/>.
- Rio Tinto. 2011. "Carbon Disclosure Project." Melbourne: Rio Tinto. http://www.riotinto.com/documents/CDP_Water_Disclosure_2011_Information_Request_-_Rio_Tinto_response.pdf.
- . 2015. "Human Rights Policy." Melbourne: Rio Tinto. http://www.riotinto.com/documents/Human_rights-policy.pdf.

- Ross, M. 2001. *Extractive Sectors and the Poor*. Washington, DC: Oxfam America.
- RWI (Revenue Watch Institute), OpenOil, International Senior Lawyers Project, and Vale Columbia Center. 2014. *Mining Contracts: How to Read and Understand Them*. New York: Colophon. <https://eiti.org/sites/default/files/documents/mining-contracts-how-to-read-and-understand-them.pdf>.
- Shenberg, A. 2008. *Stabilization Clauses and Human Rights*. Washington, DC: IFC. [http://www.ifc.org/ifcext/sustainability.nsf/AttachmentsByTitle/p_StabilizationClausesandHumanRights/\\$FILE/Stabilization+Paper.pdf](http://www.ifc.org/ifcext/sustainability.nsf/AttachmentsByTitle/p_StabilizationClausesandHumanRights/$FILE/Stabilization+Paper.pdf).
- Singo, P., and E. Levin. 2016. "What Mongolia's Artisanal Miners Are Teaching Us: The Link between Human Rights and Artisanal and Small-Scale Mining (ASM) Formalisation." *OECD Insights*, March 16. OECD, Paris.
- Southalan, J. 2012. *Mining Law and Policy: International Perspectives*. Annandale, PA: Federation Press.
- Stanley, M., and E. Mikhaylova. 2011. *Mineral Resource Tenders and Mining Infrastructure Projects Guiding Principles*. Washington DC: The World Bank: <http://siteresources.worldbank.org/INTOGMC/Resources/EITI22weboct17.pdf>.
- Thun Group of Banks. 2013. "Statement by the Thun Group of Banks." http://www.menschenrechte.uzh.ch/dam/jcr:00000000-3175-0061-0000-000030306b7b/thun_group_statement_final_2_oct_2013.pdf.
- Toledano, P., and C. Roorda. 2014. "Leveraging Mining Investments in Water Infrastructure for Broad Economic Development: Models, Opportunities and Challenges." CCSI Policy Paper, Columbia University, New York. http://ccsi.columbia.edu/files/2014/05/CCSI-Policy-Paper-Leveraging-Mining-Related-Water-Infrastructure-for-Development-March-20141.pdf?utm_source=CCSI+Mailing+List&utm_campaign=200cda0b59-Oct_newsletter_2016&utm_medium=email&utm_term=0_a61bfd34a-200cda0b59-57390425.
- Toledano, P., S. Thomashausen, N. Maennling, and A. Shah. 2014. *A Framework to Approach Shared Use of Mining-Related Infrastructure*. Washington, DC: World Bank. <http://www.eisourcebook.org/documents.php>.
- Tordo, S., M. Warner, O. E. Manzano, and Y. Anouti. 2013. *Local Content in the Oil and Gas Sector*. Washington DC: World Bank.
- United Nations. 2015. Resolution A/RES/70/1 of 25 September 2015. New York: United Nations. http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1.
- UNCTAD (United Nations Conference on Trade and Development). 2012. *Economics of Commodities Production and Trade*. Geneva: UNCTAD.
- UNOHC (United Nations Office of the High Commissioner). 2012. *The Corporate Responsibility to Respect Human Rights: An Interpretive Guide*. New York and Geneva: United Nations. http://www.ohchr.org/Documents/Publications/HR.PUB.12.2_En.pdf
- Wagner, J., and K. Armstrong. 2010. "Managing Environmental and Social Risks in International Oil and Gas Projects." *Journal of World Energy Law and Business* 3 (2): 140–65.
- Warner, Michael. 2007. "Community Content: The Interface of Community Investment Programmes with Local Content Practices in the Oil and Gas Development Sector." Policy Brief Note 9, Overseas Development Institute, London. <http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-fules/2087.pdf>.
- Waskow, David, and Carol Welch. 2010. "The Environmental, Social and Human Rights Impacts of Oil Development." In *Covering Oil: A Reporter's Guide to Energy and Development*, edited by Svetlana Tsalik and Anya Schiffrin, 101–23. New York: Revenue Watch and Open Society Institute. <http://www.resourcegovernance.org/sites/default/files/documents/covering-oil-072305.pdf>.
- World Bank. 2010. *Towards Sustainable Decommissioning and Closure of Oil Fields and Mines: A Toolkit to Assist Government Agencies, Version 3.0*. Washington, DC: World Bank. http://siteresources.worldbank.org/EXTOGMC/Resources/336929-1258667423902/decommission_toolkit3_full.pdf.
- . 2012. *Mining Community Development Agreements: Source Book*. Washington, DC: World Bank. <http://documents.worldbank.org/curated/en/522211468329663554/pdf/712990WP0minin00Box370065B00PUBLIC0.pdf>.
- WWF (World Wide Fund for Nature). 2015. *Water Stewardship: Perspectives on Business Risk and Responses to Water Challenges*. Gland, Switzerland: WWF. http://awsassets.panda.org/downloads/ws_briefing_booklet_lr_spreads.pdf.

OTHER RESOURCES

- APPEA (Australian Petroleum Production and Exploration Association Limited). 2013. "Code of Environmental Practice." Canberra. http://www.appea.com.au/wp-content/uploads/2013/05/Code_of_Environmental_Practice.pdf.
- CCSI. 2016. *Linkages to the Resources Sector*. Bonn: GIZ.
- Cosbey, A., M. D. Brauch, J. Geisel, N. Maennling, H. Mann, and P. Toledo. 2016. *Mining a Mirage?*

Reassessing the Shared-Value Paradigm in Light of the Technological Advances in the Mining Sector. Winnipeg, Manitoba: International Institute for Sustainable Development.

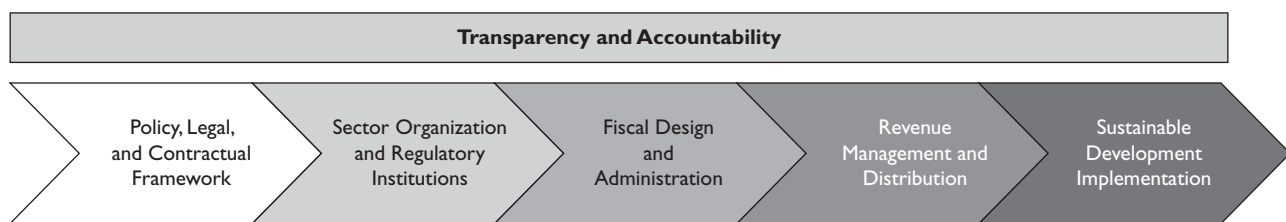
Kyriakou, Shane, and Bryce Paterson. 2016. "Indonesia's Ban on Exporting Unprocessed Minerals Begins to Bite." Herbert Smith Freehills Legal Briefings, Jakarta. <https://www.herbertsmithfreehills.com/latest-thinking>

[/indonesia's-ban-on-exporting-unprocessed-minerals-begins-to-bite](https://www.herbertsmithfreehills.com/latest-thinking/indonesia's-ban-on-exporting-unprocessed-minerals-begins-to-bite).

OGCI (Oil and Gas Climate Initiative). <http://www.oilandgasclimateinitiative.com>.

University of Cape Town and SNL Financial. 2016. *Linkages in the Southern African Mining Sector: Domestic Procurement Challenges and Context*. Hanover, Germany: BGR (Bundesanstalt für Geowissenschaften und Rohstoffe).

Why Governance Matters



10.1 KNOWLEDGE CORE

Through the chapters of the *Sourcebook*, two ideas have recurred, sometimes implicitly and sometimes explicitly. The first is that *without good governance many, perhaps most of the benefits of extractive resource development are unlikely to be gained*. Governance is about procedural matters, like decision making and communication processes; capacity measures, such as sector organization, resources, and the degree of professionalization; and objective-setting and rule-making. The quality of government is critical for making sound decisions in the extractives sector. However, the *Sourcebook* approach has been to treat governance “as a government’s ability to make and enforce rules, and to deliver services, regardless of whether that government is democratic or not” (Fukuyama 2013). In this sense, its approach could be described as infrastructural or technocratic, in contrast to those approaches to governance that have a more political orientation (for example, Barma et al. 2012).

The second idea in the *Sourcebook* is that every country not only is sovereign but also has a unique combination of circumstances with respect to oil, gas, and mining activity and potential, and that *governance will ultimately be shaped by this national constellation of factors*. It includes demography, geology and resource abundance, policy choices, the legacy of previous extractive activity, local capacity, the level of industrial development, and links to international organizations such as the Organization of the Petroleum Exporting Countries (better known as OPEC) and the World Trade Organization. The legal framework and the political system are other, critically important factors. Even among countries that are neighbors, or in many respects similar, this rich tapestry of governance drivers ensures that what constitutes good governance in one country may be quite inadequate for another. Moreover, it will evolve over time, sometimes in unexpected ways. In the world of oil, gas, and mining activity, the integrity of national choice has long been sanctioned by the doctrine

that every country enjoys permanent sovereignty over its natural resources in international law.

Generalizing about the quality of government is still possible despite this diversity. Since governance issues arise at each stage of the Extractive Industry (EI) Value Chain, there is a vast pool of common experience on which governments can draw in a comparative way as a source of good practice. It could assist in answering questions about how to make rules of law more effective, how to make decision making more inclusive, how to make political arrangements more stable, how to make fiscal regimes more predictable, and how to make bureaucracies more efficient. In any of these enquiries it will be found that where transparency and accountability are given a high priority the outcomes are usually beneficial. These are important indicators of good governance. Once they are in place in a country, the chances improve for achieving the desired outcomes: poverty reduction, a more equitable distribution of benefits, better protection of rights, greater retention of value, protection of the environment, and a strong economy. With bad governance, such improvements are highly unlikely.

For oil, gas, and mining activities, it seems that the quality of governance is particularly important. These activities raise particular challenges to governance that are perhaps less prominent, less frequent, or less intense in other industries. In other words, they need specific attention and are not well addressed by business as usual. Second, the number and variety of countries engaged in extractive resource development has grown so that the need for knowledge of good governance within the EI Value Chain is greater than ever. Bodies such as the Natural Resource Governance Institute, using a dedicated tool or Index, argue that there is a deficit of good governance in oil, gas, and mining in many countries around the world (NRGI 2016).

In the following short sections, issues relevant to governance challenges are examined and recommendations given about actions that could lead to improvements in governance in the extractives sector. It should be noted that the *Sourcebook's* approach to governance is broader in scope than some other initiatives, such as the Extractive Industries Transparency Initiative, which focuses largely on revenues; the United Nations Guiding Principles, which concern human rights; or the International Monetary Fund's Code of Good Practices on Fiscal Transparency, which is concerned with fiscal processes. These have been discussed in the *Sourcebook* chapters, as have many other initiatives taken by companies, associations, and civil society groups. The *Sourcebook* approach has aimed at comprehensiveness, but it is acknowledged that any such effort will

never be complete and can at best be a contribution to a rapidly evolving and complex subject matter.

10.2 WHAT IS GOVERNANCE?

Key elements in any definition of governance of the oil, gas, and mining industries include the following:

Appropriate and adequate content of rules. What are the basic rules that guide activities in a society? These would include development policies as well as the laws and regulations that are adequate in coverage and appropriate in detail to manage the demands of a given society or community.

Effective implementation, monitoring, and enforcement of rules. How does a country ensure that actors, both within and outside government, have the capabilities, resources, and information to effectively implement, monitor, and enforce policies, laws, and regulations?

Accountability of actors making the rules. Who determines the rules and how is this authority conferred and employed? Governance arrangements must allow stakeholders to hold decision makers accountable for their conduct, the rules they make, and how these rules are implemented.

In sum, these elements suggest that good governance requires getting the rules right and getting the implementation right by means of a process with legitimacy. These elements are critical if the benefits of private sector investment in the development of publicly owned resources are to be fully realized by all the parties involved in oil, gas, and mining development.

10.3 WHY DO OIL, GAS, AND MINING GENERATE SPECIFIC CHALLENGES?

The challenges lie in two areas: the particulars of oil, gas, and mining investments and the movement of investors in these industries into new countries and regions. Typically, the features of such investment that create difficulties in governance are the following:

- Their “enclave” character can limit the width of their impact but at the same time create an intense local footprint, particularly when the activity is on land rather than offshore. The investors tend to be weakly integrated into the domestic economy and not covered by the host country's mechanisms for checks and balances.
- The high rents that these investments generate bring temptations with them. This allows key officials to extract illegal payments from companies and for companies to bribe officials to obtain privileges. The agencies

that deal directly with the extractives sector spread their poor governance and corruption to other government agencies, “compromising their capacity to deliver quality public goods and services” (IMF 2010, 6), and limiting the governments’ ability to deliver predictability to investors over time.

- The fiscal regimes in oil, gas, and mining tend to be complex, exacerbated by the fact that these corporate taxpayers tend to be few in number, making payments disproportionately large relative to the rest of the tax base, as well as being foreign, highly informed, sophisticated, and politically influential. This creates a context in which governance of the sector can easily slide downhill.
- The long-term investments with heavy upfront costs and high degrees of risk create demands for stable and predictable long-term operating environments. Meeting these demands effectively and fairly is beneficial, but it demands capacity that is sometimes lacking.
- Market volatility around prices can make the benefits highly unpredictable, and their inherent exhaustibility make any benefit timeline finite.
- There are significant social and environmental impacts, particularly on local communities, and an asymmetry in dealings between expert companies and often-inexpert governments.

These and other features of the oil, gas, and mining sector were highlighted in chapters 2 and 3.

The challenges have taken on a new character as the geography of oil, gas, and mining investments has evolved in the 21st century. There is increased presence of such investments in countries with weaker capacity, less infrastructure, and less sector experience than developed resource-rich countries. They are often places where the benefits of oil, gas, and mining development are sorely needed but most difficult to realize. The resulting volatility and unpredictability is a concern to public and private parties alike.

Negative outcomes are often attributable to a failure to address adequately the governance issues that commonly affect the oil, gas, and mining industries. For example, ineffective implementation of a licensing regime—whether through a lack of capacity of relevant agencies, poor coordination in the granting of licenses, or the monitoring of terms—can sow the seeds of unpredictability and instability. The costs of failure are high, making the imperatives for getting it right particularly important. Some suggested responses based on the synthesis of good practice in the *Sourcebook* are set out in the following sections.

10.4 RESPONSE 1: APPROPRIATE AND ADEQUATE RULES

As chapters 4 and 5 have demonstrated, a wide variety of rules and policies need to be developed for the oil, gas, and mining sector. They include the following:

- A sector policy framework covering issues such as sovereignty, sector roles and responsibilities, treatment of state-owned enterprises, private sector participation, exploration rights and procedures, local content, fiscal objectives, revenue and expenditure management, social and environmental considerations, and commitments to investors.
- A legislative framework, through comprehensive and detailed legislation or through individually legislated contracts and agreements, or some combination of the two.
- Regulations consistent with good practice to complement the laws and contracts, typically covering health, safety, and the environment.
- Assignment of clear roles and responsibilities to key sector agencies and institutions, including legislative bodies, executive bodies, and sector ministries for individual EIs; regulatory agencies; state companies; finance ministry; taxation authority; the central bank; the economic planning ministry; and the environmental ministry.
- A fiscal regime based on an appropriate selection of fiscal instruments, such as mining royalties or hydrocarbon production sharing, profit-based taxes, bonuses, progressive tax instruments, state participation, capital gains taxes, import-export duties, value-added tax, discounted sales prices, tax holidays, cost recovery, and so forth.
- Policies and fiscal rules for the management and allocation of oil, gas, and mining revenues. (These should lay out a roadmap for spending versus savings and address issues such as the resource horizon, the need to balance current spending with savings, and whether and how revenues will be allocated between central government and subnational entities.)
- Policies and programs to foster sustainable development. (These may address economic diversification, infrastructure and transport corridors, regional and community development planning, promotion of local benefit, job creation, and management of environmental, social, and human development challenges.)

The net effect of a sound legal, regulatory, and policy framework is to enhance stability and predictability in the environment in which investors operate. Negative features likely

to harm the quality of governance include a lack of available information on what the rules are, policies adopted or announced but then not implemented or policies frequently changed or adopted and then postponed, and different rules applied to different investors. The effect of any of these features is to reduce transparency and consume scarce resources on the government side. They are likely to increase the challenges of monitoring contracts.

As the *Sourcebook* has noted, there is a wide variety of standardization in the oil, gas, and mining sector, with model contracts particularly common in the oil and gas sector. The content of such agreements may differ but many of the headings are very similar. Petroleum operations are often required to be carried out in accordance with “good oilfield practice,” which may be defined in the contract—as it is in the Kashagan (Kazakhstan) production-sharing agreement—as “all those uses and practices that are at the time in question then generally accepted in the international petroleum industry as good, safe, economical and efficient in exploring for, developing, producing, processing and transporting Petroleum” (cited in Bowman 2015). In this way industry practices can be transformed into legal obligations. By contrast, petroleum laws show a considerable diversity and are often much briefer in scope than is typically found in the mining sector, where (and perhaps as a result) agreements tend to play a different role in many cases.

One further outcome of the *Sourcebook* chapters is the mapping of the extensive role played by non-legally binding standards or quasi-rule-making. Examples would include the Extractives Industries Transparency Initiative Standard 2016 (see chapter 8) and the emerging Responsible Mining Standard for industrial-scale mines developed by the Initiative for Responsible Mining Assurance (see chapter 9). Companies and industry associations often develop standards that have a near-mandatory impact on their operations. The International Finance Corporation standards are also relevant in this context. In this sense, there is an aspect of good governance that is driven by international bodies and organizations.

10.5 RESPONSE 2: EFFECTIVE IMPLEMENTATION, MONITORING, AND ENFORCEMENT

Effective monitoring and management capacity are critical to ensuring compliance with the requirements set out in the *Sourcebook*’s chapters. Without the appropriate institutions to monitor compliance with laws and standards, however, efforts at compliance will have little chance of success. The “resource curse” literature has underlined the importance of institutions

for accountability, such as government auditors and parliamentary commissions (see the discussion in chapter 2).

Governance systems for oversight can take various forms. One approach, which may be best suited for smaller countries with limited capacity, is a prescriptive or audited approach from the governmental authorities. For countries where there is more capacity, the requirements in the legal regime could be supplemented by placing more responsibility on the operator to work with codes of conduct it develops and are agreed with the governmental authorities. Both systems need the capacity within the authority to manage the workload. To some extent, this will be dependent on the size of the oil, gas, or mining sector in a country. For example, where there is a single mine, oversight capacity does not have to be overly elaborate.

Organizational capacity

The relevant laws should specify the authority and responsibility of different institutions (see chapters 5, 6, and 7). As chapter 5 has shown, there is a growing body of knowledge about the most effective ways of allocating responsibilities across government institutions, even though there have been setbacks where countries have attempted to introduce new systems of oversight. In established EI regimes, such as Australia and the United Kingdom, reorganization has evolved in line with the changing national EI context, and underlined the value of learning from other countries’ practices in regulatory design. Although not a model, the Norwegian approach has been a useful benchmark for new EI states in making comparisons and contrasts.

In addition, the allocation of responsibilities should take full account of environmental and social protection in the sector. For countries with well-developed environmental monitoring capacity, the environmental ministry should be responsible for policy and establishing laws and regulations, and a national environmental protection agency or local environmental authorities should be responsible for enforcement. The laws and regulations should clearly specify which environmental authority is responsible for monitoring and enforcement. They should also specify the procedures for companies to follow in preparing and submitting environmental and social performance data and the procedures for verification and independent testing by the environmental authorities.

The environmental authority should be able to put in place the institutional arrangements and capacity needed to respond to serious environmental incidents or accidents, so that they can be controlled rapidly and investigated thoroughly with results disseminated to communities

and actions taken to prevent reoccurrence. Where possible, the environmental authority should maintain staff at operations on a permanent basis. In presenting their plans for approval by government, oil, gas, and mining sector project sponsors may be reasonably required to demonstrate that they have the organizational capacity to comply with social and environmental impact laws and regulations and with undertakings given in the environmental and social management plan and the closure plan. Environmental performance data should be provided to government by the operator of the project. Environmental performance data should also be provided to local communities in the local language with annual updates.

Capacity building

Much has been said about the importance of capacity building in making good governance feasible. One area requires further emphasis, however. Many countries have limited environmental oversight and enforcement capacity. Governments should make every effort to see that their environmental agencies have sufficient staff with adequate knowledge and experience of all the key sectors of the economy, including the oil, gas, and mining sector. They must have adequate budgets for both wages and other costs (such as computers, data, record-keeping systems, vehicles, and operational travel) in order to be able to hire and retain competent staff, provide training, and have a strong presence on the ground, including at mine sites. Very close collaboration is needed between the environmental authority and the technical staff at the EI sector ministry in reviewing and approving environmental and social impact assessments and environmental and social management plans. This can help compensate for a lack of capacity in countries with weakness in environmental areas and environmental staff that have only limited experience or knowledge of the oil, gas, and mining sector (Alba 2009, 8).

Social aspects

In more advanced developing countries, where there is a social ministry or a women's ministry, these ministries should be responsible for social and gender issues. However, in countries where such dedicated ministries do not exist, social and gender issues should be the mandate of whichever agency has responsibilities that include such matters, or, if this does not exist, then whichever agency has the most expertise or was most involved in establishing social

mitigation measures and local development initiatives for the oil, gas, or mining sector project (Liebenthal, Michelitsch, and Tarazona 2005, 170). Potentially, as in South Africa, the Department of Mineral Resources is the coordinating agency.

Monitoring and reporting

Good practice calls for both internal and external auditing of the EI project sponsor's compliance with measures, promises, and obligations made on undertakings throughout the project life, and regular public reporting of those audits. This requires the environmental authority and the oil, gas, and mining sector ministry to work together to have in place a well-defined and comprehensive monitoring program that identifies serious or potentially serious environmental issues. These can include impacts on water quality and availability, protection of biodiversity and natural habitats, safe handling and storage of hazardous materials, and interventions in place to reduce risks.

10.6 RESPONSE 3: ACCOUNTABILITY—STAKEHOLDER CONSULTATION AND PARTICIPATION

Successful and sustainable oil, gas, and mining sector management depends upon the participation of all key stakeholders—parliament, the executive, industry (including national resource companies), international financial institutions and other investors, civil society, and citizens. While objectives and focus may differ among stakeholder groups, constructive and successful models of collaboration are emerging. In addition to the extensive discussion in chapter 9, see box 10.1 for an example of environmental and social institutional collaboration.

Identifying stakeholders, seeking their participation, and consulting with them in reform or good governance agendas across all links of the EI Value Chain have proven critical to the successful management of the oil, gas, and mining sectors and their impacts. In conflict areas, this has proven to be a particular challenge (see chapter 2, sections 2.3 and 2.4).

Who are the stakeholders?

The principal stakeholders in the EI Value Chain have been described in the preceding chapters of the *Sourcebook*. Each deserves to be consulted in any matter with an important bearing on oil, gas, and mining sector management, and each, at the same time, should be expected to

Box 10.1 Environmental and Social Institutional Arrangements

Environmental protection and closure issues are common to many countries, and good regulatory frameworks are generally available. Thus, the fundamental issue is not so much the design of environmental legislation and regulation, but more the capacity of the environmental agency to monitor and enforce the laws and regulations.

Without adequate enforcement capacity, even the best-designed regulations will be largely ineffective. With good capacity, even general environmental protection requirements can result in significant reduction of environmental hazards and risks.

A key principle is that institutional strengthening of the environmental authority is generally the most crucial issue for countries with large mineral or petroleum projects. Social issues involve both mitigation of risks and enhancement of local benefits, such as local procurement.

A second key principle is that social issues are best addressed by a social ministry, because social issues are less amenable than environmental impacts to scientific measurement and compliance criteria. They require different skills sets from environmental issues.

A ministry for women can also be very effective in addressing social issues. In many developing countries, women are often more aware of both social risks and opportunities.

Building strong and sufficient government capacity for environmental and social issues involves the following:

1. Having the necessary budget, employment conditions, and capabilities to hire and retain sufficient well-qualified and experienced staff to address the environmental and social impacts of mineral and

petroleum investments, with a strong presence on the ground at EI sector operations and in nearby communities.

2. Ensuring that the institutional arrangements and capacity are in place so that any serious environmental or community incidents can be controlled rapidly and investigated thoroughly with results disseminated to communities and actions taken to prevent any reoccurrence.
3. Developing strong coordination and collaboration between the environmental and social authorities and the EI sector authorities in reviewing and approving
 - a. environmental and social impact assessments,
 - b. environmental and social management and monitoring plans, and
 - c. environmental and social monitoring arrangements and results, especially for states with limited environmental and social capacity, and with staff with only limited experience or little knowledge of minerals and petroleum projects and their impacts.
4. Supporting and facilitating civil society participation in environmental and social monitoring, which can lead to many more positive environmental and social impacts if mandatory processes ensure that all stakeholders and interested parties have unrestricted access to environmental and social performance data and to key documents (such as environmental and social impact assessments and environmental and social management plans that specify compliance criteria and the obligations and commitments of the investors and operators).

contribute to the process, playing different but complementary roles:

1. *Parliament.* Ideally responsive to, and representative of, the differing strands of public opinion, parliaments or legislatures can play a unique role in identifying consensus policies and legislation. They should be consulted on all key issues, but at the same time expected to participate through the legislative and parliamentary oversight processes.
2. *The Executive.* The executive arm of a resource-rich government has a central role—in preparing policies and

drafting legislation as enforcing, and managing these. Consultation with each group affected by its actions will increase the likelihood of their acceptance and sustainability. Investor home-country governments can also play an important role in promoting or enforcing good governance practice on the part of their companies.

3. *Industry.* Beyond the investment and commercial operations roles, oil, gas, and mining sector industries should be reaching out to the societal groups their operations most affect, with consultations and informational programs on their plans and performance. They should

strictly observe good practice codes on the social and environmental impacts.

4. *Employees.* These are the people who do the work on the ground, and it is through their efforts that successes are achieved. Feedback from employee experience straight from the “coalface” can be invaluable. Employees may also be represented via trade unions for the purposes of collective bargaining and protection.
5. *Civil society.* Informed civil society can play a central role in educating and building local capacity to assess government sector policies and practice as well as industry performance and impacts, holding government and industry accountable where inappropriate behavior or abuse is detected.
6. *International finance institutions (IFIs).* IFIs can use both technical assistance and the leverage of their lending to encourage good practice.
7. *Indigenous peoples.* The principle of free, prior, and informed consent has been influential here (McKeehan and Buppert 2014): the idea is that a community has the right to give or withhold its consent to proposed projects including EI ones if those projects are likely to affect the lands they customarily own, occupy, or otherwise use. It is incorporated into many international, regional, and national laws (Malaysia, Australia, Peru, the República Bolivariana de Venezuela, and the Philippines, for example).

ALLIANCES. A relatively recent but very promising development is the growing number of multistakeholder groups, formed to address sector issues jointly, thereby considerably increasing the likelihood of consensus and sustainable policies and actions (Stacishin de Queiroz et al. 2008, 4).

ESPECIALLY VULNERABLE GROUPS. Separate consultations should be held by companies and nongovernmental organizations with the poorest and most vulnerable groups in the community, including women’s and youth groups, to find out directly from them how the sector operation is affecting their lives and what their concerns and needs are. This is a key prerequisite to enabling them to have a strong voice in the company-community dialogue and in decisions affecting their lives (Alba 2009, 21; Liebenthal, Michelitsch, and Tarazona 2005, 41–42, 139).

While comprehensive poverty studies can take one to two years to complete, consultations can provide an immediate and practical indicator of impacts for the poorest and most vulnerable. They should include the groups that represent poorer women (not elite women) in mining, oil, and gas communities to assist in assessing whether their lives are improved in addition to areas

where they may be harmed by mining or hydrocarbons operations.

For maximum benefit and results, the consultation should be undertaken at a time and place convenient to the local women—otherwise they may not be able to attend due to child care and other household tasks. Rather than a government or company official leading the event, consideration should be given to arranging for the consultation to be undertaken by a local woman who is well known and respected in the community to avoid the risk that poor women will not be forthright with a foreign outsider or government official (Liebenthal, Michelitsch, and Tarazona 2005, 171).

10.7 CONCLUSIONS

The *Sourcebook* tries to promote and help standardize good practice across the EI Value Chain, taking into account the many contexts in which that practice is carried out. It emphasizes throughout what may be the most basic fact of all—that independent nation-states will make their own decisions about resource development. As such they will always tend to be sensitive to advice that appears to be directed at them from outside. The *Sourcebook* is, therefore, a tool for responsible resource governance rather than a prescription.

The *Sourcebook* recognizes that many countries that are relatively new to the EIs need to pay special attention to capacity building and strengthening institutions. It is, for example, the way that rents are managed rather than the rents themselves that can be a problem. However, this is a source book and not a solutions book, and many key decisions will be found by drawing on these and other sources in unique contexts. By and large, it remains the task of governments to discover how best to convert finite, natural capital into other forms of capital that can sustain development in perpetuity. Such an outcome would sustain economic growth and the benefits it brings to the population. In development terms, the extractives are a means to an end rather than an end in themselves. The knowledge assembled in the *Sourcebook* should assist governments in achieving their goals of social and economic transformation while at the same time meeting a high standard of good governance.

REFERENCES

- Alba, E. 2009. “Extractive Industries Value Chain: A Comprehensive Approach to Developing Extractive Industries.” Working Paper of the Oil, Gas, and Mining Policy Division, World Bank, Washington, DC.

- Barma, Naazneen H., Kai Kaiser, Tuan Minh Le, and Lorena Vinuela. 2012. *Rents to Riches? The Political Economy of Natural Resource-Led Development*. Washington, DC: World Bank.
- Bowman, John P. 2015. "Lex Petrolea: Sources and Successes of International Petroleum Law." Paper presented at the 2015 International Upstream Energy Conference, Houston, Texas, June 11.
- IMF (International Monetary Fund). 2010. *Managing Natural Resource Wealth*. Washington, DC: IMF. <https://www.imf.org/external/np/otm/2010/110110.pdf>.
- Fukuyama, F. 2013. "What Is Governance?" Center for Global Development Working Paper 314, Center for Global Development, Washington, DC.
- Liebenthal, A., R. Michelitsch, and E. Tarazona. 2005. *Extractive Industries and Sustainable Development: An Evaluation of the World Bank Group Experience*. Washington, DC: World Bank. <http://www.ifc.org/wps/wcm/connect/c019bf004f4c6ebfbd99ff032730e94e/Mine+Infra+Report+Final+Copy.pdf?MOD=AJPERES>.
- McKeehan, A., and T. Buppert. 2014. "Free, Prior and Informed Consent: Empowering Communities for People-Focused Conservation." *Harvard International Review* 35 (3): 48–52.
- NRGI (Natural Resource Governance Institute). 2016. "Resource Governance Index." London: NRGi. <http://www.resourcegovernance.org/resource-governance-index>.
- Stacishin de Queiroz, J., B. App, R. Morin, and W. Rice. 2008. *Partnering with Extractive Industries for the Conservation of Biodiversity in Africa: A Guide for USAID Engagement*. Washington, DC: U.S. Agency for International Development. http://pdf.usaid.gov/pdf_docs/Pnadm726.pdf.

OTHER RESOURCES

- An important strand in research into governance of the extractive sector has emerged from the UN Sustainable Development Solutions Network (SDSN): <http://unsdsn.org>. This Network plays a critical role in moving forward the 2030 Agenda for Sustainable Development, of the which the Sustainable Development Goals are a part. Among 12 thematic networks established is one on Good Governance of Extractive and Land Resources, providing a platform from which to share updates and lessons learned, to mobilize partnerships and to shape global strategies on how to leverage the natural resources sector to support sustainable development in general, and achievement of the SDGs in particular. The Network will also facilitate collaboration at the nexus of sustainable development and the governance of natural resources.
- A useful source of reference on governance issues that pays special attention to the role of law is the *World Development Report 2017: Governance and the Law* (2017, Washington, DC: World Bank) (<http://www.worldbank.org/en/publication/wdr2017>).

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Oil, Gas, and Mining: A Sourcebook for Understanding the Extractive Industries addresses a topical and significant issue in today's world: how to ensure sustainable development in resource-rich countries by promoting dialogue to improve transparency. The resource curse is no longer their only challenge: they have to balance economic growth and climate change concurrently, not only for their own countries, but also for a brighter future of the world.

The *Sourcebook* calls for collective actions from governments, companies, and other stakeholders and should be required reading for anyone interested in natural resources and sustainable development.

— **Dr. Sun Xiansheng, Secretary General, International Energy Forum (IEF)**

Good sector governance across a complex value chain is essential for nations to derive full benefits from mining resource development. For many resource-rich and resource-dependent nations embarking on complex policy formulation, sector reform, and institutional strengthening, this *Sourcebook* provides an excellent, clear compendium of interrelated topics from which industry, government, and civil society alike can find common understanding and shared value—removing the information asymmetries that can otherwise impede sustainable outcomes.

— **Tom Butler, CEO, International Council of Minerals and Mines (ICMM)**

The underlying objective of this book is to help ensure that “net positive” outcomes for human welfare and environmental integrity result from oil, gas, and mining investments, and negative impacts are avoided or minimized. *Oil, Gas, and Mining* is the best, most comprehensive and topical “one-stop shop” for policy makers, practitioners, and students who seek to understand the processes and contexts in which the sector operates.

— **Jonathan Hobbs, formerly International Network Director (Extractives Sector), World Wildlife Fund**

This *Sourcebook* will be indispensable to businesses, regulators, researchers, advocacy organizations, and assurance providers who aim to improve extractive industries sector governance and understand the operating environment for better business practices.

The main section is especially useful for actors that are using minerals or mineral products but are unfamiliar with what good governance of the sector constitutes. It will empower them to ask the right questions of governments and industry in countries of origin.

The book also contains reports and presentations on the artisanal and small-scale mining sector in various geographies for those who, like me, are particularly fascinated with this marginal but heavily populated segment of the extractives sector.

— **Estelle Levin-Nally, Director of Levin Sources; Project Director of the GIFF Project; Industry Fellow of the Centre for Social Responsibility in Mining at the University of Queensland**

The *Sourcebook* is also available in a constantly evolving online version at www.eisourcebook.org.



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