IFC International Finance Corporation
World Bank Group



PROJECTS AND PEOPLE







A Handbook for Addressing Project-Induced In-Migration

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PROJECTS AND PEOPLE





A Handbook for Addressing Project-Induced In-Migration



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LIST OF ABBREVIATIONS

ACG	Azeri-Chirag-Deepwater Gunashli
ASM	Artisanal and Small-Scale Mining
BTC	Baku-Tbilisi-Ceyhan
CEP	Corporate Engagement Project
CommDev	The IFC/World Bank Oil, Gas and Mining Sustainable Community Development Fund
CSW	Commercial Sex Worker
CWIQ	Core Welfare Indicators Questionnaire
DFI	Development Finance Institution
EHA	Environmental Health Area
ESHIA	Environmental, Social, and Health Impact Assessment
ESIA	Environmental and Social Impact Assessment
EMP	Environmental Management Plan
ESMP	Environmental and Social Management Plan
FEED	Front End Engineering and Design
HIA	Health Impact Assessment
ICMM	International Council of Mining and Metals
IDP	Internally Displaced People
IPDPs	Indigenous Peoples Development Plans
IFC	International Finance Corporation
IMP	Influx Management Plan
ITNs	Insecticide Treated Bed nets
KABP	Knowledge, Attitudes, Beliefs, and Practices
KPI	Key Performance Indicator
LNG	Liquefied Natural Gas
M & E	Monitoring and Evaluation
MFI	Multilateral Financial Institution
OGM	Oil, Gas and Mining
NCDs	Non-Communicable Diseases
NTFP	Non-Timber Forest Products
PAP	Project Affected People
PJV	Porgera Joint Venture
PLNG	Peru Liquefied Natural Gas
RAP	Resettlement Action Plan
SEMOS	Société d'Exploitation des Mines d'Or de Sadiola
SDH	Social Determinants of Health
SME	Small and Medium Enterprise
STIs	Sexually Transmitted Infections
TOR	Terms of Reference
VCT	Voluntary Counseling and Treatment
VPSHR	Voluntary Principles for Security and Human Rights
WDR	World Development Report

Introduction

Migration associated with economic opportunity is a common phenomenon. One form of migration is *project-induced in-migration* (or *influx*[1]), which involves the movement of people into an area in anticipation of, or in response to, economic opportunities associated with the development and/or operation of a new project. For most projects, project development and operations will induce, and indeed are sometimes dependent upon, the in-migration of labor. Beyond employment, there is a wide range of project-related economic opportunities that serves to draw people into the project area.

Although this in-migration may ultimately benefit trade, employment, infrastructure, and services in the project area, in-migration can also negatively affect the project area and the 'host' communities, specifically with regard to environmental, social, and health issues. These negative impacts can result in increased project costs and increased operational and reputational risk, ultimately affecting a project's "social license to operate."

Historically, project-induced in-migration has often been represented as a problem of magnitude, one whose impacts are significant only if they occur on a large enough scale. The most well-known examples of serious negative impacts from in-migration are associated with large extractive industry (oil, gas and mining) projects. However, the risks – and potential consequences – of project-induced in-migration are not solely a question of magnitude. The rate of influx; overall footprint, duration, and sustainability of in-migration; the resilience of the affected area; and the potential severity of negative impacts all determine the significance of the consequences of in-migration for a given project. As such, whatever their scale, projects across sectors, including agribusiness, tourism, manufacturing, and infrastructure, as well as oil, gas and mining, should consider the potential for project-induced in-migration. Where risks are identified, the project should conduct a thorough situation analysis (see Part 3) and develop appropriate management strategies (see Part 4).

The majority of projects will catalyze, or be part of, a larger process of local and regional economic development. As such, the project may be only one of several contributors to a local and/or regional in-migration phenomenon. This may lead project sponsors or management to suggest that the responsibility for managing in-migration lies with the government rather than with the project. However, for a project it is the *effects* of in-migration within the project area of influence, rather than throughout the region, which are critical. It is in the project's best interests to seriously consider the project-specific causes of in-migration, the adverse impacts that may result within the project area of influence and the potential impacts on project operations, and to recognize its role and responsibilities as the owner of, or at least a stakeholder contributing to, this phenomenon.

Although a project cannot be held wholly responsible for in-migration associated with the broader economic development of the region, the project should assume primary responsibility for project-induced in-migration within the project area of influence. The project should assume responsibility for areas within its direct control and seek the

1 The terms *project-induced in-migration* and *influx* are used interchangeably throughout this document. In both cases usage is intended to be specific to in-migration induced by project development and operations.

agreement, coordination, and collaboration of all stakeholders, including the government, nongovernmental organizations, community-based organizations and project-affected communities, for management of other areas lying outside of its control.

About this handbook

The IFC Policy and Performance Standards on Social and Environmental Sustainability were developed to put into practice IFC's commitment to social and environmental sustainability. The aim of the policy is to address and manage environmental and social risk in IFC investments, and to help IFC and its clients to maximize the development opportunities of our projects.

Project-induced in-migration has the potential to significantly affect the environment, local communities, and the project itself, in both positive and negative ways. These negative environmental, social and health impacts can be a major contributor to the project's overall impact on the environment and affected 'host' communities.

With regard to the Performance Standards, project-induced in-migration may be characterized as "an unplanned but predictable impact caused by the project" (PS1) that should be anticipated in the Project Environmental and Social Impact Assessments (ESIA) and mitigated in the Environmental and Social Management Plan (ESMP). The phenomenon also has the potential to generate negative impacts for community health, safety, and security (PS4) and negatively affect involuntary resettlement (PS5), biodiversity (PS6), indigenous people (PS7), and cultural heritage (PS8). The direct and indirect impacts of project-induced in-migration on a project can be significant. In broad terms, the phenomenon affects the project's "social license to operate." From a business perspective, these impacts can be seen in terms of incremental operational cost, operational risk, and potential reputational risk.

This publication has been developed to fill an identified gap in assessing the risk of project-induced in-migration and promoting its management. It aims to promote better recognition, understanding, and management of project-induced in-migration. Given the diversity of projects in which IFC is involved, the contexts in which they are developed, and the relationship between project development and local and regional development, this document is relevant for both private and public sector projects, and in particular for large-scale projects in the extractive, infrastructure, and manufacturing sectors.

This handbook is designed to assist the wide range of stakeholders who are directly and indirectly affected by project-induced in-migration and involved in its management, including:

- Private sector entities establishing projects in areas with a medium-high risk of project-induced in-migration;
- Local, regional, and national governments that promote private sector economic development;
- Government departments, non-governmental organizations, and community-based organizations that promote the social welfare of communities; and
- Consultants and development practitioners providing services to the private sector entities.

The handbook is divided into five parts:

Part 1 The **business case** for addressing project-induced in-migration.

Part 2 The **project-induced in-migration phenomenon**, first considering the dynamics of project-induced in-migration and then discussing its potential environmental and social impacts. A final section considers the unique aspects of in-migration in relation to artisanal and small-scale mining, resettlement, indigenous peoples, areas of high biodiversity value and cultural heritage.

Part 3 The **assessment** of the probability of project-induced in-migration and the risks that such in-migration poses to a project. Beginning with basic tools to assess the probability of and the risks posed by in-migration, this part of the document identifies the requirements for a situation analysis as a basis for developing a project-specific influx-management strategy and plan.

Part 4 Management approaches. A comprehensive description of potential management approaches including approaches to reducing in-migration, managing its footprint, enhancing its positive impacts, and preventing and mitigating its negative impacts. Interventions supporting each of these approaches are described.

Part 5 The development of influx **management strategies** and their integration into the project.

Annexes Several annexes present additional information and document templates.

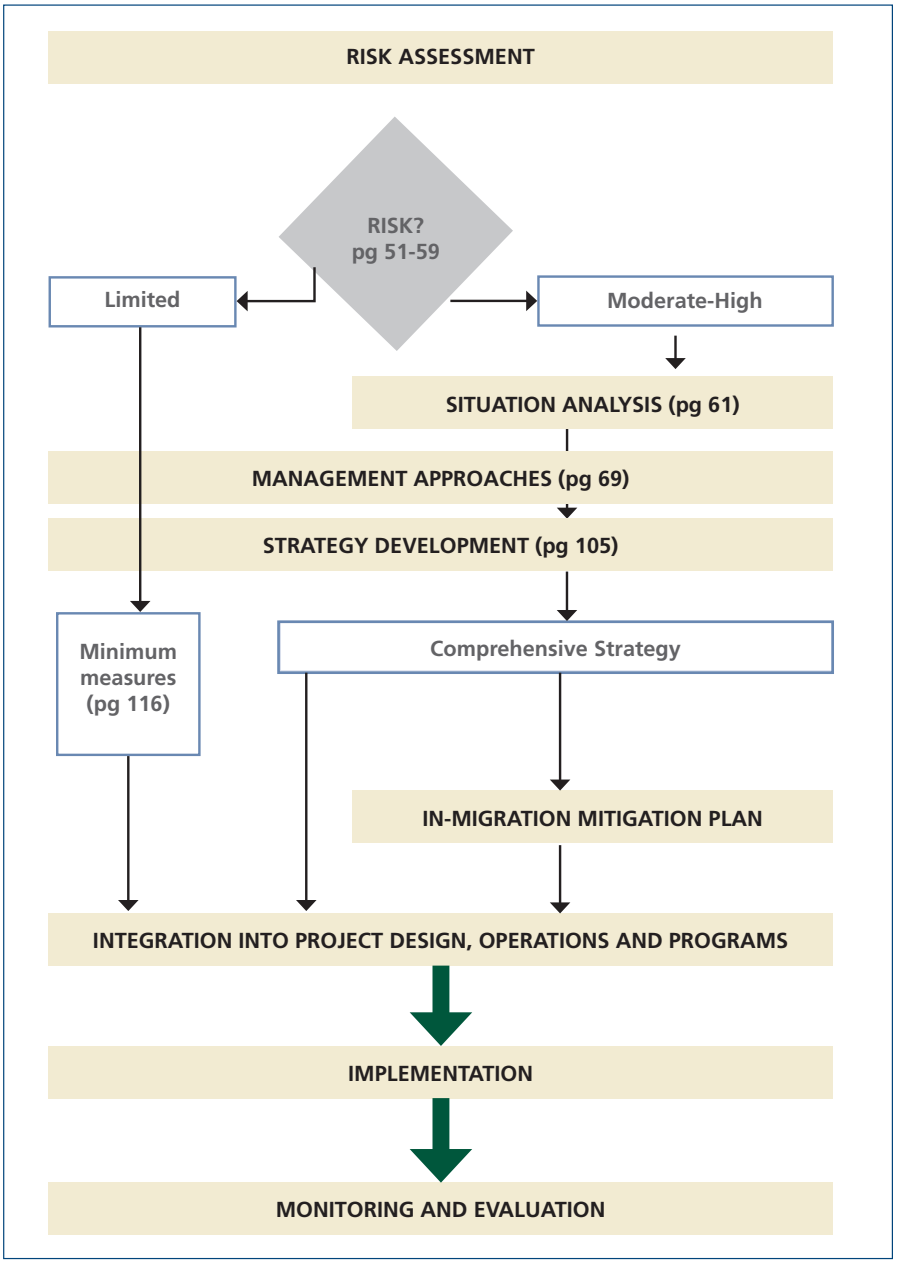
This handbook is also available on the IFC website, **http://www.ifc.org/sustainability.** Printable copies of the entire publication and of each section, as well as printable and modifiable copies of the blank templates used in the handbook can be downloaded from the site.

The handbook has been written and designed to meet the needs of a wide range of stakeholders at the corporate and project-levels. To facilitate selective use the various sections have been separated with tabs. It is likely that the majority of people will only need to refer to one or two sections of the document rather than the document as a whole. Each section starts with a box of questions highlighting the type of information presented in the section, and ends with a box providing links to relevant reference material.

HOW TO USE THIS HANDBOOK

To help readers more effectively use this handbook, Figure 1 presents a road-map outlining the steps needed to rapidly assess the probability of in-migration and risk of impacts and determine what actions are necessary, based on the results of this assessment.

FIGURE 1



How to Use this Handbook

Throughout the document, the following icons identify different resources:



FAQ's
Each section of this handbook begins with frequently asked questions (FAQ's) to guide the user on the chapter's content. It is recommended that the user read the document in entirety to follow a logical sequence.



The Business Case for Addressing Project-Induced In-migration
Part 1 of this handbook considers the main project impacts of in-migration, and the value of proactive management.



Background Information
Part 2 of this handbook describes the dynamics of in-migration and its environmental, economic, social, and health impacts.



Tools
Several tools are available for practitioners/project managers to manage the environmental, economic, social and health impacts of in-migration. The tools can be found in Parts 3, 4 & 5 of this handbook.



Case Studies
Real-life examples of in-migration from various sectors – extractive industries, infrastructure, general manufacturing, agribusiness,–and countries illustrate how in-migration has been managed in the past, lessons of experience and international best practice.


Sean John

1 Part One: The Business Case for Addressing Project-induced In-migration



- What are the main business-related impacts of project-induced in-migration?
- What are the trade-offs between proactive and reactive management of impacts associated with project-induced in-migration?

1

INTRODUCTION

Rapid and sustained growth of an in-migrant population can cause significant environmental, economic, and social impacts in the project area of influence. Individually and collectively, in-migrants' presence and their activities can directly or indirectly affect the local environment, the 'host' communities, and project operations. Over time, in-migrants may cause a fundamental change in the project area of influence and thereby change the project context.

Effects of in-migration on the project operating environment

The major drivers for increased project costs and risks (both operational and reputational) include:

- The creation of new migrant stakeholder groups;
- Unmet promises of local participation, benefit, and development; and
- Deterioration in the social context in which the project is operating.

NEW MIGRANT STAKEHOLDER GROUPS

Migrant groups will vary according to origin, language, cultural group, ethnic or tribal group (including migrant indigenous people), religious affiliation, or profession, among others. These groups[1] may include:

- **Laborers and their families:** The spontaneous migration and settlement of laborers and their families introduce a wide range of concerns into the project area of operations, related to the adequacy of public infrastructure, services, utilities, housing, and sustainable resource management.
- **Usurers:** Aggressive money lenders and traders acquire leverage in communities by encouraging community members to borrow money under conditions not familiar to them. Such long-term indebtedness can cause significant negative implications. Their increasing economic power is often associated with co-opting local political leaders and elites.
- **Entrepreneurs:** Migrant entrepreneurs arrive to capture business opportunities associated with the project as well as increased demand for goods and services associated with the local population's higher levels of disposable income.
- **Artisanal and small-scale miners:** Migrant small-scale miners may work and reside within a mining lease, and their activities are often centered upon the mine operations. These activities can pose significant threats to project operations, particularly related to health, safety, and security.
- **Commercial sex workers:** Establishment and expansion of a local commercial sex industry raises the incidence of sexually transmitted infections (STIs) and introduces the need for health programming interventions for this group.

1 Page 17 provides a complete typology of in-migrants

Migrants have the potential to become powerful new stakeholder groups. Where such groups are sufficiently large or achieve both public and political support at the local, regional, national, or international level, they may oblige the project to recognize, engage, and consult with them and to develop specific programs associated with their activities. Moreover, with the formation of new stakeholder groups, competition for project benefits may become fierce – causing tension and perhaps violence among the new migrant stakeholder groups and between in-migrants and the local community.

PROMISES OF LOCAL PARTICIPATION, BENEFIT AND DEVELOPMENT

Early project documents, such as the ESIA, outline the potential benefit stream that local people in the project area might expect during the life of the project. The project benefit stream generally includes measures to mitigate project impacts, compensation, promises of participation in the project through wage labor, and project-supported community development programs.

These promises often raise locals' expectations of the potential for the project to transform lives and livelihoods, particularly in remote, and neglected regions that aspire to join the mainstream economy. Project-induced in-migration can threaten the delivery and success of the project's "promises" of local participation, benefit, and development by increasing competition for these "promises."

Project Compensation and Royalty Payments

Large and regular injections of cash into the local economy – and the mechanism for their distribution – may create competition and local conflict between potential beneficiary groups competing to be recognized as affected, and therefore entitled, stakeholders. Negative social forces may also arise within recognized groups of affected stakeholders, with "leaders" competing to lead and be recognized as the representative voice of the affected group.



EXAMPLE: MIGRANT GROUPS COMPETING FOR PROJECT COMPENSATION BENEFITS

PT Freeport Indonesia's Grasberg gold and copper mine in Papua, Indonesia was constructed between 1967 and 1972 and has been operational since that time. The original mine concession included the customary lands of two indigenous tribal groups, the Amungme and the Kamoro. Over time, as both the mine and the region have developed, employment opportunities and better living conditions have attracted highlanders from other indigenous tribes (including the Dani, Ekari, Moni, Nduga, and Damal) to the mine area. As their numbers increased, the migrant highland tribes became established as numerically strong, politically powerful stakeholder groups, pressing their claims to be recognized as indigenous groups entitled to compensation by Freeport.

It is common to see compensation-royalty sub-economies developing, where representative leaders draw political and financial strength from payment and distribution of compensation and royalties, but often fail to ensure equitable distribution to all members of the recognized group. In the most extreme cases, potential beneficiary groups may either confront and attack the project or misrepresent competing groups to pressure management to favor one group and exclude others.

The arrival of migrants serves to either exacerbate the strength of, and competition between, existing groups, or introduce new claimants. In certain cases, projects have responded to threats posed by the increasing strength and voice of newly arrived migrant groups claiming rights to compensation by recognizing the group as "affected and entitled to compensation." While this may be an understandable and pragmatic response to such threats, it can create dangerous precedents for resolving claims - ultimately increasing project costs, exacerbating local-level inter-group conflicts regarding entitlement, and posing a threat to the success of project programs.

Social Development Programs

In-migrants may compete to become beneficiaries of project social development programs, directly or indirectly threatening the success of existing and future project social and community development efforts, including resettlement and indigenous peoples development programs. Where resettlement has occurred, relatively affluent and astute in-migrants may seek to capture monetary compensation payments, or elect to settle in resettlement villages, thereby increasing pressures on infrastructure, services and livelihoods. They may also create land and property markets promoting sale of resettlement housing. In-migrants may also overwhelm indigenous peoples because the latter are less familiar with how to do business with the mainstream economy.

In addition, the arrival of in-migrants may require a stakeholder re-assessment and the strengthening of existing programs or the development of new programs. This challenge becomes most obvious where a progressive decline in the social context of the project requires increased security measures, but there may also be a need over time for new programs dealing with sub-groups of in-migrants to mitigate the public and project-level impacts associated with these groups. These unplanned additional programs will require additional commitments of project funds, resources, and staff time.

Rapid population growth and large increases in the absolute numbers of people resident within the project area can strain public infrastructure, services, and utilities. Consequently, a project may be unexpectedly requested or pressured to significantly contribute to the construction, renovation, and maintenance of new infrastructure, services, and utilities. Often, the project inadvertently assumes responsibility for ongoing management of such "public goods." Finally, a project may also be asked to provide logistical and financial support to new and existing health programs to combat diseases such as malaria, tuberculosis, and HIV/AIDS.

Employment

Many projects commit to hire local workers through the development of preferential employment policies. However, the meaning of the term "local" varies from one stakeholder group to another. For instance, at the national level, the term local describes a citizen of the country, and as such all citizens (whether they reside in the project area or have migrated to it) are deemed to be "local."

Within the project area, the term is usually interpreted to describe a person originating from and habitually resident in the area in which the project is situated. Project claims of providing local employment often do not hold up under local scrutiny. Recruitment may well be conducted locally, but it may not be a "local" who is recruited.

Projects may have a vested interest in allowing spontaneous in-migration of skilled workers, as it reduces mobilization costs. While in-migrants bring much needed technical skills to a project, they also directly compete with local people for project employment. Migrant capture of unskilled and semi-skilled employment opportunities not only deprives locals of the positions they are most likely to be able to fill, but also engenders significant resentment that can trigger discrimination and violence.

Business Opportunities

Migrants may come to a project area to capitalize on business opportunities related to the supply of goods and services to the project. They may also seek to establish businesses that aim to capture the new-found wealth and spending power of the local population. The visible capture of such benefits by migrant businessmen may cause local resentment and tension, especially where locals do not have long-term employment prospects; have both little experience of and limited, if any, opportunities to save and invest construction phase employment earnings; and face retrenchment and an abrupt decline in income after the peak of construction-phase employment.

DETERIORATION IN THE SOCIAL CONTEXT

The negative environmental, social, and economic impacts associated with in-migration often lead to deterioration in the social context in which the project's host communities reside and the project is operating. Migrants may cause an overall decline in the well-being and welfare of the resident population by threatening their way of life and the basis of existing livelihoods and placing additional pressure on what often already may be inadequate public infrastructure, services, and utilities.

Problems such as increased indebtedness, disease epidemics, increased occurrence and practice of social vices, increased domestic violence and rape, increased intra- and inter-group jealousy, rising crime and violence, ethnic tensions, a general breakdown of law and order, and the increased probability of public security force intervention can significantly affect the local population (and the project workforce).

As a result of the deteriorating social context, the project may face increased risks of disruption as the changing circumstances outside the project gate lead to social unrest, disruption of activities and work stoppages. This often leads to an increased investment in security, and increases reputational risks associated with the increased intervention of national security forces in what are considered "project matters." Reputational damage may also stem from either a lack of, or poor management of, in-migration - leading to "unintended" consequences that undermine the developmental promise of project development, and the cost of which are borne by "host" communities in the project area of influence.

At the local, regional, national, and international level, the negative environmental, social, and economic outcomes associated with project-induced in-migration may significantly affect the project and company reputation. This, in turn, will impact the project's "license to operate" in the country. Ultimately, increased costs and a damaged international reputation may affect the share value of the company.

ASSESSING COST – THE VALUE OF PROACTIVE MANAGEMENT

The previous section described in migration-induced changes and potential sources of increased operational, financial, and reputational costs. Quantification of these costs is difficult, primarily because of insufficient project-level information allowing investigation of the relationships between changes in the project context, the project response (if any), and increased direct and indirect costs.

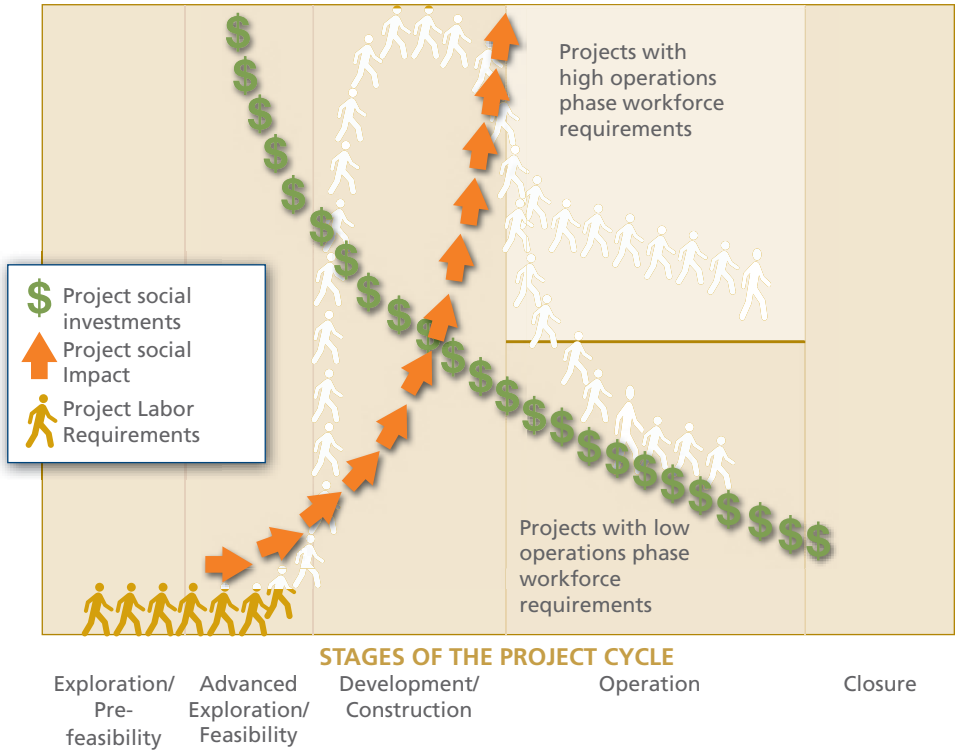
POTENTIAL FINANCIAL COSTS OF PROJECT- INDUCED IN-MIGRATION

- Increased cost of security
- Increased payments to new stakeholder groups
- Increased cost associated with community development programs
- Work stoppages/disruptions during construction and operations

Ideally, cost-benefit analyses would improve decision-making regarding management of in-migration. Such analysis would make the case to reallocate resources devoted to managing the *symptoms* of in-migration, and move them to pro-active measures aimed at preventing, minimizing, and/or managing the in-migration phenomenon itself. Many of these measures would be integrated into project design.

Project design and budget decisions are generally made early in the project cycle, often before formal environmental and social impact assessments (ESIA) and management plans are completed. However, although the in-migration phenomenon commonly starts early within the project life cycle, when people begin to hear about the project and its real or expected benefits, the full impacts of in-migration on both the local population and the project generally appear late in the construction phase and into the operations phase, at a time when construction is nearing completion and investment in communities is actually declining (see Figure 2).

FIGURE 2. RELATIONSHIP BETWEEN PROJECT DEVELOPMENT, SOCIAL INVESTMENT AND SOCIAL IMPACTS



Though in-migration peaks during the construction and operations phase of projects, it does little good to recognize the impacts associated with high levels of in-migration when the migrants are already on the doorstep and the project operating environment has changed irreversibly for the worse.

Proactive management of in-migration begins with project design and planning, when explicit consideration of the project's potential physical and social footprint should lead to integrated projects that take into account a project's potential social and economic impacts and local and regional development consequences.

At the outset, the project should ask and answer the following questions:

- What are the opportunities to include social considerations in project design and planning?
- What trade-offs exist between project-defined optimal design and "socially optimal" design?
- How will the project benefit from proactive management of social considerations?

Project managers at each phase of project development and operations often face considerable pressure to tightly control costs. Where resources for investment in tangible aspects of social development are already deemed excessive or are already under threat, the willingness and ability to seek resources for management of longer-term intangible social issues may be limited - even more so if the proposed interventions are distant from the project site. As a consequence, during the construction and operations phases, management is often unresponsive, effectively ignoring emerging social issues until they result in operational, financial, and/or reputational costs. By this time, the social costs in terms of lost trust and support may be irretrievable. Moreover, as more financial and human resources are devoted to "putting out fires," fewer resources can be spent on maximizing project opportunities and positive developmental impacts.

Investment of resources in managing project-induced in-migration should be considered in terms of addressing primary causes of the phenomenon itself rather than mitigating its symptoms.

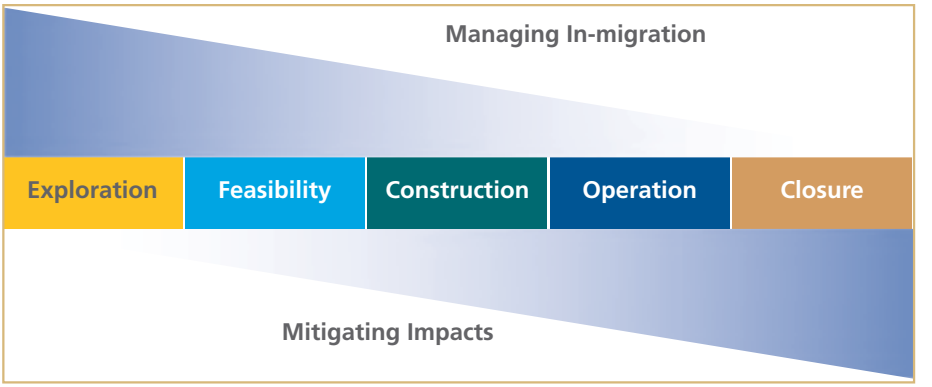
Conclusion

Project-induced in-migration may substantially change the context in which a project operates. An influx of migrants may affect the project's host communities by affecting the environment in which they live and secure their livelihoods or by introducing fundamental (and perhaps disruptive and undesirable) socio-economic change to the population. Migrants may also affect the project directly. Irrespective of whether these impacts are direct or indirect, they result in increased project costs and risks and ultimately may affect the project's 'social license to operate.'

The rationale for project investment in managing project-induced in-migration is manifold. A project may aim to minimize incremental costs or manage risk. In this scenario, investment in managing in-migration is weighed in terms of costs avoided. Alternatively, a project may seek to help manage the process of environmental and social change catalyzed by the project, to ensure that local people participate in and benefit from the project to the greatest extent possible and that the project overall has a positive developmental impact. Ultimately, the rationale for investment is likely to be some combination of these reasons.

In recognizing the inevitability of in-migration, a Project must decide when to address in-migration and what resources to allocate towards its management. Management of in-migration can occur pro-actively, where investment is directed towards the rationale for in-migration, managing the flow of in-migrants and their physical and social footprint within the project area; or reactively, where resources are directed towards mitigating the symptoms of in-migration (Figure 3 on the next page).

FIGURE 3. RELATIONSHIP BETWEEN THE PROJECT CYCLE AND INFLUX MANAGEMENT OPTIONS



Pro-active management requires leadership and timely decision-making to allow integration of social criteria into project design. Where management is reactive and occurs relatively late in the project cycle, when in-migrants are on the doorstep and their impacts are tangible, the majority of resources will be allocated towards mitigating the symptoms. As such, it will be increasingly difficult to achieve the objectives outlined in the paragraph above.

Like other environmental and social programs, an in-migration management strategy and/or plan may only be necessary and/or relevant for a defined period within the project life cycle. Projects with high construction phase demand for labor and goods and services may only require an in-migration strategy during the exploration, feasibility and construction phases. As the project moves into operations, in-migration management activities may be increasingly directed towards strategic contributions to the economic development of the region. However, projects with high construction and operations phase demand for labor and goods and services may require a longer-term in-migration management strategy and plan. All projects would benefit from integration of influx management considerations in their design.

CHAD CAMEROON PIPELINE PROJECT

The Chad-Cameroon Project is a US$3.5 billion development of an oil field in Chad and a 1,070 km pipeline extending through Chad and Cameroon to the Atlantic coast. At the outset of the Project the roles and responsibilities of the Government and the Project operators in managing the environmental and social impacts of the Project and its broader regional development impacts were defined in the Project Environmental Management Plan (EMP). Government assumed responsibility for managing broader regional development as well as the Project's indirect impacts including in-migration through development and implementation of a Regional Development Plan (RDP).

The Environmental Management Plan (EMP) required the Project to develop and enforce a hiring policy, one objective of which was to, limit the spontaneous influx of job-seekers In addition to job-seekers, the increase in local people's disposable income (through employment, compensation, etc) and the consequent increased demand for goods and services attracted large numbers of entrepreneurs, traders, etc to the area. While the Project fulfilled its obligations regarding its hiring policy, this policy and its implementation did not stem the flow of in-migrants, in part due to limited institutional capacity and delays experienced in the design and implementation of the RDP. Consequently, since the start of the Project significant numbers of people seeking employment and other economic opportunities entered into the Project area. This led to the development of new settlements or rapid expansion of existing settlements along the pipeline route and in the oil field development area.

The Project consortium implemented mitigation measures agreed upon in the EMP, including the hiring policy. As outlined in the EMP, further measures addressing in-migration and its impacts were deemed to be the responsibility of the governments of Chad and Cameroon. It rapidly became clear, however, that institutional capacity (particularly in the oil field area) was limited. As a consequence, pro-active management of spontaneous settlements was non-existent, although the Project implemented a number of a posteriori mitigation measures.

The most significant consequences of in-migration are related to the development of the village of Komé Atan in the Komé oil field development area in southern Chad. The settlement, located opposite the exploration and construction base in the oil field development area, was created in 1994 by a number of Project workers who came to the area from Sahr (original exploration base) towards the conclusion of the exploration phase. The village stayed in a quasi-dormant, stable situation until construction of the oil field production infrastructure and drilling began in 2001. Although this spontaneous settlement had been present for more than seven years, the Project EMP did not include direct mitigation measures related to the village. These mitigation measures were expected to be developed in the broader framework of the RDP, as finalized and made operational through a World Bank capacity building project. At the beginning of the construction phase, the village started to grow. While the population totaled about 330 people in mid-2001, by early 2002, a census by the Project's socio-economic team documented a total population of 1,780 individuals. Later surveys indicated that the population continued to grow, reaching approximately 3,000 people in 2003. The spontaneous settlement was called Komé Atan, from the French for "on attend," i.e. "we are waiting," although residents used to call the village Komé Satan, in reference to its numerous bars, prostitution, and harsh living conditions.

CHAD CAMEROON PIPELINE PROJECT, continued

The rapid population growth in 2001 caused sanitary conditions in the village to deteriorate. Specifically, drainage was not controlled, very few latrines were available, and solid waste started to accumulate. A mid-2002 report by the independent environmental and social monitor raised sanitation and health concerns for Komé Atan inhabitants and the Project working community and also identified the fire risks posed by the uncontrolled growth and random location of dwellings and boutiques that were entirely made of thatch (sekko). The independent monitor also mentioned recommendations for the Government to prepare and implement a land use plan. Indeed, in December 2002, a major fire in the village destroyed 60 percent of the buildings. Another fire occurred in March 2003.

Although the Project placed considerable emphasis on occupational health and safety and achieved good results, the Project EMP did not include sanitation of Project-affected villages, as this was identified to be a government responsibility. However, poor sanitation of villages close to the Project camp was identified by the Project as a source of disease vectors. The risk of disease proliferation among the work force increased as workers living in Komé Atan commuted between the village and work location.

Eventually, it became clear that the Project would have to assume a greater role in supporting the Komé Atan community and mitigating the negative environmental and social impacts associated with its rapid uncontrolled growth. Komé Atan village and Komé base were part of the same human ecosystem, and the Project started a constructive dialogue with the local authorities to develop mitigation actions (although an actual mitigation plan was never officially developed). Inspection, monitoring, and control of vectors (especially fogging for mosquito and providing treated mosquito bed nets to Komé Atan residents) and improving village sanitation became critical actions with a dual objective of limiting risks to the worker community and beneficially impacting local community health. Other actions implemented by the Project included: the creation of drainage (i.e., French drains to reduce maintenance needs and clogging) to improve run-off collection; construction of a parking area for trucks and other Project-associated vehicles; drilling of water wells equipped with foot pumps; garbage collection; and lighting of some common areas.

After the fire, the local government and the Project worked together, with community consultation and agreement, to open new streets and create a buffer zone void of building along the main road. Reconstruction assistance was provided by the Project, in conjunction with the local government, to villagers who lost their dwellings. More and more new houses were built using permanent materials, and Komé Atan started to evolve from



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Image 1. In-migration driven population growth in Komé Atan settlement, Chad, near the Chad-Cameroon Oil Pipeline Project led to uncontrolled growth of the settlement. The high density and random distribution of thatch (sekko) housing led to significant fire risk. A major fire occurred in December 2002, destroying 60% of the buildings, while another fire occurred in March 2003. Photograph: Esso Exploration Production Chad, Inc.

an informal (although long-standing) settlement to a new village. The local Government Service du Cadastre prepared a development plan for the village, and a commission was formed including the Chef de Canton, Sous-Préfet's representative and residents. A villagers' committee for water and sanitation was formed and some training was given to operate and maintain water points and the drainage network. A tariff for water was established to self-support maintenance of the water points. In 2004, the Prefecture became official, and Komé Atan was recognized as a village. The establishment of Komé Atan as the main commercial center around Komé base has induced permanent social and economic changes in the region, including the reduced influence of Komé, the canton capital, in the area, and the decline of local markets in nearby villages (e.g., Danmadja); while at the same time providing avenues for local commerce and convenient access to goods and services that were previously non-existent in the area.

The settlements of Komé Atan and Komé 5 Moudoudoigne (a new commercial village established quite independently from the local population in the vicinity of the oil field operations base) in the oil field area have become permanent physical footprints associated with the Project while other spontaneous settlements, developed near construction camps in Cameroon and Chad during the pipeline construction, generally disappeared when the construction camps demobilized. Of these short-lived communities, the case of Bemboyo in northern Cameroon may be the most significant. In 2001, during the construction of the permanent national road, which was opened by the Project to transport equipment and supplies through northern Cameroon across the border with Chad to Komé oil field area, the population of the village grew to approximately 5,000 people in less than 10 months. The small town became a very active marketplace with several businesses for transport, accommodation, bars, and restaurants. However, in mid-to-late 2002, following the completion of the road works and workers' retrenchment, the population sharply decreased back to a level similar to pre-construction conditions.



2 Part Two: Understanding Project-induced In-migration



To effectively manage project-induced in-migration, one must first understand the phenomenon. This section provides answers to key questions:

- **The who, what, when, where, why, and how of project-induced in-migration;**
- **The positive impacts of project-induced in-migration;**
- **The negative environmental and social impacts of project-induced in-migration;**
- **Understanding Artisanal and Small-Scale Mining (ASM) related influx;**
- **How project-induced in-migration may affect resettlement and indigenous peoples programs;**
- **In-migration risks in areas of high biodiversity value;**
- **In-migration risks to cultural heritage**



Introduction

The design of effective in-migration management strategies requires an understanding of the dynamics and potential impacts of the phenomenon, taking into account specifics of the locations and sectors in which the in-migration will occur. The following section provides a general overview of the dynamics and impacts of the in-migration phenomenon. Subsequently consideration is given to the impacts of in-migration in specific circumstances, such as areas of high biodiversity value, or on specific programs (e.g., resettlement and indigenous peoples development programs).

The dynamics of project-induced in-migration

WHY ARE MIGRANTS ARRIVING?

The majority of projects face the risk of unforced or voluntary migration,[1] where it is assumed that migrants are acting out of a rational self-interest as the motivating factor for moving. Often, if people are leaving behind adverse home conditions, they are migrating because of perceived opportunity rather than any specific guarantee of a job, particularly if a member of their extended family is already resident in the area. Migration is expected to yield positive benefits for the individual migrant (and his/her household), whether through remittance of incomes or settlement in the new location. In some circumstances, a significant migrant population may exist prior to project arrival, including artisanal and small-scale miners, nomadic hunter-gatherers and herdsmen, forest dwellers, and fishermen.

It must also be noted that certain countries host large populations of "non-economic" migrants: people who have been forced to move because of natural disasters, such as drought or flooding, and man-made factors, such as political and religious persecution, civil strife, and war. While the motivation for forced migration is survival, refugees and internally displaced people (IDPs) residing in host countries have more acute and immediate needs for economic survival as well as high mobility, which often leads them to seek employment as unskilled (and often illegal) workers. In such cases, project-induced in-migration is associated with acute needs for survival, and projects being developed in such areas face a considerably higher risk of project-induced in-migration. Furthermore, in some cases warring factions may enter the project area of influence and assume control of both legal and illicit economic opportunities.

Irrespective of whether in-migration is voluntary or forced, project-induced in-migration most commonly occurs in response to direct and indirect employment and economic opportunities. Project development and operation offers an array of legitimate and illegitimate economic opportunities, including:

- Employment with the project;
- Benefits offered by the project's compensation (for infrastructure, land, and crops) and community development activities;

1 Nyame, F.G. and Grant J.A., (no date) Implications of Migration Patterns Associated with the Mining and Minerals Industry in Ghana.

- Opportunities to provide support services to the project;
- Opportunities to supply goods and services that capture the substantial increases in disposable cash incomes in the area once employment begins;
- The chance to exploit resources identified and/or made accessible by the project (e.g. for artisanal miners, illegal loggers);
- New business opportunities catalyzed by the development and operation of the project (e.g., hotels, guest-houses, restaurants, bars, brothels); and
- Other speculative activities.



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Image 2. The prospect of employment and entrepreneurial opportunities led internally displaced people (IDPs) from conflicts elsewhere in Azerbaijan to settle in abandoned railway coaches next to Sangachai Terminal, Baku, Azerbaijan, ACG Phase 1 (Sangachai Terminal) BTC Pipeline.

Projects often need migrant labor to overcome shortfalls in the local labor supply – due to unavailability, inadequate numbers, lack of capacity, or unwillingness to source from local pools – while migrants are increasingly aware of the potential benefit streams deriving from project development, including employment, business opportunities, and increased access to and availability of resources.

Mining operations may also experience resource-based in-migration, with artisanal and small-scale miners moving into a project area in response to increases in the accessibility and availability of mineral resources, support infrastructure, and services. In certain circumstances, people may be attracted by expectations or promises of compensation, royalty, and other payments. At times, a project may have to overcome unrealistic expectations created by similar projects that have established precedents and set both positive and negative expectations in the region.

WHEN DO IN-MIGRANTS ARRIVE?

The long development cycles of large-scale projects can mean high levels of initial public awareness and speculation about project development, often well before the project has a substantial physical presence. Such speculation raises local, regional, and national expectations of, and interest in, the potential for capturing benefits from the project. Informal communication channels alert the non-local workforce of potential employment opportunities and may exaggerate both the opportunities and the potential benefits. Thus begins a process by which various stakeholders position themselves to take advantage of any real or perceived project-generated opportunities.

Where they exist, government registration systems do not necessarily require (timely) local registration, and policing may be absent or weak. Often, in-migration is well underway by the time projects develop workforce management and recruitment plans and seek to share them with concerned stakeholders such as local and regional governments and local communities. Such migration is seen at the village and town level nearest the project site, at initial project bases/locations and/or at project service and supply centers, where, over a period of months, a new population enters the environment. As project activity increases and public consultation and disclosure begins, in-migration usually picks up.

The pattern of labor-based and economic in-migration typically follows project demand for labor. For most projects, the construction phase has the highest workforce requirements. As the project moves from construction to operations and requires a smaller and more stable workforce, recently arrived migrants may move on as employment opportunities decrease and the disposable income of the local population declines. High construction phase employment demands often are associated with boom/bust cycles, with high initial labor demand and in-migration during construction, followed by lower operational phase workforce needs and out-migration. In contrast, projects with high ongoing demand for labor and goods and services may create project-dependent local economies that directly and indirectly support a large population.

WHO ARE THE IN-MIGRANTS?

In-migrants may be categorized as either "true" migrants, who are genuinely mobile in their search for economic opportunities, or extended family members, who rely on ties of kinship as a basis for claiming rights to reside within the project area (and thereby claim project benefits). Kinship-based migration and residence present significant problems in distinguishing migrants from locals. For example, in many traditional societies, such as in sub-Saharan Africa and Melanesia, extended family members have significant "kinship rights," i.e. the ability to "visit" and indefinitely live in a local kin's household.

True migrants can be characterized in many ways: by their nationality, ethnicity, tribal/clan/kinship affiliation (including migrant indigenous people), profession, age, gender, marital status, language, religious affiliation, or culture. However, the utility of these criteria is context-specific. Where large numbers of any one group exists, they may form - or be encouraged to form - groups so as to facilitate project interaction with them. Various attributes, such as ethnicity and religious affiliation, may serve as a basis for inter-group conflict.

Table 1 provides a typology of in-migrants. Typically, opportunistic migrants in search of employment and entrepreneurial opportunities form the largest group of spontaneous in-migrants, and as such are the main target of management approaches.

The stages of project development play an important role in defining the demographics and professions of migrants over time, as the type and availability of, and the risks associated with securing project benefits, changes as the project progresses. For example, early in the project cycle, migrants are more likely to be men traveling alone, who are able to deal with the uncertainty and risks associated with the uncertain prospect of project benefits. The majority of these migrants are likely to be unskilled or semi-skilled workers seeking wage employment with the project and its contractors. Semi-skilled and skilled workers may include transitory migrants who move from one project to the next in search of better entrepreneurial opportunities, working conditions and wages or when their previous employment ends.

As project-derived economic benefits become both more certain and more widely available, migrants with different skills and professions are attracted to the project area. Commercial migration may involve entrepreneurs seeking business opportunities to provide secondary support services and commodities to the project as well as goods and services that capture the increased disposable incomes of the local workforce. This includes traders in household products, hardware, luxury goods, and other merchandise. Other entrepreneurial interests - including banks, fuel stations, restaurants, guest-houses, bars, brothels, small appliance dealers, and transport services - may move into the project area to provide services and profit from the project's existence. Regional indigenous groups may be tempted to re-position themselves to establish "original occupancy and land tenure rights" to strengthen their claims for compensation, royalty payments, employment, and other project benefits. Other largely illegal activities that may crop up because of the project include prostitution, protection rackets, alcohol and drug sales, gambling, smuggling and other criminal activities.

TABLE 1: TYPOLOGY OF IN-MIGRANTS

	Characterization	Profession/economic motivation	Location of residence
1	Returning family, extended family members, and former residents of the area	Returnees seeking improved living conditions and employment, or opportunities to provide goods and services to the project or local population	Existing households in villages and towns
2	Project employees from outside the project area and their immediate and extended families	Temporary or permanent workers employed by the project or its contractors who move to the area with or without family to be close to their place of employment	Villages, towns, cities
3	Exploitation of natural resources	Opportunists seeking to take advantage of increased accessibility and availability of resources through artisanal and small-scale mining, small-scale timber and non-forest timber products exploitation, small-scale crop and livestock production, plantations, harvesting of marine products	Villages and towns
4	Potential providers of goods and services to the local population	Traders, entrepreneurs, small and medium enterprise owners, commercial sex workers, etc., from the formal and informal sectors, aiming to capture substantial increases in disposable income through provision of goods and services	Villages and towns
5	Service providers to the project	Entrepreneurs and SMEs from the formal sector; aiming to secure contracts to provide goods and services to the project and its contractors	Towns and cities
6	Entrepreneurs	From the formal sector; aiming to take advantage of new business opportunities catalyzed by the development and operation of the project	Towns and cities
7	Opportunistic migrants	Unskilled, semi-skilled or skilled people seeking direct or indirect employment or entrepreneurial opportunities. Often very skilled, experienced and mobile workers who travel from project to project or with major contractors	Villages and towns proximate to project site

HOW DO IN-MIGRANTS REACH THE PROJECT AREA?

In many countries, the belief that being closer to the project site increases the likelihood of securing employment drives migration toward the project site. Migrant networks play an important part in this in-migration phenomenon. These networks, which are "sets of interpersonal ties that connect migrants, former migrants, and non-migrants in origin and destination areas through ties of kinship, friendship, and shared community origin,"[2] actively assist newcomers with employment opportunities, housing, and other logistics involved in getting settled in a new area. Migrant networks also facilitate the spread of information regarding potential opportunities and help reduce some of the social and financial costs and risks associated with moving to a new area or region. In some circumstances, there may be active local recruitment networks operating in the home communities that promote awareness about the project and may even provide money for transport and guarantees of employment.

Typically, where in-migration toward a project occurs on a national or regional scale, in-migrants pass through larger centers served by the existing transportation system. From these centers, in-migrants use existing and newly developed access routes to reach the villages and towns closest to the project site or project base camps. The development of new access routes and siting of projects at the road head creates feeder routes leading to and concentrating in-migrants at the heart of the project area of operations. These destinations serve as the immediate point for settlement, and typically spontaneous migrants develop a foothold. Other in-migrants may have been encouraged to come to the site through connections with extended family or through recommendations from acquaintances; their particular path will then lead them to the extended family or contact, whereupon they settle in their host's community. Development of new access routes provide migrants with the opportunity to be closer to the project site, and also serve to increase access to other resources.

PATTERN OF MIGRANT SETTLEMENT WITHIN A PROJECT AREA

A project's overall in-migration footprint[3] is likely to include: (i) regional towns; (ii) access routes; (iii) small towns near the project area and project base camp/s; (iv) villages near the project area and base camp/s; and (v) newly formed settlements in the immediate vicinity of the project.

Projects often occupy and develop multiple bases as they progress from exploration to construction to operations. Bases serve as focal points for in-migration and even temporary project use may lead to significant in-migration and social and economic change. Even relatively few in-migrants can disrupt a small village population.

2 Nyame, F.G. and Grant J.A., Implications of Migration Patterns Associated with the Mining and Minerals Industry in Ghana.

3 It is now common to use the term "footprint" to describe the actual physical impact of the project. Usage of the term "social footprint" is less frequent and more poorly defined, in part because the social context of a project is context-specific and multi-faceted, and different aspects have different footprints, e.g., directly affected people, health or disease-specific footprint (malaria, schistosomiasis), business footprint, in-migration footprint.



EXAMPLE: THE TANGGUH LNG PROJECT, PAPUA/INDONESIA

The Tangguh Project operated multiple bases between exploration and operations. During site feasibility studies, a contractor established a base in Tanah Merah village (the resettlement village). The main BP base camp was a "temporary" camp established adjacent to Saengga Village (a host village for the resettlement program). This camp was used between 1998 and 2003. By the end of 2003 a new project base had been developed adjacent to the upgraded airport in Babo, allowing relocation of the BP team. Construction of the LNG site commenced in late 2004 and by the end of 2005, BP staff involved with construction relocated to the camp within the project site. Babo Base Camp was retained as a logistical base. Use of multiple bases promoted the development of spatially and temporally distinct (albeit overlapping) in-migration hotspots and affected a wide variety of project activities, including construction of resettlement villages in Saengga, livelihood restoration and project employment for resettlement-affected villages, and small and medium enterprise development in Babo.

The subsequent departure of project-related people and activities may generate effects similar to those associated with project closure, including economic decline, out-migration, and ghost settlements. Projects located in isolated areas without any nearby settlements, or with only small settlements or towns, often use such small settlements and towns as the initial project base, thereby providing a focus for potential in-migrants. These situations often result in the de facto development of "boom" towns, existing to function as service centers to the project and supply centers to the growing population.

Where the project has multiple locations, with associated facilities distributed over a wide geographic area, the situation is generally more complex. In these situations, projects take on a linear pattern, spread across multiple human and ecological zones. An analysis of in-migration risk and management needs to consider both the regional and local scale and all of the project's sites.

Because migrants feel that it is easier to get a job the closer you are to the project site, the main physical (and subsequently social) in-migration footprint will likely develop as close as possible to the project site, base camp and/or service and supply center. Using established means of transportation and access routes, migrants arrive at the larger towns within the project area and either settle there, or continue to move toward the project site - usually the nearest office or camp. Typically, this starts with the rental of a shack, room, or house from a local resident or securing access to land upon which to build a simple shelter. While the greatest rates of population growth occur in these locations, the actual physical and social impacts of this growing population are determined by the rate and magnitude (or scale) of in-migration, together with the assimilative capacity of the area.



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Image 3. Squatter settlement adjacent to the Hernic Chrome Mine, Brits, South Africa. The prospect of employment at the mine and in nearby Brits led to an influx of migrants from across South Africa and Zimbabwe who settled on mine lands.

For projects located in urban and peri-urban settings, a migrant population may move toward the project, residing in rental accommodation and moving into existing or developing new squatter settlements. While these projects may not have a specific influx footprint as the incoming population is absorbed within the city, there may still be impacts, including an increased demand on municipal services and transport systems, inflationary effects on land, housing, food, and fuel, development of slums, increased social conflict, and increased criminal activity.

For projects located in rural areas, the migrant population tends to be concentrated in villages and towns in the immediate vicinity of the project site and/or base camp. Rapid population growth often exceeds the assimilative capacity of the villages and towns, resulting in the development of squatter settlements and negative effects on infrastructure, services, and utilities. In addition, there is a potential "halo effect" from large projects, where migrants move farther out, to previously "non-impacted" areas in search of cheaper housing and food sources. These previously categorized "non-impacted" areas can become rapidly impacted and influenced by new migrants.



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Image 4. The Tangguh LNG Project in Papua, Indonesia needed to physically relocate Tanah Merah village to secure land for construction of the LNG plant. Construction of the resettlement village was located close to Saengga Village occured from 2002-2004. Migrant workers in search of employment settled in villagers' houses and on the lands behind Saengga village and subsequently were engaged on the construction of the new resettlement village. Migrant workers from Tanah Toraja in Sulawesi constructed a hostel with a frontispiece typical of their point of origin (centre)

RATE AND MAGNITUDE OF IN-MIGRATION

The rate and magnitude of in-migration are determined by the project characteristics (i.e., workforce requirements, ongoing demand for labor, goods, and services) and the area's capacity to meet the project needs.

Rate

Typically, the highest rates of in-migration occur during the project construction phase, when project employment workforce requirements are highest and most diverse and the project makes the greatest contributions to the local economy. Those projects with a significant operations phase demand for labor, goods, and services will continue to experience high rates of in-migration, and often lead to the development of enclave economies supporting a large workforce and secondary population.

As seen in extractive industry projects in Asia and Africa, project-induced in-migration-driven annual population growth rates frequently range from 10-15 percent on a sustained basis, compared to national average annual population growth rates of 2-3 percent. Often, the best estimates of potential rates of in-migration come from evaluating the in-migration experiences of comparable projects in similar settings.

Magnitude

Over time, as the number of in-migrants increases, they can overwhelm the local population, infrastructure, services, and utilities. As indicated above, some large-scale projects may lead to sustained annual population growth rates of between 10-15 percent, leading to large absolute increases in the population. Table 2 presents a sample of population statistics for several large mining projects, indicating the large absolute population increases that may occur.

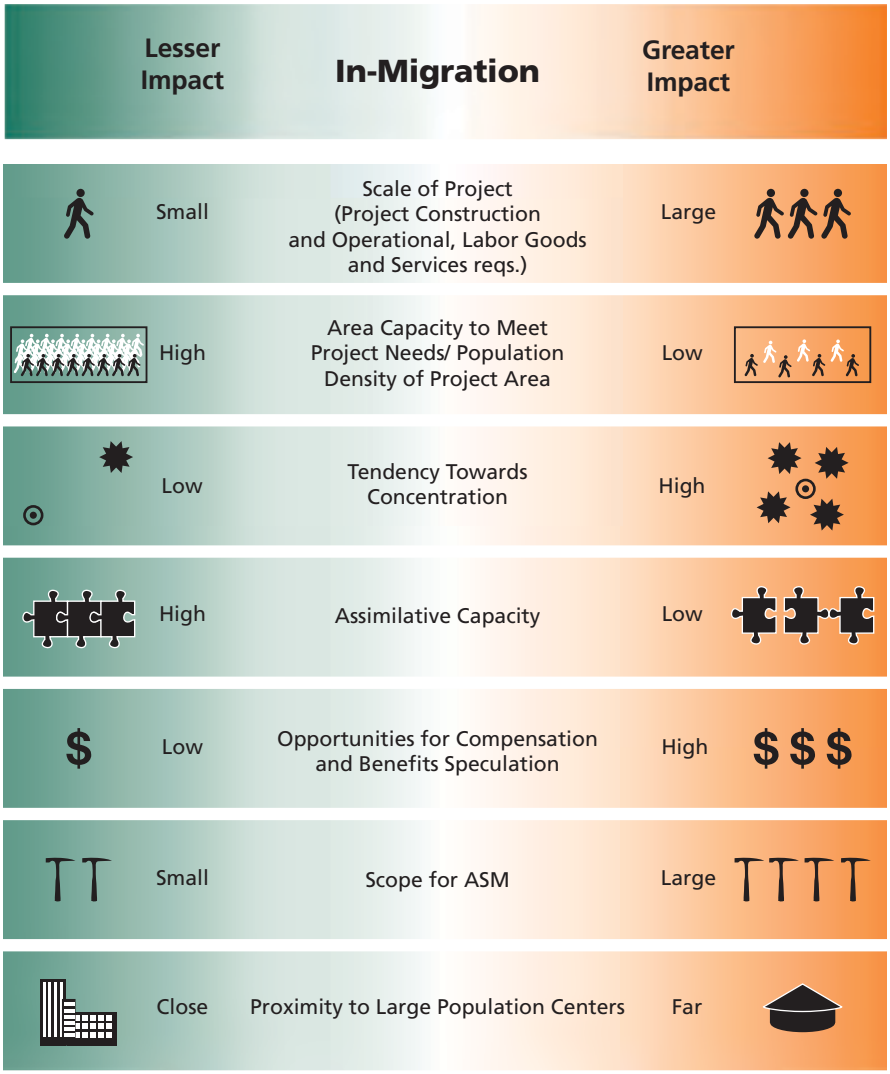
TABLE 2: POPULATION GROWTH OVER TIME FOR SELECTED LARGE MINING PROJECTS

Project Details			Population Growth in Project Area			
Name	**Location**	**Start date**	**0 yrs**	**+5 yrs**	**+10 yrs**	**+15 yrs**
Porgera Joint Venture/ Barrick Gold	Porgera, Papua New Guinea	1989	3,000		22,000	
PT Freeport Indonesia[1]	Papua, Indonesia	1967	2,500		50,000	75,000-100,000
Sadiola Gold Mine[2]	Sadiola Commune, Mali	1996	850	3,850 (+2yrs)	10,000	
Kamsar Bauxite	West Guinea	n.d.	300			75,000
Simandou/Rio Tinto Alcan	Guinea	2006	17,835	24,441 (+2years)		

1 Banks, G., (unpublished), Faces We Do Not Know: Mining and Migration in the Melanesian Context
2 Pollett, T (pending), Lessons Learned from Sadiola Gold Mine, Mali

Figure 4 illustrates key factors leading to high rates of influx and large migrant populations. The magnitude of in-migration and, to a large extent, its associated impacts is relatively more significant with projects with high construction and operational phase labor requirements and an ongoing demand for goods and services that are located in remote regions. These regions are characterized by low population densities, their distance from major population centers and limited economic activity/diversity of economic alternatives. In such areas, local people are unable to meet project demand for labor, limited existing infrastructure and services promote concentration of the incoming population, and the assimilative capacity of the environment is limited.

FIGURE 4. KEY FACTORS LEADING TO HIGH RATES OF INFLUX AND LARGE MIGRANT POPULATIONS.



In the mining sector, which has high construction and operations phase demand for labor and continued demand for goods and services, it is estimated that every formal job with the mine creates between three and ten additional jobs in the project area. Thus, a project with a construction phase workforce of 5,000 may create between 15,000 and 50,000 employment opportunities, providing significant opportunities for in-migrants.

In addition, there is an inevitable increase in "camp followers," such as petty traders and small-scale service providers, particularly during large construction phases. The ratio of camp followers to employment is not easy to predict but can be quite substantial, and can easily reach a ratio of three to four camp followers for every actual job. Many of the unsuccessful job seekers will turn to more familiar camp follower activity such as petty trading. Some female migrants can become rapidly marginalized and turn to transactional sex as a means of financial support. Even at a very basic level, such figures can be used for predicting the increase in population, increased demand for infrastructure, goods and services, and promoting better management.

Environmental and social impacts associated with in-migration

This section describes the potential environmental and social impacts of project-induced in-migration. In-migration has the potential to – and often does – bring a range of positive impacts to the project area. However, experience demonstrates that project-induced in-migration is also typically associated with negative environmental, social, and health impacts. Also, several issues related to project-induced in-migration require separate consideration, including artisanal and small-scale mining (ASM), resettlement, impacts on indigenous people, impacts in high biodiversity value areas, and impacts on cultural heritage. The final part of this section briefly considers these specific issues.

POSITIVE IMPACTS

POSITIVE IMPACTS

- Increased links to mainstream economy
- Increased local skills base
- Business development opportunities
- Employment creation
- Increased local labor pool
- Opening of new markets for local products and services
- Increased accessibility and availability of goods and services
- Alternate livelihood opportunities
- Improved local wage and income levels (including opportunities for local sourcing and higher prices obtainable for local products)
- Increased local tax revenue levels
- Increased individual, household, and community empowerment stemming from increased income and wealth
- Improved local training and skills development opportunities
- Monetization of remote rural economies, improving purchasing power and increasing trade
- Opportunities to build community organizational structures
- Improved access through development of road systems
- Improved information and communication
- Improved housing, water and sanitation
- Improved access to and expansion of infrastructure, public services and utilities (health, education, waste management, electricity, water supplies, telecommunications)
- Increased attention and input by government authorities, NGOs, etc.
- Increased political power

In-migration can generate a range of positive environmental, social, and health impacts, including:

- **Improved links with the mainstream economy:** Better communication, improved transportation, greater economic linkages and monetization of rural economies can lead to increased purchasing power and trade opportunities for local communities and new markets for local products and services.
- **Individual, household, and community empowerment:** Increased technical capacity, earning capacity, wealth accumulation, and purchasing power can provide new opportunities and power to local people.
- **Access to, and expansion of, infrastructure and public services:** Migrant-based population growth may serve as the basis for greater national allocation of resources to a region, thereby stimulating the development or expansion of infrastructure and public services. A more world-wise and articulate migrant population allows for the development of a more empowered and articulate population, capable of placing greater demands on

local government for: (i) better infrastructure, public services, and utilities; (ii) access to the legal justice system; and (iii) more responsive and effective public security forces.

- **Business opportunities:** Both the arrival and the activities of migrants have the potential to stimulate business development by introducing or increasing demand for goods and services in the area. Migrants' need for transportation, accommodation, and food stimulates the local economy, and additional development of new businesses may create further demand for goods and services, fueling more local business and infrastructure development.
- **Improved range, availability, and accessibility of goods and services:** Local employment provides the local population with increased disposable income, leading to increased demand for goods and services. Such demand is often met by migrant entrepreneurs and traders who establish commercial facilities within the area. Competition between migrants can facilitate market structure, promote competition, increase variety, and reduce the prices of certain goods.
- **Higher skill base:** Migrants bring new skill sets into a project area. By employing and working with the local population, they can contribute to building the capacity, skills and knowledge of local people.
- **Increased local employment:** The development of small and medium enterprises by migrants is often associated with increased demand for a local workforce. While much of this employment relies on the transfer of wealth from the project to the enterprise and onto the workforce, project development often leads to further unrelated development, through improved access and communication, introduction of and/or links to other markets, and provision of enough demand to guarantee expansion and capture of other markets.

NEGATIVE IMPACTS

In-migration may have a wide range of negative impacts on the host communities resident within the project area of influence including negative impacts on the environment; public infrastructure, services and utilities; the local and regional economy; livelihood strategies; public health; the social and cultural environment, and; legacy issues. These community-level impacts have the potential to directly and indirectly affect the project. Direct project impacts are most evident in the case of project security and the health of the workforce.

Environment

NEGATIVE ENVIRONMENTAL IMPACTS

Landscape –level Environmental Impacts

- Logging
- Deforestation
- Exploitation and loss of biodiversity
- Land-use change
- Land degradation
- Depletion of natural resources (fuelwood, water, aquatic resources, etc.)
- Erosion and loss of soil productivity
- Disruption of waterways (backwaters, rivers, tributaries)
- Increased pressure on, and possible disputes over, land use and common property natural resources

Point-Specific Environmental Impacts

- Air, noise, water, and soil pollution
- ASM related pollution events associated with use of mercury

Population increases may cause both landscape-level and point-specific environmental impacts. At the landscape level, increased population pressure and easier access to less-developed areas may lead to higher levels of unrestricted use of open access/common property resources, including forests and aquatic resources, causing ecosystem degradation and species loss. Exploitation of forests may involve increased logging, hunting of wildlife and trade in endangered species, and increased collection of fuelwood. However, the biggest threats to forest resources from in-migration come from forest conversion (change in land cover and land use) by in-migrants seeking land for housing and agriculture. Changing land-use patterns, reflecting migrants' priorities for different crops and livestock, may lead to changing demand and allocation of scarce water resources, introduction of potentially invasive alien species, and use of fertilizers and pesticides that can damage the local environment.



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Image 5. In-migration driven population growth in Komé Atan settlement, Chad, near the Chad-Cameroon Oil Pipeline Project created pressure on inadequate waste management systems, leading to an accumulation of garbage with potential community health risks.

EXAMPLE: LANDSCAPE-LEVEL ENVIRONMENTAL IMPACTS

In the **Selous Game Reserve, Tanzania**, seismic lines cut through the forest for oil and gas exploration by Shell in the 1980s enabled an influx of poachers and small-scale farmers who decimated the population of elephants and rhino in the reserve.

At the **Tangguh LNG Project** in Papua, Indonesia, migrants seeking project employment settled in the resettlement-affected villages of Tanah Merah and Saengga. Over time and while awaiting formal employment, some migrants began prawn harvesting. With better resources, including boats and nets, and better market linkages, these migrants were able to harvest more prawns than local fishermen, leading to conflict and unsubstantiated accusations that the migrant fishermen were depleting the local resources.

Increased and unsustainable land use may also lead to land degradation such as loss of soil fertility or erosion, causing declines in productivity and negatively impacting local waterways. Increased demand for construction material may lead to increased unregulated artisanal quarrying. Increased demand for and use of aquatic resources may lead to overfishing, pollution, and the potential depletion of such resources.

Point-specific environmental impacts often result from rapid, unplanned development of settlements (especially squatter settlements) that can lead to depletion of water resources and local pollution associated with the lack of or inadequate sanitation and solid waste management systems. These environmental impacts have potentially significant health effects, including increases in water-borne diseases and changes in vector-borne diseases, such as malaria, schistosomiasis, dengue fever, lymphatic filiriasis, and onchocerciasis. Projects associated with an influx of artisanal and small-scale mining (ASM) may also observe point-specific mercury pollution causing land sterilization, pollution of river water and habitats and potential adverse health impacts.

Infrastructure, Services, and Utilities

NEGATIVE IMPACTS ON INFRASTRUCTURE, SERVICES, AND UTILITIES

- Increased use of existing roads and transportation systems
- Increased pressure on education and health services
- Increased pressure on waste management systems
- Increased demand for electricity, water supplies, and sanitation
- Unplanned and uncontrolled development of squatter settlements
- Increased demand on communications networks
- Increased demand for housing
- Increased use of/demand for community, religious, and recreational facilities

Rapid in-migration places new demands on infrastructure, services, and utilities. Many project development areas have limited existing public infrastructure such as roads and wharfs and little or no provision of basic services and utilities, including transportation, health care, education, water and sanitation, waste management, emergency services, electricity, heating, or public water supplies.

Primary and secondary schools often have inadequate staffing, limited educational materials and large class sizes, while district hospitals and field clinics have inadequate staff and limited medical supplies and bedding. The needs of the incoming population can put a serious strain on these already inadequate systems. They may also have to deal with a new and diverse range of health challenges and other issues.



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Image 6. Poor sanitation and drainage associated with in-migration driven population growth in Komé Atan settlement, Chad, near the Chad-Cameroon Oil Pipeline Project. An inadequate number of latrines together with poor drainage led to deteriorating sanitary conditions, thereby creating community health risks.

EXAMPLE: POINT-SPECIFIC ENVIRONMENTAL IMPACTS

The **Porgera Joint Venture/Barrick gold mine** is located in Porgera, in the Papua New Guinea highlands. Before the mine opened, the Ipili were widely dispersed agriculturalists practicing mound-based sweet potato cultivation on steeply sloping lands. Mine development required the displacement of artisanal miners and the initial (and subsequently repeated) resettlement of a number of Ipili villages. As the mine developed, Porgera became the focal point of in-migration, particularly of the Huli and Enga, leading to an explosion of the population from 3,000 people who lived in the valleys surrounding the mine prior to the start of the project to more than 22,000. Migrant settlement patterns in the area are varied: in resettlement villages and around Porgera town, migrants joined existing households or established their own houses. Housing density increased dramatically and without adequate water and sanitation conditions rapidly became unhygienic and unsanitary, with potentially significant health impacts.

Economics and Livelihood Strategies

NEGATIVE IMPACTS ON THE LOCAL ECONOMY AND LIVELIHOOD STRATEGIES

- Increased poverty
- Increased cost of living (inflation)
- Competition for economic resources and employment, e.g., loss of productive land to urban settlement
- Reduced availability and increased cost of land, food, fuel and housing
- Reduced reliance on local subsistence production systems
- Increased dependence on broader cash-based economy to meet needs
- Increased economic vulnerability for marginal groups (women, elderly, minorities, etc.)
- "Boom /Bust" cycles associated with initial construction, eventual closure

The environmental and social consequences of influx can significantly impact the economy and livelihood strategies of people resident within the project area. As increased development and population lead to increased demand for food, fuel, housing, and land, short-term shortfalls in supply can lead to medium-to-longer-term inflationary pressures on prices in a project area.

Reduced supply, increased food costs and increased reliance on new wage incomes, coupled with reduced dependency on subsistence agricultural systems, may encourage local people to opt for cheaper but nutritionally inferior food types. Increased cost of accommodation may make continued residence unviable and cause relocation. Increased land costs may price local people out of the market. In cases where land is held communally, increased land pressures may place significant new pressures on traditional management structures, and decisions by individual leaders to sell communal landholdings can cause a significant breakdown in existing social structures, norms, and values, and loss of prime agricultural lands.

The arrival of more skilled and sophisticated traders frequently drives the less competitive local vendors out of business. This disrupts the local economy, and may exacerbate tensions. Local companies may demand that the company establish sole-source, non-competitive purchase agreements with "local" suppliers to stay in business. Failing this, local shopkeepers may eventually revert to becoming menial labor in the newcomers' stores.



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Image 7. The presence of the Tangguh Babo Base Camp at the Tangguh LNG project in Papua, Indonesia, stimulated in-migration and land speculation. In the area immediately adjacent to the airstrip and camp and along the road leading to the Babo jetty, both local and migrant businessmen actively and successfully sought to acquire communally held tribal lands, generally reaching negotiated settlements with selected clan representatives prior to completion of formal titling processes. Land values increased significantly over a short time period.

Health

NEGATIVE HEALTH IMPACTS

- Increased incidence of accidents and fatalities associated with project traffic
- Increased pollution (air, water, dust, noise, traffic)
- Proliferation of communicable diseases (including sexually transmitted infections, respiratory infections, waterborne diseases)
- Insufficient number of health centers, staff and medical supplies
- Inadequate public hygiene facilities
- Changes in nutrition status

A large number of new residents in an area can significantly impact the health of the local population and the project workforce. Increased use of and demand for already inadequate community housing, water, sanitation, food, and medical services can mean that health needs go unmet and new health challenges arise.

Rapid influx may significantly alter existing levels of communicable diseases, including respiratory problems, diarrheal diseases, vector-borne diseases such as malaria, and sexually transmitted infections, by introducing "new infectives" and increasing the number of people who might spread illness. For example, one case of malaria will typically produce five additional cases by increasing the reservoir pool of infectives for the mosquitoes that spread the disease, unless there is an effective vector control program. Community and regional-level disease control programs for illnesses such as malaria, tuberculosis, and HIV/AIDS, may be overwhelmed by the increasing cases, while demand on maternal and reproductive health services may significantly outpace existing local services and infrastructure.



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Image 8. In-migration driven population growth caused rapid expansion of Komé Atan settlement, Chad, near the Chad-Cameroon Oil Pipeline Project, leading to the failure of inadequate drainage systems. The accumulation of standing pools of water served as breeding sites for the mosquitoes that spread malaria, increasing risks to employee and community health.

The influx of urban job seekers into rural areas may also significantly alter the burden of non-communicable diseases, such as diabetes, hypertension, or cardiovascular diseases, on local medical services that are ill-equipped to deal with this spectrum of problems. The introduction of new zoonotic diseases (diseases that "jump" from animals to humans) can also be significantly facilitated by changes in traditional herding and migration patterns.

In addition to changes in disease patterns, increased accidents and injuries due to changes in road traffic may significantly and adversely affect levels of trauma and accidents, placing a severe strain on local health care infrastructure. Increased social problems, such as alcohol and drug abuse or domestic violence, may also contribute to increasing health problems in the area. Finally, the return of migrant workers to their home communities may lead to the further spread of communicable diseases, such as sexually transmitted infections, tuberculosis and malaria.

One method for analyzing project-triggered health impacts is the Environmental Health Areas (EHAs) framework,[4] which is a systematic evaluation of 12 areas of risk[5] (see Table 3).

4 The EHA framework is used in the 2007 IFC Guidance Notes for Performance Standard No. 4, Community Health, Safety, and Security. Add link

5 The 12 areas of risk identified within the EHA are: (1) housing and respiratory issues; (2) vector-related diseases; (3) sexually transmitted infections (STIs); (4) soil- and water-borne diseases; (5) food and nutrition related issues; (6) accidents/injuries; (7) exposure to potentially hazardous materials; (8) social determinants of health (SDH); (9) cultural health practices; (10) health services infrastructure and capacity;, program management delivery systems; (11) non-communicable diseases; and (12) veterinary medicine/zoonotic issues

TABLE 3: POTENTIAL PROJECT-INDUCED HEALTH IMPACTS IN EACH EHA

Environmental Health Area (EHA)		Potential Impacts
1	**Housing and Respiratory Issues**	Acute respiratory infections (bacterial and viral), pneumonia, and tuberculosis; Respiratory effects from housing, overcrowding, and housing inflation
2	**Vector-Related Diseases**	Malaria, trypanosomiasis, onchocerciasis, lymphatic filariasis, dengue and ectoparasites (fleas, ticks, lice), etc.
3	**Sexually transmitted infections**	HIV/AIDS, syphilis, gonorrhea, chlamydia, hepatitis B
4	**Soil- and Water-Borne Diseases**	Geohelminths (e.g., giardia, hook and pin worms, etc.)
5	**Food and Nutrition Related Issues**	Changes in subsistence practices; stunting, wasting, anemia, micro-nutrient deficiencies (including folate, vitamin A, iron, iodine); gastroenteritis (bacterial and viral); food inflation
6	**Accidents/Injuries**	Road traffic-related accidents; spills and releases; construction (home and project-related) accidents; drowning
7	**Exposure to Potentially Hazardous Materials**	Road dust; air pollution (indoor and outdoor related to industrial activity, vehicles, cooking, heating, or other forms of combustion/ incineration); landfill refuse or incineration ash; effects of other project-related solvents, paints, oils, or cleaning agents
8	**Social Determinants of Health (SDH)**	Psychosocial effects; resettlement/relocation; violence; security concerns; substance misuse (drugs, alcohol, smoking); depression and changes to social cohesion
9	**Cultural Health Practices**	Changing role of traditional medical providers; loss of indigenous medicines and unique cultural health practices
10	**Health Services Infrastructure and Capacity including Program Management Delivery Systems**	Excess strain on physical infrastructure; inadequate staffing levels and competencies, or technical capabilities of health care facilities Coordination and alignment of the project to existing national and provincial level health programs, (e.g., TB, HIV/AIDS), and future development plans
11	**Non-Communicable Diseases**	Hypertension, diabetes, stroke, and cardiovascular disorders
12	**Veterinary Medicine/Zoonotic Issues**	Potential disease distributions secondary to changes in animal migration patterns due to project-related activities or infrastructure

Social Dynamics

NEGATIVE IMPACTS ON SOCIAL DYNAMICS WITHIN THE PROJECT AREA OF INFLUENCE

- Impacts on traditional beliefs, damage to cultural heritage
- Loss of knowledge, skills, and experience related to traditional livelihood activities
- Upheaval in traditional leadership, behavior, customs, values, and norms
- Changes in power relationships, including undermining and changing of leadership and traditional authority structures
- Welfare imbalances and differential wage incomes, wealth accumulation and opportunities
- Dilution of social cohesion and cultural disruption (separation of households and communities)
- Changing relationships between groups (gender, age, socioeconomic status, ethnicity)
- Possible marginalization of women, ethnic minorities, and other vulnerable groups
- Loss of local identity
- Creation of land markets leading to changes in traditional land tenure systems
- Increased tension, disputes, and conflicts between locals and migrants concerning natural resources, employment opportunities, and other project benefits
- Increased incidence of social ills, including alcoholism, drug abuse, prostitution, gambling
- Increase in domestic violence
- Increase in criminality
- Decrease in law and order
- Increased ethnic tension and violence

Project development may lead to significant and permanent change in the social, cultural, economic and political environment of the project area of influence. In-migration is an underlying cause driving many of these changes.

As described below, in-migrants compete with locals for natural resources and may use, commercialize and possibly deplete resources that traditionally support local livelihoods, e.g., land, pasture, fuelwood, and water. These actions, as well as greater competition for limited services and utilities may threaten the health and welfare of both local and migrant communities, can aggravate relations between locals and in-migrants, and may lead to increasing resentment and social unrest.



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Image 9. Migrants seeking employment and entrepreneurial opportunities with the Simandou Iron Ore Project, Guinea mostly settled in Moribadou village near the Canga East Base Camp. Migrants and increased cash flows stimulated the development of this video club and telephone service in the village.

Beyond competition for resources, services, and utilities, the rapid influx of workers and their families can profoundly impact the social and cultural fabric of local communities, threatening their values, norms, and traditions. For example:

- The new population dynamics may undermine or change existing social structures, including authority structures, leadership, and representation.
- Changes in traditional land tenure systems may result, as migrants drive the creation of land markets and may take advantage of local people with customary ownership rights but without legally recognized titles to the land. Local people may be unfamiliar with land markets and unaware of the commercial opportunities that the project's presence generates.
- Projects may have to deal with the consequences of both unsatisfied expectations on the part of local people, as well as increased dependency within communities relying on benefits or compensation from the project.
- Influx populations may hasten the introduction and/or increased expression of vices such as prostitution, gambling, alcoholism, and drug use, which can have significant negative social impacts and consequences. Increased criminality, conflict, and violence and declining law and order may also present additional social challenges for both local communities and the project.



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Image 10. Migrants seeking employment and entrepreneurial opportunities with the Simandou Iron Ore Project in Guinea mostly settled in Moribadou village near the Canga East Base Camp. Migrants and increased cash flows stimulated the development of bars and other services in the village.

Project Closure

IMPACTS ASSOCIATED WITH PROJECT CLOSURE

- Economic decline
- Sustainability of infrastructure, services, and utilities
- Out-migration
- Continued residence of more vulnerable groups
- Changing social dynamic as balance between local and migrant population changes

In-migration-related legacy issues associated with project closure need separate consideration because they occur after project closure, and thus are often overlooked. These impacts are associated with the economic decline of a region after a project is completed and may include the threat of unemployment and poverty, issues related to out-migration, and the lack of sustainability of infrastructure, services, and utilities. These issues occur at a time of changing management and responsibilities, with an increased role for government and a diminishing role for the project.

Project closure is of particular importance to the oil, gas, and mining sector. ICMM's *Planning for Integrated Mine Closure: Toolkit* provides an approach to addressing the issue, a critical component of which is community engagement and involving the community throughout the project life-cycle.

Project closure is an issue particular to the OGM sector. ICMM has recently developed a specific document (*Planning for Integrated Mine Closure: Toolkit*) that sets out an overall approach, identifies closure outcomes and goals and key stakeholders. Key to the recommended approach is community engagement – the document identifies the need for community involvement when scoping the challenge, conceptualizing the solution, implementing the design and verifying the outcomes. The document recommends early closure planning, operational implementation of progressive closure planning, and a cross-functional approach to developing effective exit strategies.

Project Security

NEGATIVE IMPACTS ON PROJECT SECURITY

- **Reduced ability to protect the workforce**
- **Reduced ability to safeguard physical assets**
- **Increased threats to business continuity e.g., threat of blockades, protests**
- **Increased threats to reputation on the project (affecting the company's/project's social license to operate)**

Typically, a project's security objectives are to: (i) protect the work force, (ii) safeguard the physical assets, (iii) sustain business continuity, and (iv) preserve the reputation of the project and company. Because project-induced in-migration and its associated impacts can affect the ability of the project to achieve these security objectives, it should be considered as a threat to project security, and managed as such. Project security issues to consider related to in-migration are direct and indirect security threats and issues that may arise due to conflict between locals and in-migrants.

- Direct threats to project security are driven by effort to secure project assets and competition for project benefits and efforts to influence or control a project's decisions regarding the distribution and awarding of those benefits.
- Indirect threats to project security and to law and order generally in the project area include competition for control over economic activities outside the project, including monopolization of legitimate business activities such as transportation and food distribution, as well as criminal and semi-criminal activities such as money lending, extortion, gambling, prostitution, drug and alcohol dealing, and gangs.

Migrants compete for benefits associated with project development and operations. They derive strength from numbers, better and more sophisticated skills, greater economic powers, and better links to the mainstream economy. Their arrival introduces a local-migrant dynamic to the competition for benefits and may bring other factors such as ethnicity or religion into play, creating a potentially socially volatile situation. Ultimately, security threats may involve theft, fraud, extortion, protests, demonstrations, malicious mischief, vandalism, sabotage, obstruction of project operations, threats, and violence.

The common response to growing social volatility is to invite or demand additional public security forces (police, gendarmerie, or military) to the area, on the basis that it is the host government's responsibility to maintain law and order. However, there are a number of potentially damaging implications of such an action, which many companies fail to foresee when they request public assistance. These issues, which can pose significant risks to the reputation of the company, include:

- Public security forces may feel this is not their problem but rather is something "caused" by the company and for which the public forces lack resources;
- Public security forces may lack the leadership and discipline to help manage the issue;
- Government security commitments are often unreliable, particularly during election periods;
- Competing public security forces (police vs. military) are often drawn from separate locations to prevent them from having conflicting loyalties. For example, locally recruited police may side with local communities should the security issue escalate. On the other hand, national police or military units sent to the area from outside may generate local hostility and feelings of repression;
- Minority groups, especially in-migrants, often seek shelter under the protection of the public security forces and develop symbiotic relationships with them, to the detriment of impartial justice;
- In a confrontation, public security forces may lack the tools and training to handle a confrontation without using excessive force. They have often been taught to overmatch violence as a deterrent to future confrontations; and
- Once in place, the company holds liability for, but little control over, the actions of the public security forces. Often, the company may have to supply resources – food, accommodations, transportation, and communications – to the under-resourced public security forces.

Project-Induced In-Migration And Artisanal And Small-Scale Mining, Resettlement, Indigenous People, Biodiversity, And Cultural Heritage

The potential and specific nature of in-migration impacts on certain programs or in certain areas requires separate consideration. These issues include artisanal and small-scale mining (ASM), resettlement, impacts on indigenous peoples, areas with high biodiversity value, and cultural heritage. This section briefly discusses each of these individual issues.

ARTISANAL AND SMALL-SCALE MINING

While labor- and commerce-based influx is the most common type of in-migration, and the main subject of this paper, project development can also lead to increased access to natural resources and additional in-migration of people seeking to exploit those resources. Around large-scale mining projects, there is often a significant number of in-migrants seeking access to mineral resources. [6]

6 Third-party utilization and extraction of natural resources utilized by projects are not limited to mining although they occur less frequently in other industries. In the oil industry there are examples of small-scale producers illegally accessing oil deposits. In Nigeria, for example, there is massive crude oil theft and bunkerage, while in Cepu, Indonesia, existing small-scale producers operate side-by-side with ExxonMobil's major investment on the same concession.



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Image 11. Kalukundi fly village, an artisanal miners' settlement on an Africo Resources mining concession in Katanga, DRC. The photo shows the transient nature of the village, which has been hacked out of *miombo* forest next to a mineralized fragment (ore body). The majority of the residents are young diggers who have no intention of staying long term and have no community ties. Common social problems associated with the village include substance abuse, commercial sex and associated sexually transmitted infections, gambling, a lack of water supplies, and inadequate sanitation.

While artisanal and small-scale mining (ASM) may be practiced by both local people and migrants, and often precedes the arrival of large-scale mining operations, the development and operation of a mine may simultaneously (i) restrict access to the resources, thereby negatively affecting the livelihoods of people dependent on ASM; (ii) increase the accessibility and the availability of the mineral resources, thereby encouraging further exploitation; and (iii) provide necessary infrastructure and services, thereby facilitating increased in-migration of artisanal and small-scale miners;.

ASM-based in-migration has a number of special attributes that will require specific management approaches where there is a risk of such influx. These attributes include:

- In many countries, ASM is deemed illegal. Alternatively, legislation may exist to legitimize ASM but may not be supported by outreach and enforcement. The relationship between ASM and the larger exploration and mining concession may be poorly defined, and generate multiple parallel legitimate means of accessing the resource.
- ASM is often a long-standing part of the local economy. Local artisanal and small-scale miners may already have their own established communities. Migrants may form their own settlements or communities and/or integrate with existing communities.
- In many countries, especially in Africa, migrant ASM is a major issue associated with mine development and operations. Often, ASM represents a significant unregulated sub-economy, including middle-men providing loans and equipment and materials, and payment of rent to the local population.
- Because national regulatory frameworks define ownership and use of the mineral resource and the rights of artisanal and small-scale miners, they also define what projects do (security) and what they *can* do, such as develop co-management systems. Typically, the ability of the project to control access to its concession is limited and a degree of "illegal" ASM is inevitable. Where access to and availability of the resource is dependent on development of the mine, ASM activities have the potential to directly impact upon the operations of the project.



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Image 12. Artisanal miners in a disused pit, Ruashi Mining on the outskirts of Lubumbashi, DRC. Tens of thousands of artisanal miners flooded into partially abandoned DRC copper-cobalt mines after the virtual collapse of the state mining company Gecamines in the mid-1990s. Today, as private industrial miners return, many of these artisanal miners are being displaced under a range of agreements or eviction orders.

- ASM can lead to competition with local communities on issues such as use of land or damage to water resources.
- In contrast to the project workforce and derivative commercial activities, the project is not fully in control of the metal and/or mineral resources. As many aspects of ASM are deemed "illegal," the ASM sector is, in many ways, similar to the operation of other illicit activities. Unlike labor, the sub-economy is only peripherally related to and controlled by the company.
- Artisanal and small-scale miners seek the same resource as the project. ASM may have a direct impact on operations in terms of illegal and unregulated access to the concession, increased concern for mine security, disruption of operations (e.g. blasting, tailings), and increased risk of injury and death to both project staff and artisanal and small-scale miners.
- In certain circumstances, environmental, social, and health impacts associated with ASM are significant. These include unmanaged utilization and disposal of chemicals, and large numbers of single men using their cash and free time to engage in gambling, alcohol, drugs, and sex.

Projects that anticipate or already experience ASM-related influx should develop an ASM Management Plan. The Plan should include a section addressing influx issues and their impacts.

RESETTLEMENT

Projects requiring land acquisition and resettlement of communities to allow for project development typically develop a Resettlement Action Plan, which outlines plans for the replacement of housing, infrastructure, services, and utilities and the restoration of displaced households' livelihoods. In general, resettlement programs involve:

- Provision of compensation to resettlement-affected communities;
- Development and construction of replacement housing, infrastructure, services, and utilities to a standard higher than the norm for the area.
- Provision of secure (albeit often unfamiliar) forms of land tenure to displaced households, often carrying significant economic value;
- Creation of new market opportunities as displaced communities establish new market linkages; and
- Considerable investment of resources in assisting the displaced population to re-establish their livelihoods.



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Image 13. Artisanal miners from all over Guinea and West Africa, working an abandoned mine pit, Siguiri Gold Mine, Guinea.

EXAMPLE: THE TANGGUH LAND ACQUISITION AND RESETTLEMENT ACTION PLAN

Development of the Tangguh LNG Project in Papua/Indonesia required the resettlement of Tanah Merah Village as a pre-condition to project construction. The Tanah Merah community was to be resettled to two new villages, Tanah Merah Baru and Onar Baru, which were to be built on land adjacent to the existing Saengga and Onar Lama villages, respectively. Construction of the resettlement villages occurred prior to development of the overall project human resource recruitment policies and guidelines and prior to the adoption of any in-migration mitigation measures. During construction, the Saengga population swelled with the arrival of speculative migrants seeking employment. Migrants rented rooms in existing houses or established their own dwellings on empty lands behind the village proper. Given the proximity of the resettlement villages to the project site, early arrival and participation in resettlement village construction also served as a springboard to secure employment on the construction of the project.



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Image 14. Following relocation of the Tanah Merah community to the new Tanah Merah village, in-migrants flooded into the village in search of employment and business opportunities. More influential villagers sold the 'rights' to build infrastructure and operate small businesses, and thereby benefited from the arrival of the entrepreneurial migrants, while the community as a whole was able to access a greater range of goods and services and, in some cases, lines of credit.



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Image 15. Area of new Sadiola Village assigned for settlement of new arrivals, Sadiola Gold Mine, Sadiola, Mali.

EXAMPLE: RESETTLEMENT PLANNING FOR THE SADIOLA HILL GOLD PROJECT, MALI

After project operations had commenced, and as part of on going exploration, it was discovered that the ore body extended under Farabakouta village and very near to Sadiola village, which were the villages closest to the pit. In considering physical resettlement of the villages, it was also necessary to address the resettlement of migrant newcomers who were seeking employment and entrepreneurial opportunities associated with th mine and had established a settlement over the ore body adjacent to Sadiola village, increasing the population of affected communities from 800 to nearly 4000 people. Participatory planning was undertaken to find suitable sites to resettle both the original inhabitants and the migrants. This resulted in the construction of better housing for the original inhabitants and improved infrastructure to serve affected communities, including the newcomers (roads, water supply, schools, health clinic,local administration offices). Newcomers who resettled (196 households) were not provided with new housing but were compensated for their built structures (dwellings, shops for petty commerce) and were assisted to transport materials to the new village site, and to legally acquire demarcated residential plots.

Lessons from influx of newcomers and resettlement at Sadiola were applied to resettlement activities associated with the proximate Yatela mine. A ' New Arrivals' site was identified and planned with the nearby village of Kourketo prior to mine construction. The site was located near Kourketo, but at a sufficient distance not to interfere with day-to-day activities of the village, and on a major crossroads providing business opportunities associated with transportation. The project developed a spatial plan for the new settlement, using participatory methodologies, to encourage orderly settlement. In addition, public infrastructure (roads, market place, water supply-borehole) was developed *in situ* to serve as a magnet to attract and promote settlement of new migrants at the selected site. Nonetheless, there has been a fourfold increase in the population near Yatela mine. One small hamlet, Niamboulama, located over the ore body, was resettled at a site away from the newcomers since they did not want any impacts by migrants on their cropland and farming activities.

The real and perceived benefits of resettlement programs offer significant incentives for in-migration of direct and extended family members, members of the same clan/tribe in neighboring villages, spontaneous migrants, and others. In-migration relating to resettlement activities may occur in order to:

i. Secure employment on resettlement-related construction activities. Resettlement-related construction is often a large-scale construction project in and of itself, and has the potential to create project-induced in-migration independently of the main project under development;
ii. Take advantage of the ready availability of relatively high-standard housing with provision of services and utilities;
iii. Take advantage of potential land and property markets associated with the provision of secure land tenure;
iv. Capture resettlement benefits;
v. Develop small enterprises that capture the locals' increased disposable incomes; and
vi. Anticipate larger project development.

In-migration may therefore threaten the short-, medium- and long-term benefits promised to the displaced communities. Further when resettlement affected villages become a locus for in-migration the adverse environmental and social impacts generally associated with project-induced in-migration are often magnified in these villages. In this way, in-migration can threaten the success of project-sponsored resettlement programs.

In light of the above, when planning resettlement programs, projects should ensure that Resettlement Action Plans include consideration of the risk of resettlement- and project-induced in-migration and, where risks are high, include specific programs to address this risk. For example, a RAP could include an overarching Land Access and Management Plan to address risks associated with influx, speculation, ASM, etc. Besides detailing specific measures to mitigate in-migration once it has occurred, action plans should also include measures to manage the overall risk of project-induced in-migration by:

- Ensuring that design of resettlement site plans and infrastructure, services, and utilities are: (i) based on local standards for housing, services, and utilities; (ii) are cost-effective (and reflect local financial capacity); (iii) match local-level availability of materials for construction and maintenance; (iv) are readily maintained and repaired; and (v) are readily replicable so as to allow expansion when influx occurs;
- Designing resettlement infrastructure, services, and utilities to account for natural population growth rates and some degree of influx population growth;
- Providing a plan for workforce management, recruitment and housing, since resettlement related construction often precedes the official start of construction;
- Structuring home ownership and land tenure documents to safeguard against sale, by requiring signatures by both parties and including no-sale clauses in land-tenure documents;
- Designing programs to safeguard vulnerable populations against exploitation; and
- Engaging local communities to build awareness about and management of in-migration and developing collaborative management strategies involving government, the project and resettlement-affected communities.

Indigenous Peoples

Indigenous peoples may be referred to in different countries by a wide range of names, including indigenous ethnic minorities, aboriginals, hill tribes, minority nationalities, scheduled tribes, first nations, or tribal groups. While there is no universally accepted definition of "indigenous peoples," the term is used in a generic sense to refer to a distinct social and cultural group possessing the following characteristics in varying degrees:

- Self-identification as members of a distinct indigenous cultural group and recognition of this identity by others;
- Collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories;
- Customary cultural, economic, social, or political institutions that are separate from those of the dominant society or culture; and
- An indigenous language, often different from the official language of the country or region.

Indigenous peoples are often among the most marginalized and vulnerable segments of the population. Their economic, social, and legal status often limits their capacity to defend their interests in, and rights to, lands and natural and cultural resources, and may restrict their ability to participate in and benefit from development. They are particularly vulnerable if their lands and resources are transformed, encroached upon by outsiders, or significantly degraded. Their languages, cultures, religions, spiritual beliefs, and institutions may also be threatened by such major changes. Because of their unique place in a society, indigenous peoples are vulnerable to different types of risks and severity of impacts, including loss of identity, culture, and natural resource-based livelihoods, as well as exposure to impoverishment and disease.

Many indigenous cultures and identities are inextricably linked to the lands on which they live and the natural resources on which they depend. In many cases, their cultures, identities, traditional knowledge, and oral histories are connected to, and maintained through the use of and relationships with, these lands and natural resources. The land and resources may also be considered sacred or have a spiritual significance. Use of sacred sites and other places of cultural significance may have important functions for the conservation and sustainable use of the natural resources upon which indigenous peoples rely for their livelihoods and well-being. Thus, project impacts on lands, forests, water, wildlife, and other natural resources may affect their institutions, livelihoods, economic development, and their ability to maintain and develop their identities and cultures.

Indigenous peoples are especially vulnerable to the adverse environmental and social impacts of project-induced in-migration. In-migrants may overwhelm indigenous peoples, as more skilled, astute, and affluent people familiar with doing business with the mainstream economy. Potential impacts may include:

i. threats to natural resources held under customary and communal systems of ownership;
ii. threats to customary land tenure systems from commercial interests;
iii. threats to customary systems of land use management from development;
iv. exploitation of traditional systems of leadership, representation, and decision making;
v. threats to norms, values, and traditions through the arrival of the mainstream economy; and
vi. potential health impacts through the introduction of exotic diseases.

Where development finance institutions (DFIs) such as IFC finance projects affecting indigenous peoples, they typically require the project to develop Indigenous Peoples Development Plans (IPDPs). Typically, IPDPs consider indigenous peoples' participation in the project, benefits from project development, and protection from direct and indirect project impacts. To this end, project-induced in-migration and economic development are significant concerns, and comprehensive analyses and plans are an integral component of an IPDP. In addition, IPDPs include specific measures to strengthen the identity, capacity, and resilience of indigenous groups.

AREAS WITH HIGH BIODIVERSITY VALUE

Where project development occurs within or in close proximity to environmentally sensitive areas with high conservation value, including natural parks, biodiversity rich areas, sensitive coastal areas, and wetlands, the negative environmental impacts associated with project-induced in-migration may be particularly significant insofar as it affects the recognized and protected resources of the country and may attract national and international attention.

In addition to the influx impacts already described throughout the document, projects located in or near to areas of high conservation value may have specific impacts in the following areas: increased demand for natural resources, clearing of forest for farming and cattle, overgrazing by workers or other migrants arriving in the area.

As described in Part 4, companies can develop and implement mechanisms and procedures that avoid, reduce or mitigate impacts to sensitive areas and natural resource-dependent communities. In addition, companies should consider doing the following:

- Develop baseline data of natural resources in their areas of intervention;
- Help improve levels of protection of natural areas (i.e., support government- or community-led management plans for protected areas and or watersheds);
- Help improve the protection of endangered species, especially those likely to become a source of protein for new arrivals (e.g., monkeys, birds, etc.);
- Promote the creation of participatory monitoring programs for natural resources (i.e., water) and biodiversity to ensure community buy-in and continuous monitoring;
- Promote the sustainable use of natural resources among already existing communities; and
- Help local communities (especially IP communities) to secure tenure of land to discourage encroaching and squatting by outsiders and empower these communities to control access.

CULTURAL HERITAGE

Large-scale in-migration may have unintended impacts on local cultural heritage, including the desecration and destruction of sacred sites (including graves, waterways, vegetation, etc.). Both desecration and destruction can negatively affect relations between migrants and their "host" communities and serve as the basis for social unrest that may also affect the project.

Conclusion

Project induced in-migration may be associated with a range of positive and negative impacts on the host communities within the project area of influence and on the project itself. To date, project experience, particularly in the oil, gas and mining sector, demonstrate the primacy of negative impacts. While maximizing positive impacts of in-migration is a valid objective, the primacy of negative impacts leads to the conclusion that avoidance, minimization and management of in-migration should be the primary objective of projects with a medium to high risk of in-migration. Further, for specific programs and in specific circumstances, the impacts associated with in-migration may pose specific and real risks. Both generally and in these specific circumstances, the potential impacts of project induced in-migration suggest the need for pro-active management to avoid, minimize and otherwise manage in-migration.

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3 Part Three: Risk Assessment



An in-migration risk assessment can help answer the following questions:

- What is the probability of in-migration?
- What is the risk of influx-induced environmental and social impacts?

Once risks are identified, a situation analysis helps analyze the potential location and project-specific expression of the phenomenon. The situation analysis helps clarify:

- **Migration pathways and concentration points;**
- **Key environmental and social impacts; and**
- **Key health risks.**
- **Stakeholder identification and analysis.**

Introduction

This section describes the basis for assessing the probability of project-induced in-migration. Where the probability is found to be moderate-high, it is recommended that the project conduct a situation analysis to understand the probable physical expression and environmental and social impacts of in-migration.

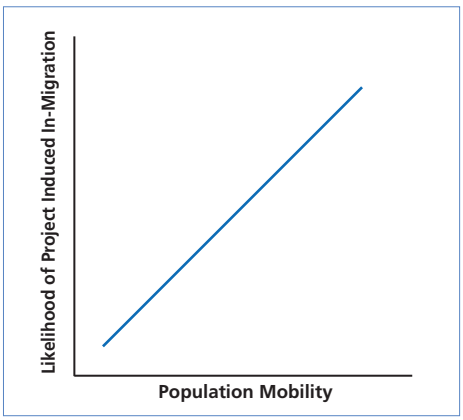
ASSESSING THE PROBABILITY OF PROJECT-INDUCED IN-MIGRATION

In assessing whether or not a project should be concerned with the risks of project-induced in-migration, one must first determine the probability of its occurrence. The probability of project-induced in-migration can be predicted on the basis of three factors:

- Existence of a mobile population;
- Characteristics of the project; and
- Capacity of the area to meet project needs.

POPULATION MOBILITY

Population mobility is a key indicator for the probability of spontaneous migration. Analysis of potential mobility should occur at a regional, national, and, where appropriate, international level. At the regional and national levels, various economic, social, and demographic indicators can be used to assess the relative mobility of the population.

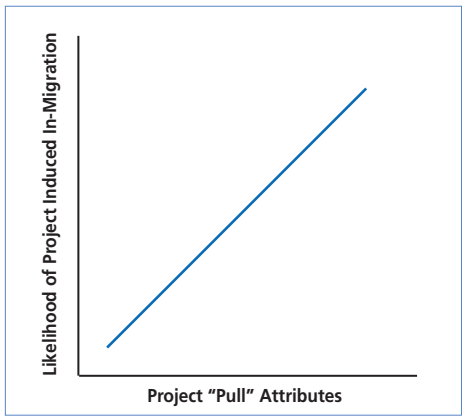


In general terms, countries and regions with a significant rural population practicing and reliant upon agricultural subsistence-based livelihoods, high unemployment and under-employment, highly concentrated development, and a low per capita GDP are likely to experience high levels of internal migration toward economic opportunity. Projects bordering countries with such characteristics may also experience international cross-border movement. Finally, in countries with internally displaced people or where projects border countries where factors are causing displacement (e.g., natural calamities, civil war, ethnic conflict), the in-migration phenomenon may be exacerbated.

It is unlikely that any one project presents the first potential opportunity for regional or national migration. Therefore, an analysis of the influx phenomena experienced by recent projects, together with an overview of the recent history of regional development, can provide useful local information to supplement conclusions reached from the indicators described above.

PROJECT CHARACTERISTICS

In this context, "project characteristics" refers to core project attributes, rather than implementation strategy and approaches. The unit of analysis to evaluate the risk of project-induced in-migration is the entire project, comprising the various stages of construction and the project as defined when it becomes operational. This includes phased project construction involving multiple base camps, which are operated either in sequence or in parallel and which may be relocated during the construction phase, especially linear projects such as roads, transmission lines, and pipelines.

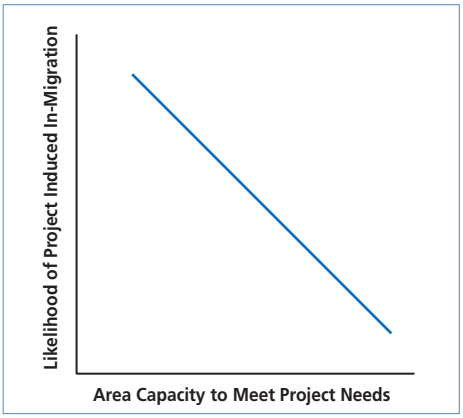


In addition, multi-local projects in which facilities and/or associated facilities are located in separate geographical areas – such as gas projects where the infrastructure and operation of extraction, processing, and transport are distant from one another, or infrastructure projects involving road development, transmission lines, etc. with multiple bases - are more complex, in that they may be associated with multiple locations with "pull" factors, and may thus have multiple points of in-migration. Each location should be separately characterized in terms of the probability of in-migration and potential negative environmental and social impacts.

The main "pull" factors associated with the project relate to the demand for labor and goods and services. Both the level and duration of such demand should be considered. In general, high construction and operations phase labor requirements are likely to exceed local capacity to meet needs, and therefore both rely on and demand in-migration. Extended construction phases with high labor demand are associated with a longer construction phase demand for goods and services by the local population. As such both the demand for labor and goods and services provides the basis for higher levels of in-migration, longer periods of residence and ultimately higher levels of dependency and investment. Similarly, high operations phase demand for labor and goods and services provides the basis for ongoing in-migration, investment, and ultimately project-dependent development within the project area. In the oil, gas and mining sector high operations phase demand for goods and services typically relies on the development and use of proximate service centers or the creation of new centers.

Significant and ongoing compensation royalty payments can also be a significant "pull" factor for in-migration. As indicated in Part One, it is common to see compensation-royalty sub-economies, whereby representative leaders draw political and financial strength from payment of compensation and royalties and control of their distribution.

AREA CAPACITY TO MEET PROJECT NEEDS



Each project has defined needs, including the construction and operations phase workforce requirements, the construction and operations phase demand for goods and services, and specific requirements regarding infrastructure, services, and utilities (see Table 4 for indicators of local capacity to meet these needs). High levels of demand may exceed local capacity to meet such demand and thus provide the basis for in-migration.

The area capacity to meet the requirements for infrastructure, services, and utilities is relevant insofar as project development in areas without adequate capacity will require project investment to strengthen them. The selected development strategy and the improved local capacity may then serve to attract in-migrants and stimulate further economic development that supports additional in-migration. These risks should be considered in project design.

TABLE 4: INDICATORS OF LOCAL CAPACITY TO MEET IDENTIFIED PROJECT NEEDS

Project Need	Indicators of Local Capacity to Meet Identified Need
Construction and operations phase workforce requirements	• Total population • Population density • Capacity of the local population (education, skills, experience)
Construction and operations phase demand for goods and services	• Presence of economic centers • Sectoral activity with common demands • Existence of small and medium enterprises with adequate capacity to meet demand
Specific requirements regarding infrastructure, services, and utilities	• Access • Transportation • Communication • Health, education • Water, electricity, sanitation and waste disposal

ASSESSMENT TOOL: PROBABILITY OF PROJECT-INDUCED IN-MIGRATION



Table 5 presents key indicators for each of the factors identified as contributing to the probability of project-induced in-migration. For each indicator, a range of measures is provided.

The results of the probability assessment will be an identified low, medium or high probability of in-migration. The probability of influx will be greatest for projects being developed in countries with high population mobility, for projects which have high "pull" factors associated with their development and operations, and for areas with a limited capacity to meet project needs. The results of the probability analysis should be used as an input into the next step, namely assessing the likelihood of in-migration induced changes in the project context and the risks that these pose to the project.

TABLE 5: ASSESSING THE PROBABILITY OF PROJECT-INDUCED IN-MIGRATION

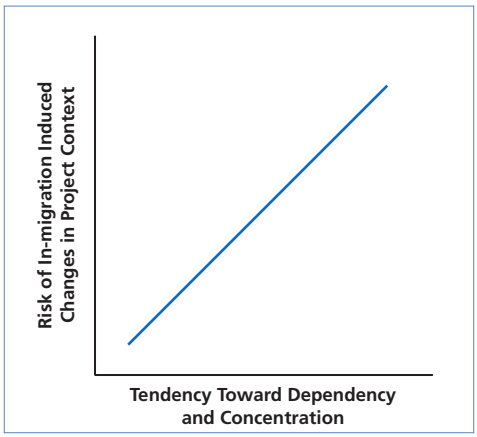
Factor	Indicators	Level Low/High or Yes/No	
Population Mobility (probability of spontaneous migration)	National and regional working age population	L	H
	Level of un- and under-employment	L	H
	Per capita GDP	L	H
	Occurrence of internally displaced persons	N	Y
	Proximity to neighboring countries with factors	N	Y
	Occurrence of project-induced in-migration on similar projects	N	Y
Project Characteristics	Direct and indirect construction phase labor requirements including skill levels (unskilled, semi-skilled, skilled), duration, etc.	L	H
	Direct and indirect operations phase labor requirements including skill levels, duration, etc.	L	H
	Construction phase demand for goods and services	L	H
	Operations phase demand for goods and services	L	H
	Increase in access and availability of infrastructure (roads, wharves), services (transportation, education and health), and utilities (water and sanitation, electricity) – as part of project development	N	Y
	Increase in access and availability of resources for third parties (ASM, timber and NTFP, agricultural and marine produce)	N	Y
	Opportunities for land speculation associated with project development, e.g., phased land take	N	Y
Area Capacity to Meet Project Needs	Working age population	H	L
	Capacity of working age population (education, skills, experience)	H	L
	Adequacy of infrastructure, services, and utilities	L	H
	Availability of goods and services	L	H
	Capacity of SME	L	H

ASSESSING THE RISK OF MIGRATION-INDUCED CHANGES IN THE PROJECT CONTEXT

This section considers the risk of migration-induced changes in the project context. Whether or not in-migration poses a risk to the project and its "host" communities is deemed to be the result of a combination of factors that consider its footprint, the relative rate and magnitude of in-migration, and the capacity of the area to absorb a growing population. Four factors that determine the potential likelihood of influx-induced impacts on the project context have been identified. These are:

- Tendency toward dependency and concentration (influx footprint);
- Relative rate and magnitude of in-migration;
- Assimilative capacity of the project area (as a whole and in the most heavily settled areas);
- Various site-, region- and nation-specific factors.

TENDENCY TOWARD DEPENDENCY AND CONCENTRATION

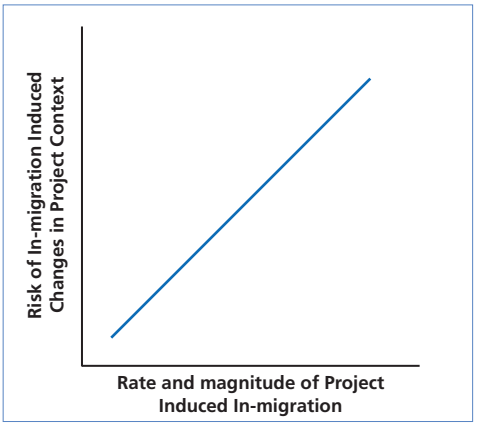


The tendency toward dependency considers the medium- and long-term economic relationship between the project and the project area. Areas with integrated economies are characterized by high levels of economic activity either within a sector or across sectors, and have established infrastructure, services, and utilities. Such areas are more likely to have established economic centers and also provide greater employment opportunities for a local and migrant population. These centers combine with greater regional employment opportunities to absorb and dissipate the tendency toward concentration by diffusing the population over a larger area and a broader economic base. In contrast, where projects are developed in remote areas, they tend to become the "economic base" upon which the local (and to a lesser extent the regional) economy depends. They function as insulated or enclave micro-economies, and subsequent development often is centered upon the project itself.

The tendency toward concentration considers the likely pattern of settlement of an influx population. Experience demonstrates that migrants correlate proximity to the project site with opportunity, and so the existence of villages, towns, and cities proximate to project areas, the ease of access, and the availability of adequate transportation services help define the local influx footprint.

For projects located in rural areas, the migrant population tends to be concentrated in new settlements, villages and towns in the immediate vicinity of the project. Projects located close to larger urban populations tend not to be associated with specific influx footprints, as the incoming population is absorbed within the city - although that is not to say that there are no impacts.

RATE AND MAGNITUDE OF PROJECT-INDUCED IN-MIGRATION



Assessment of the risk that high rates and large numbers of in-migrants pose to the host communities and the project requires consideration of relative numbers throughout the project life cycle, and an informed judgment regarding the assimilative capacity of the area. For example, in absolute terms the arrival of 1,000 migrants is a more significant event for a village of 200 people, than for a small town with 10,000-30,000 residents. Further, what is of interest may not necessarily be the absolute or relative number but the rate of change. Where change happens at a slow-moderate pace and the absolute numbers do not overwhelm the host community environment, it is more likely that the incoming population will be assimilated in the milieu and/or the environment will have the time to adapt to the growing population.

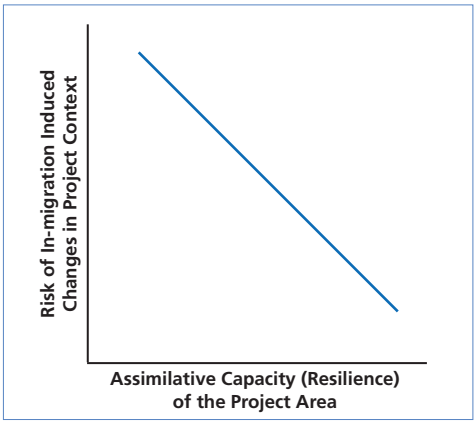
While the importance of rate and magnitude of in-migration and assimilative capacity can be described conceptually, the difficulty lies in developing project- and context-specific analyses. Reference to in-migration phenomena experienced by other projects in similar settings may be a useful guide. It is also recommended that a low, medium and high in-migration scenario be developed. Table 6 presents an example of such an analysis for the mining sector. The example is developed using information presented in Part 2 which indicates that every formal job within the mine creates between three to ten additional jobs in the project area. These scenarios should be used in the situation analysis to explore the full range of potential impacts, identify priorities, guide monitoring, etc

Highest population growth rates and absolute changes in population are typically associated with the project construction phase. Nonetheless, sustained growth rates and development of insulated economies are often observed with extractive industry sector projects.

TABLE 6. HYPOTHETICAL IN-MIGRATION SCENARIOS IN THE MINING SECTOR

No	Phase	Workforce	In-migration Scenario		
			Low (x3)	Medium (x6)	High (x10)
1	Construction	10,000	30,000	60,000	100,000
2	Operation	7,000	21,000	42,000	70,000

ASSIMILATIVE CAPACITY (RESILIENCE) OF THE PROJECT AREA



The assimilative capacity of an area is defined as the rate and nature of project-induced increases in population that an area can absorb without development of significant adverse environmental and social impacts. The assimilative capacity of an area is a measure of its resilience, and both the impact of project development and of project-induced in-migration can be analyzed in terms of the area's resilience.[1] To do so requires identification of indicators of resilience.

With regard to in-migration, indicators of the resilience of an area include:

- Ability of physical resources to accommodate increased resource use without degradation. While this concept is primarily applicable to physical resources, it can also be applied to current livelihood systems;
- Ability of infrastructure, services and utilities to meet the needs of higher levels of demand associated with a larger population; and
- Various social factors: politics, the strength and capacity of government, the level of economic development, security risks, health risks, and socio-cultural factors, such as the degree of insularity or acceptance of newcomers and ownership or other rights over land and other resources.

Table 7 presents some examples of the application of these concepts.

Concentrated rapid population growth often exceeds the assimilative capacity of the host communities and physical environment. It is during these periods, whether they occur during construction or operation that a project needs to manage excessively high rates of in-migration and population growth within the project area of operations.

1 Resilience is defined as the persistence of a system and its capacity to absorb change and still maintain the same relationships within the system.

TABLE 7. UNDERSTANDING THE RESILIENCE OF THE PROJECT AREA

	Aspect of Resilience	Example
1	Physical Resources	If the resident population of an area is dependent on various surface-level sources of water, the dry season flows will determine the population that can be sustained. If in-migration causes population growth over and above that which can be sustained, alternative sources of water will be developed and exploited. Typically this involves development of wells and boreholes tapping into aquifers (the latter with an unknown capacity and resilience).
		Land availability, productivity and degradation determine agricultural production. Where surplus land is available, an influx population may encourage expansion of the area under cultivation (assuming labor is available). Unsustainable land use may lead to degradation and declining productivity and production, e.g., reduction of rotation of productive and fallow land leading to loss of soil fertility. If labor is unavailable, an influx population may increase demands on food supplies without contributing to increased production. Another common example is higher levels of fuelwood use leading to depletion of fuelwood reserves.
2	Infrastructure, services and utilities	Objective standards exist for the provision of health, education and waste management services. In rural and remote areas of many countries, these standards are often not achieved even prior to the arrival of a project. The arrival of an influx population may threaten the delivery of services.
		The capacity of infrastructure and utilities is defined in design, i.e. roads designed to accommodate intensity and type of traffic, electricity generation for X households, adequacy of water supplies for X households, capacity of sanitation systems for X households, etc. Project use as well as the arrival of an influx population may threaten the adequacy of the infrastructure, services and utilities.
		The surplus capacity of communities in terms of housing, water and sanitation, waste management, and supply of goods and services can be described in a quantitative and/or qualitative fashion. Where surplus capacity is limited, in-migration often leads to the development of squatter settlements and associated deleterious effects on community economy, health, social environment, and infrastructure, services, and utilities.
3	Economic and social factors	Integrated economies are more resilient than enclave micro-economies.
		Indigenous peoples are less resilient than mainstream society.
		Relationship between cultures within the project area and mainstream society.

OTHER SPECIFIC FACTORS

There may also be site, regional, national or international factors that affect the potential influx impact on the project context. Examples of such factors include:

- Potential for cross-border migration, including involuntary migration and any associated risk, such as import of negative influences from conflict-affected areas;
- Ethnic/tribal relations and any recent history of conflict;
- Existence of ethnic groups with particular trade skills and/or high mobility;
- Distribution of vectors and diseases and risk of transfer from areas of high incidence to other areas; and
- Existence of large, mobile populations of ASMs; recognized problems with small-scale illegal logging.

Where any one of these factors is recognized to exist, this serves as a red flag identifying the likelihood of a specific impact that may need to be addressed irrespective of the overall probability of influx and other factors relevant to the analysis of the influx-induced changes in the project context. For example: (i) in an area with known risks of transfer of recognized vectors and diseases, a low probability of in-migration may be associated with potentially medium-high risks of health impacts associated with project induced in-migration; (ii) in regions where there has been a recent history of ethnic tension and violence the probability of any in-migration should be a matter of concern as it may serve to exacerbate existing problems.

ASSESSMENT TOOL: THE PROBABILITY OF INFLUX IMPACTS ON THE PROJECT CONTEXT

Table 8 presents a summary of the key indicators associated with each of the factors identified as contributing to the likelihood of influx-induced changes in the project context.

Consideration of these factors will provide an overall assessment of the risk of in-migration induced change in the project context. This risk should be defined as low, medium or high. Highest risks will be associated with projects developed in areas where there is a high likelihood of concentration and dependency, where there are sustained high rates of in-migration and where the host area has a low assimilative capacity.

Projects with high construction and operations phase labor requirements and an ongoing demand for goods and services that are located in remote regions with low population densities, distance from major population centers, and limited economic activity/diversity of economic alternatives are typically associated with high rates of in-migration that exceed the assimilative capacity of the project area. However, it is important to capture the importance of these factors in less extreme contexts. For example, project development proximate to smaller cities and towns may induce high levels of in-migration that are not immediately obvious, as the assimilative capacity of the city/town is larger than that of remote, rural, isolated areas. Finally, as noted in the previous section, the relationship between in-migration and the epidemiology of disease needs separate consideration. Table 9 outlines the recommended actions for the different risk levels a project may encounter.

TABLE 8: ASSESSING THE PROJECT SPECIFIC RISKS CAUSED BY PROJECT-INDUCED IN-MIGRATION

Factor	Indicators	Level	
Tendency Toward Dependency and Concentration	Level and distribution of infrastructure, services, and utilities	L	H
	Level and distribution of general economic activity (goods and services)	L	H
	Level and distribution of sector specific economic activity	L	H
Assimilative Capacity of Area	Nature of settlements nearest to project site (village, town, city)		
	Existence and capacity of public infrastructure, services, and utilities (including health, education, transportation, water and sanitation, electricity)		
	Strength of local and regional government administration		
	Existence and application of local laws and regulations		
	Existence of regional development plan		
	Existence of urban development plans		
	Physical space for additional habitation		
	Health and security risks		
	Socio-cultural factors relating to integration of migrants and response to rapid changes in household incomes		
Rate of In-Migration and Magnitude of In-Migration	In-migration phenomena experienced by projects in the same sector and in the same context		
	Development of low-, medium- and high- in-migration scenarios		
Specific Factors	Potential for cross-border migration and any associated risk	N	Y
	Ethnic/tribal relations and any recent history of conflict	N	Y
	Existence of ethnic groups with particular trade skills, high mobility, etc.	N	Y
	Distribution of vectors and diseases and risk of transfer from areas of high incidence to other areas, etc.	N	Y
	Existence of large mobile populations of ASMs	N	Y

Note: No alternative levels have been provided for the individual factors comprising Assimilative Capacity of Area, as these factors do not lend themselves to such analysis. Informed judgments, based on collection of primary and secondary data, are required to provide answers to these questions. The factors identified for the Rate of In-Migration and Magnitude of In-migration describe actions for the review and analysis of existing in-migration phenomena and development of low, medium and high migration scenarios.

TABLE 9. RISK LEVELS AND RECOMMENDED ACTIONS

Risk Level	Recommended Action
Low risk	Minimum complement of good practice measures
Moderate to high	Comprehensive situation analysis
Low risk but high probability of specific adverse impacts	Focused, issue-specific situation analysis
In-migration and impacts already evident	Risk assessment and comprehensive situation analysis

SITUATION ANALYSIS FOR ASSESSING RISK AND IDENTIFYING MANAGEMENT OPTIONS

OUTLINE OF A SITUATION ANALYSIS

The previous section defined the probability of in-migration and the risk of in-migration induced changes in the project context. Recognition that in-migration is likely to occur and that it has the potential to cause changes in the project context now needs to be followed up with a more in-depth situation analysis providing the basis for understanding the likely pattern of development of the in-migration phenomenon, and identifying its most significant potential environmental and social impacts. This analysis will inform decisions about the management options, and is an integral component of an influx management strategy/plan (IMP).

Although a situation analysis can be conducted whenever project-induced in-migration is recognized as a risk or a problem, early recognition of the potential problem, implementation of a situation analysis, and development of an influx management strategy allow for a greater range of management approaches and component interventions.

A situation analysis should include:

1. A **review of national laws** pertaining to internal migration, population registration, etc.
2. A **review of comparable projects** at various stages of development where project-induced in-migration is or has been an issue. This review should assess the potential for, key drivers, and impacts associated with, project-induced in-migration at each project.
3. A **description of the project**, including:
   - The project, logistical bases, and associated facilities and the extent to which the project is required to develop additional infrastructure, services, and utilities;
   - The project development schedule;
   - Construction phase workforce requirements, and demand for goods and services; and
   - Operations phase workforce requirements, and demand for goods and services.
4. A **description of the project context**, including:
   - Local and regional biophysical and socioeconomic context;
   - Assessment of local and regional development; and
   - Review of sectoral analyses (where available); and
   - Review of capacity of local and regional government, infrastructure, services, and utilities.
5. A **description and analysis of the current status of project-induced in-migration**, including an analysis of the dynamics of in-migration and its environmental and social impacts.
6. An **assessment of the predicted routes** for project-induced in-migration.
7. An assessment of the key expected **environmental and social impacts**.
8. Identification and assessment of **relevant stakeholders**.
9. **Identification of potential project- and/or government-led approaches and interventions** for addressing project-induced in-migration, assessment of the relationship of potential approaches with key project variables such as cost, schedule, or existing programs, and recommendations regarding their integration into the project.

Within this analysis, regional and sectoral assessments have multiple uses, including assessing the relative importance of the proposed project in the local and regional economy and the extent to which the proposed project may come to dominate local and regional development. They can also determine the extent to which the project is required to develop additional infrastructure, services, and utilities, the potential impacts such development may have on further economic development and in-migration and in this way suggest possible development strategies. Finally, regional and sectoral assessments can also evaluate the potential to coordinate project and local and regional development, the number of industry players operating in the region, and the extent to which they have shared interests, such as workforce, vocational training, or procurement of goods and services.

THE PATTERN OF PROJECT-INDUCED IN-MIGRATION – IDENTIFYING IN-MIGRATION "HOTSPOTS"

Assessment of the probable pattern of project-induced in-migration is one component of the situation analysis. Such an assessment should utilize information on:

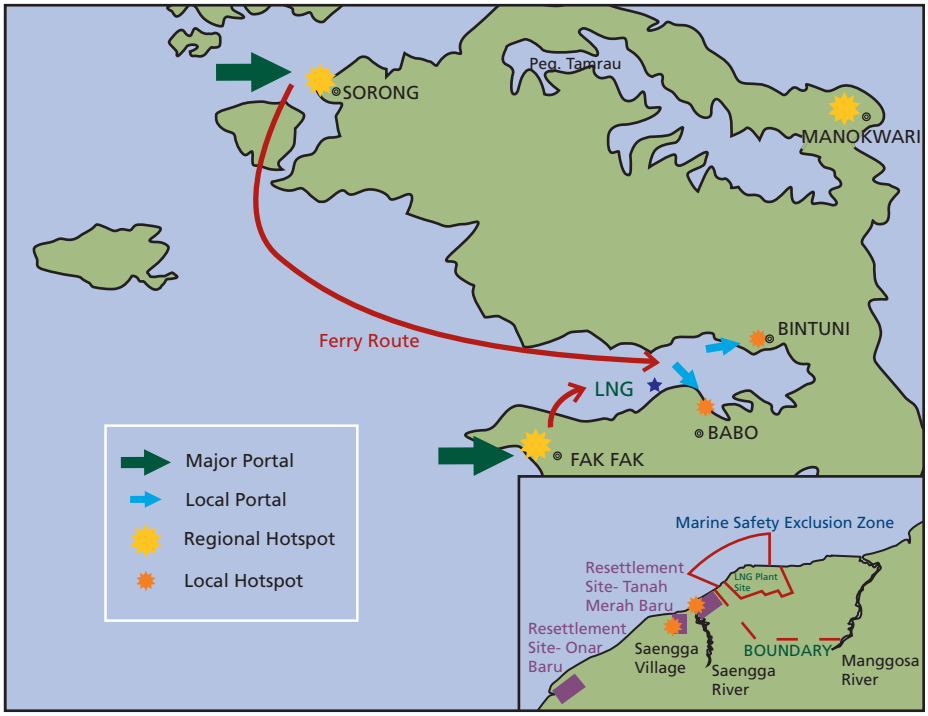
- Access routes to major regional centers;
- Access routes from regional centers to project area;
- Existence of towns, villages;
- Transport infrastructure within the project area;
- Existing/proposed access routes to be used by the project;
- Existing/proposed project logistics centers to be used by the project; and
- Construction plans involving multiple base camps operated in sequence or in parallel, and multiple
- Multi-local activities spread over different human/ecological zones.

Once data is in hand, the information can be readily presented diagrammatically (see Figures 5-7 for examples). In cases where the project is multi-local and has facilities and/or associated facilities distributed over a wide geographical area, the same analysis needs to be repeated for every facility in each geographically distinct location. The analysis should lead to the identification of "in-migration hotspots" - the likely destination/s of in-migrants - that need to be protected from, and prepared for, an expected wave of project-induced in-migration.

Example 1: The BP Tangguh LNG Project, Papua, Indonesia

The BP Tangguh LNG Project is being developed in a remote, relatively inaccessible part of the Bird's Head of Papua, Indonesia. The main point of entry to the Bird's Head (and Papua in general) is through Sorong (the economic center of the Bird's Head) and to a lesser extent through Fakfak and Manokwari (the administrative center of the Bird's Head). All these centers are serviced by air and by boat. Access to the project area of influence is primarily through ferry transport from Sorong into Berau and Bintuni Bay, the most proximate ports of call being Bintuni and Babo. From Babo, transport can be arranged to travel to villages most proximate to the LNG site, namely Saengga and Tanah Merah Baru. The original Tanah Merah village had been relocated to Tanah Merah Baru to allow development of the LNG facility. During construction

FIGURE 5. DIAGRAMMATIC SKETCH MAP OF IN-MIGRATION PATHWAYS AND POTENTIAL HOTSPOTS, TANGGUH PROJECT, PAPUA, INDONESIA.



of the resettlement village, which occurred prior to the start of construction of the LNG facility, a large number of in-migrants came to Saengga to secure employment during construction and were thus well placed to take advantage of any employment opportunities associated with LNG construction. Small airports with limited use exist in Babo and Bintuni (although the Babo airport was subsequently upgraded by the project to accommodate larger aircraft). In-migration hotspots are identified as Saengga, Tanah Merah Baru, Babo and to a lesser extent Bintuni.

Example 2: The Rio Tinto Simandou Iron Ore Project, Guinea

The initial footprint of the Simandou Project are two project base camps the development of which has been associated with upgrades in transport infrastructure (roads, airports). The existence of the camps together with the improved infrastructure has led to the development of in-migration hotspots in villages closest to the camps, this being initially exacerbated by the existence of front-gate employment opportunities (although these have now been moved to Beyla). The proximity of the operations to neighbouring countries including Sierra Leone, Liberia and Cote D'Ivoire some of which have experienced civil war associated with displacement of the population suggests that cross-border in-migration may be a problem, with movement of displaced peoples or defeated groups into the area. With a broader and long-term view it is clear that the nearest town (Beyla) will be the locus of economic development and consequently bear the brunt of in-migration. In addition the transport facilities to be developed to transport the iron ore to port (an 710 km railway line) may well serve as a focal point for in-migration and settlement, both at the point of origin and at the destination.

FIGURE 6. DIAGRAMMATIC SKETCH MAP OF IN-MIGRATION PATHWAYS AND POTENTIAL HOTSPOTS, SIMANDOU, GUINEA

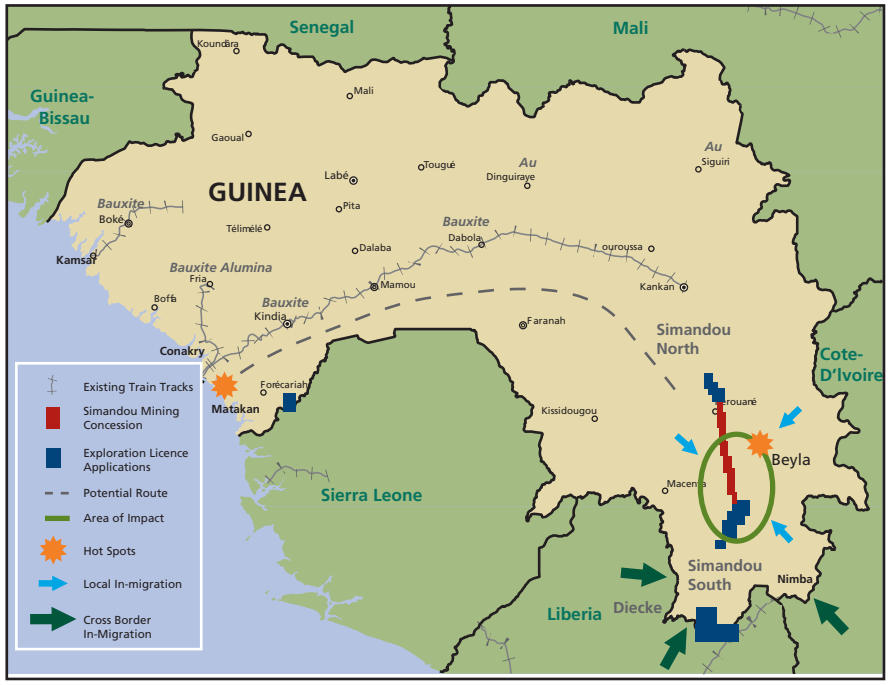


FIGURE 6B. ENLARGEMENT OF DIAGRAMMATIC SKETCH MAP OF IN-MIGRATION PATHWAYS AND POTENTIAL HOTSPOTS, SIMANDOU, GUINEA

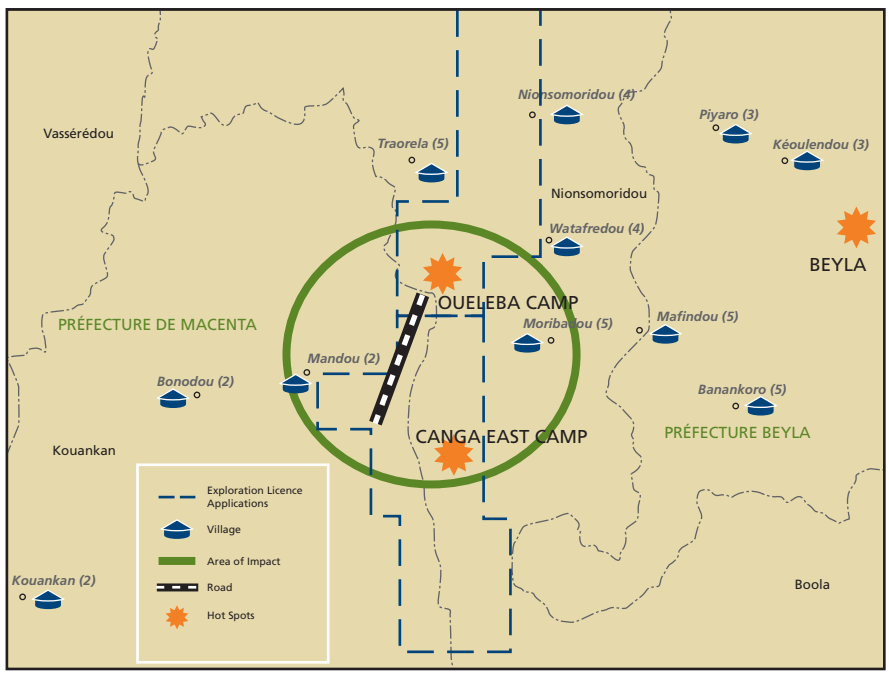
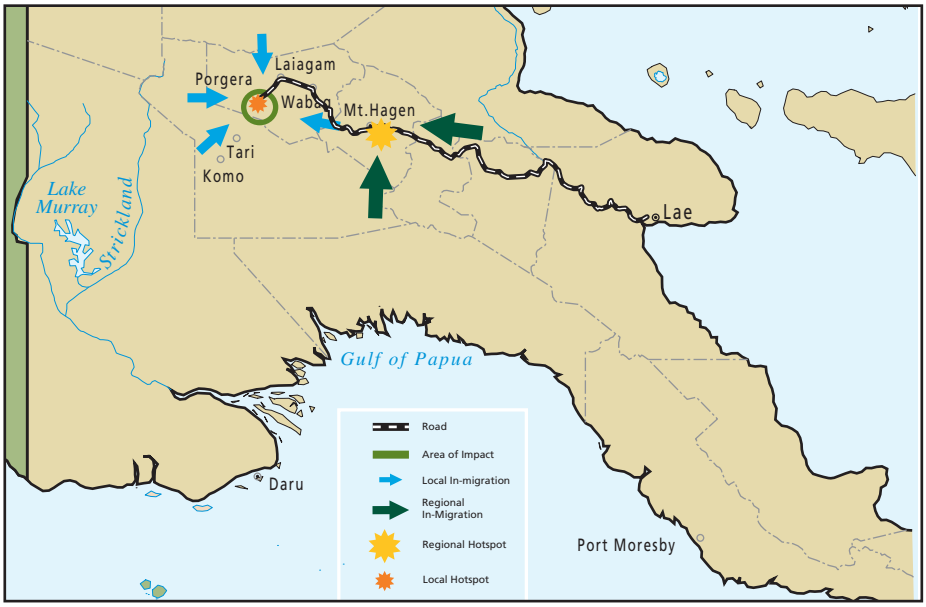


FIGURE 7. DIAGRAMMATIC SKETCH MAP OF IN-MIGRATION PATHWAYS AND POTENTIAL HOTSPOTS, PORGERA JOINT VENTURE (PJV)/BARRICK GOLD, PAPUA NEW GUINEA.



Example 3: The PJV, Barrick Gold, Porgera, Papua New Guinea

Prior to the development of the mine, Porgera was a remote highland out-station accessible by plane or on foot. Development of the PJV open-cut mine operations involved improvement of the highlands road connecting the port in Lae to Mt.Hagen and the development of a road from Mt. Hagen through Wabag (the administrative capital of the district) to Porgera. The road-head at Porgera is effectively also the location of PJV operations and the mine. In-migration can be predicted to occur through the highlands road through Mt. Hagen and on to Porgera, bringing lowland Papuans to the highlands in search of employment as well as tribal people living in the vicinity of Porgera (the Ipili, the Huli, the Enga and others) toward the mine and the town. Impacts associated with in-migration can be expected along the highway, in Mt Hagen, Wabag and Porgera.

ASSESSING THE POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS OF IN-MIGRATION

The most important component of the situation analysis is prediction of the type and probability of the key impacts associated with in-migration and the location, timing and likely severity of their occurrence. This exercise relies on a combination of information, including:

- Prediction of in-migration pathways and hotspots;
- Prediction of the rate and magnitude of in-migration; and
- Knowledge of local conditions.

The experiences of other projects in comparable circumstances also provide a useful guide to identifying the type and probability of impacts and their severity. Specific factors identified on page 59 should also be taken into account.

A systematic approach to this exercise involves the following three key steps:

1. Use the analysis of in-migration pathways and hotspots to identify where the in-migration phenomenon will be expressed. Subsequent analysis should be conducted separately for each hotspot.
2. Combine local and regional assessment. The type, probability, and severity of potential impacts should be analyzed at a local level at identified in-migration hotspots. Note that there is limited utility in aggregation for the purposes of analysis and design of an influx management plan.
3. Use a combination of predictions regarding the rate and magnitude of in-migration and knowledge of local, regional, and national conditions to identify the key impacts. A summary table of factors and potential impacts associated with project-induced in-migration is provided in Annex 4, with an extract provided in Table 10 below. The list of potential impacts should serve as a prompt, and only an aggregate analysis should be developed for each factor.

   The situation analysis should include a completed table for the project area of operations as a whole, and for each identified in-migration hotspot.

The first step in using the table would be to quickly assess whether the identified impact is potentially applicable to the project under consideration. Where the impact is deemed applicable, an informed prediction of the probability of the impact occurring, the timeframe in which the impact will develop and become tangible, and the likely severity of the impact is required. Information from the initial risk assessment and primary and secondary data should provide guidance to responding to these questions.

After completing the table, it may be useful to develop a likelihood-consequence matrix (Table 11). The matrix can then be populated with the identified impacts and the consequences of their occurrence.

TABLE 10: ANALYSIS OF PREDICTED ENVIRONMENTAL AND SOCIAL IMPACTS FROM PROJECT-INDUCED IN-MIGRATION

Category	Potential Impacts	Applicability	Probability/ Scale	Timeframe	Severity
		Y/N	L/M/H	S/M/L	L/M/H
ADVERSE IMPACTS					
Environmental	Comments:				
Logging					
Deforestation					
Exploitation and loss of biodiversity					
Land-use change					
Land degradation					
Depletion of natural resources					
Erosion and loss of soil productivity					
Air, water, and soil pollution					
Disruption of waterways					
Increased pressure on, and possible disputes over, land use and common property natural resources					

TABLE 11: SAMPLE LIKELIHOOD-CONSEQUENCE MATRIX

Likelihood Scale	Consequence Scale				
	Inconsequential	Limited	Overt	Significant	Extreme
1 Improbable	Low	Low	Medium	Medium	High
2 Unlikely	Low	Low	Medium	Medium	High
3 Possible	Low	Medium	High	High	High
4 Likely	Medium	Medium	High	High	Peak/ Very High
5 Almost certain	Medium	Medium	High	Peak/ Very High	Peak/ Very High

HEALTH RISK ASSESSMENT

In addition to assessing the risk of environmental and social impacts, the situation analysis should also evaluate the risks of health impacts in the area, for both the local population and the project workforce. The most commonly utilized tool for the analysis of health impacts, positive or negative, is the Health Impact Assessment (HIA).[2] While the scope of an HIA is generally broader than just in-migration related health impacts, experience indicates that in-migration is one of the key drivers of health impacts, and consequently must be carefully analyzed (refer to p. 16 of IFC's *Introduction to Health Impact Assessment*). The Environmental Health Areas (EHAs) framework is a standard method for analyzing project-triggered health impacts (see Annex 1).

STAKEHOLDER IDENTIFICATION AND ANALYSIS

Various stakeholders may be involved in the management of project-induced in-migration, including the project, local and regional government, nongovernmental organizations, community-based organizations, religious groupings, and the affected communities. The situation analysis should identify key stakeholders, assess their capacity and identify their potential roles in in-migration management.

CONCLUSION

The chapter has set out a basis for assessing the risk of project-induced in-migration. Where risks are identified as medium-high, it is recommended that the Project implement a situation analysis as a basis for developing an influx management strategy. Key aspects of a situation analysis, namely the identification of hotspots, the identification and assessment of potential environmental and social impacts, and the assessment of potential health risks were described. The situation analysis and the component analyses contained therein provide a more detailed and in-depth consideration of project-induced in-migration thereby complementing ESIA. Part 4 provides a description of possible management approaches. Subsequently, Part 5 considers how a project formulates a management strategy by combining the approaches and selected interventions.

2 The HIA is a structured multidisciplinary methodology that draws extensively on literature reviews, combines qualitative and quantitative data, and relies on extensive consultation with all stakeholders. For more information see International Finance Corporation (IFC), *Introduction to Health Impact Assessment*, April 2009.
http://www.ifc.org/ifcext/sustainability.nsf/AttachmentsByTitle/p_HealthImpactAssessment/$FILE/HealthImpact.pdf

4 Part Four: Management Approaches



If the risk of in-migration and associated impacts is moderate to high, or in-migration has just been recognized as an existing problem, what are your options? This section outlines proactive and reactive management approaches to project-induced in-migration, answering questions such as:

- **What can my project do during design and planning to help manage in-migration?**
- **What construction and operations phase policies and procedures would help manage in-migration and/or its impacts?**
- **What kind of environmental and social programs will help manage in-migration and/or its impacts?**
- **How will in-migration affect the need to strengthen existing programs?**
- **What kind of additional programs may be needed to manage influx and its impacts?**
- **What have projects done to manage in-migration?**



Introduction

This section sets out general management approaches and sector- and program-specific interventions that are available for effective management of in-migration and its impacts, including:

- Management of project-induced in-migration into the project area, which includes minimizing in-migration, managing the inflow of in-migrants, and managing the physical and social footprint of in-migration within the project area;
- Improved stakeholder engagement and monitoring; and
- Mitigation of the adverse impacts associated with in-migration.

These approaches are presented in terms of a spatial/geographical continuum, starting at the boundaries of the project's overall area of influence and moving inwards – typically from the regional to the local. Within this framework, an in-migration strategy will inevitably utilize some combination of these three approaches, depending on key factors such as the existence and location of population centers, the presence of existing service/supply centers, and means of accessing the project site, and the status of influx.

Most measures and interventions discussed here can be implemented at any time within the project cycle, although they may be more effective and more readily accepted if implemented early.

The approaches and their component interventions are linked, and the activities implemented to minimize in-migration at the boundary of the project area are reinforced by specific actions at the core. Part 5 of this document addresses development of a strategy, selective use of the three approaches to managing in-migration, selection of component interventions, and development of an influx management plan.

The three management approaches and the interventions supporting them are presented in terms of their objectives, rather than correlated to stages of the project cycle. With the exception of measures that must be addressed during the project design stage, most measures and interventions discussed here can be implemented at any time within the project cycle, although they may be more effective and more readily accepted if implemented early.

Management through project design and early planning and implementation is more likely to address the phenomenon early on, minimizing in-migration and managing its physical and social footprint, and reducing the need for later programs addressing the impacts associated with in-migration. Although later management actions are more likely to be concerned with management of the impacts associated with in-migration, they should not ignore mitigation of ongoing in-migration and its footprint.

FIGURE 8. RELATIONSHIP BETWEEN THE PROJECT CYCLE AND INFLUX MANAGEMENT OPTIONS

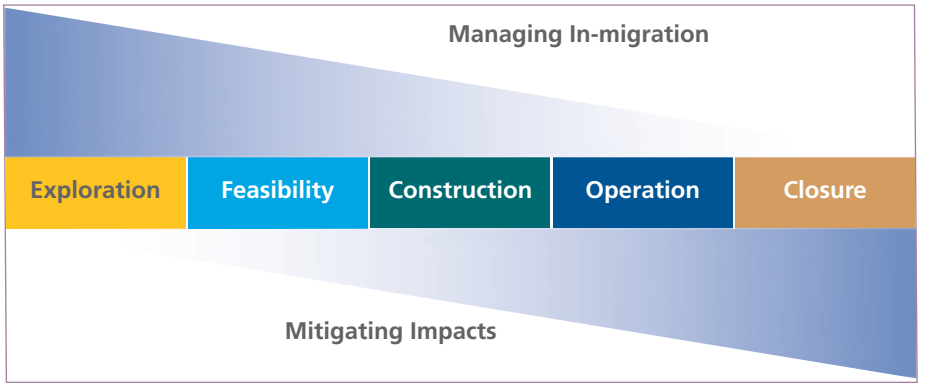


Figure 8 illustrates the relative emphasis on project design and early planning and implementation or management of influx impacts based on when, within the project cycle, the issue is identified and addressed.

Annex 6 provides a summary of project approaches to management of in-migration from around the world.

MANAGING PROJECT-INDUCED IN-MIGRATION

Approach	Category of Intervention	Interventions
Management of project-induced in-migration	• Minimizing in-migration into the project area • Staging the inflow of migrants • Managing the migrant physical and social footprint	• Promoting regional growth • Planning access routes • Managing the initial project footprint (multi-local projects, initial project bases) • Use of buffer zones • Spatial planning, administration and resource allocation (including identification of appropriate settlement sites and creating "pull" factors) • Infrastructure, services and utilities • Planning workforce recruitment policy and management • Access control • Planning material transportation • Planning worker transportation • Planning worker housing • Planning procurement of goods and services and development of supply centers • Definition of project-affected people (PAPs), compensation, participation, and development • Building muli-stakeholder frame works and stakeholder capacity

Although managing project-induced in-migration should be an objective throughout the project life cycle, early recognition of the potential problem and a willingness to proactively manage the phenomenon has the greatest potential to minimize the phenomenon and development of induced impacts. The approach focuses on:

- Addressing the "pull" aspects of the project to deter, minimize and/or direct the flow of in-migrants, primarily by creating other economic centers or defining the location and scale of a project's economic impacts;
- Managing the inflow of in-migrants through use of staging posts and encouraging better distribution in the broader region in which the project is operating; and
- Managing the physical and social footprint of in-migrants who move into the project area.

As discussed in Part 1, all major projects have a feasibility stage during which key design decisions are made and budgets are fixed. This process often occurs ahead of the ESIA process, during which commitments to prevent, mitigate, or compensate the project's environmental and social impacts are identified. Many of the interventions described in this section are best addressed as "social design criteria" during the project feasibility phase, even if a full ESIA has not yet been completed.

PROMOTION OF REGIONAL DIVERSIFIED GROWTH STRATEGIES[1]

A project may support the development and implementation of regional growth strategies that create alternative economic opportunities distant from the project area of influence, thereby ensuring that the project does not become the sole locus of economic development and attraction. Development of such strategies requires the participation and support of many stakeholders, including national, regional, and local government, the private sector, civil society, and communities, and typically involves long lead times. Implementation of the strategy's initiatives and the time required for these initiatives to have the anticipated outcomes takes time, often lagging well behind the scheduled project construction phase. Nevertheless, investment in the development of strategic regional development plans offers the opportunity to coordinate the contributions of multiple private sector players and provide a framework for pre-empting the development of cumulative impacts.

Even if no regional growth strategy exists, direct contribution to the promotion and development of multiple regional economic poles should still be considered, because it may still reduce medium-to-long-term project costs. Contributions to the development of public infrastructure, services, and utilities outside of the project requirements may stimulate economic development, while innovative approaches to ensuring that a broader population is able to access and benefit from infrastructure, services, and utilities that are developed in support of the project may address the discrepancies between the project, the project area, and more distant locations.

1 Both public sector and private sector actors whose activities are significantly affected by project-induced in-migration are also referred to the World Bank *World Development Report 2009: Reshaping Economic Geography.* The WDR 2009 focuses on the development-induced concentration of economic activity and the substantial disparities in welfare that can emerge between rural and urban areas, between leading and lagging regions within countries, and between countries. With a focus on three spatial dimensions of economic activity and household welfare (i.e., rising density, falling distance, and persisting division) the WDR highlights the dimensions and significance of spatial forces that shape economic development and recommends policies to facilitate the spatial transformations necessary to sustain economic growth, reduce disparities in welfare, and reduce poverty.

PLANNING ACCESS ROUTES

Projects involving the development of major new access routes (primarily roads, but also railways, wharves/jetties, airstrips, and pipelines) should evaluate the potential role of such access routes in facilitating access and concentrating in-migrant populations both along the route and within the project area of influence. Improvements in land-based access routes that transit through areas characterized by low populations and abundant natural resources may facilitate in-migration. A particularly acute and common example is the development of roads and rails from urban centers to a project. The creation of such direct access to the project defines the means and the location of in-migration and is typically associated with development of major squatter settlements on the project door step.

Where development of new transport infrastructure is an integral aspect of project operations and viability, the project, together with government, should consider more strategic development of transport infrastructure, for example by developing multiple staging points, or creating and using a combination of public and private roads. Appropriate mitigation measures that address the management of spontaneous in-migration and settlement along the transport route will need to be developed at the outset, e.g. ensuring inclusion and enforcement of an adequate right of way to prevent the development of roadside dwellings, shops, etc.

USE OF BUFFER ZONES

A project may elect to include buffer zones in its design, spatially separating the project from existing and migrant populations. Such buffer zones may exist as exclusion zones into which entry is forbidden or as zones with designated (and restricted) occupation and land use rights. Use of buffer zones may pre-empt the development of fence-line settlements proximate to construction and operations and, together with appropriate workforce recruitment policies, may encourage settlement in the nearest villages and towns.

INITIAL PROJECT FOOTPRINT

The start-up phase of all projects involves the establishment of a project footprint. This footprint, which is typically associated with the development of a logistical base for the project, may be located on- or off-site, may be temporary or permanent, and may be relocated on several occasions during start-up and initial construction activities. Decisions such as whether to operate one or multiple offices, and whether to locate and operate a logistical base on the project site, in the nearest town with adequate infrastructure, or in the nearest center that can function as a service center for the project, will determine the target destination of potential in-migrants.

Where a project makes use of multiple temporary logistical bases, their opening and closure is analogous to generating small-scale boom/bust cycles of project development and closure. While present, the base provides a temporary economic boom through employment and procurement of goods and services, and investment in the development of infrastructure.



EXAMPLE: OFFSHORE INLAND APPROACH

The upstream section of the Camisea gas extraction project, operated by a consortium led by Pluspetrol S.A., is located in a biodiversity-rich region of the southeastern Peruvian Amazon known as the Lower Urubamba. The project is in close proximity to 22 indigenous communities and the Kugapakori-Nahua Territorial Reserve for voluntarily isolated indigenous peoples. Given its location, minimizing environmental and social impacts has been a priority for the project.

The Camisea Project has been designed based on a "minimal impact policy" that includes the adoption of an "offshore inland operations" approach in order to minimize the need to open access roads and discourage unplanned population influx to the Lower Urubamba region. Instead of opening access roads, air and river transportation of material, equipment, and personnel has been maximized using river barges and helicopters. In addition to a self-sufficient fractionation plant, the project includes various production wells that have been drilled as clusters using only two well pads and all equipment and personnel access the site via helicopter. When temporary access roads are required, the Project implements access control measures for those roads, and once they are no longer required they are re-vegetated.

Through these activities, the base becomes the target destination of potential in-migrants who, in turn, demand a range of goods and services. However, the economic boom disappears when the base is relocated. Such closure is not always understood, and generally does not meet with local support.

The characteristics of potential destinations, including their accessibility, their assimilative capacity, and the availability of infrastructure, services, and utilities, should be a factor in decisions regarding the purpose, number, and location of bases. Where projects elect to prioritize proximity to the project site, the analysis of the characteristics and assimilative capacity of these locations should inform the need for and nature of mitigation measures.

ACCESS CONTROL

To protect a project and a host community from speculative land acquisition, the project may elect to secure all required land up-front, even if land take is scheduled over several years. During this intervening period, the project may permit PAPs to use the land through the development of annual land-use agreements.

SPATIAL PLANNING, ADMINISTRATION, AND RESOURCE ALLOCATION

To avoid spontaneous and unplanned growth in housing, projects may work together with local government to develop and implement master urban/spatial plans for existing and new settlements within the project area of influence. These plans should allow for controlled development through zoning and regulation, such as by directing development and in-migration to defined nodes. In this way, they will promote better management in the development of infrastructure, services, and utilities. Appropriate "pull" factors, such as demarcated housing sites, roads, water supplies, schools, and clinics, should be included in the definition and preparation of sites.

The development of plans and their implementation and enforcement requires government capacity and resources. To this end, the project may need to work with local, regional, and national governments to build capacity and seek rapid delivery and allocation of project-derived revenue in support of development and delivery of infrastructure, services, and utilities, and/or tax offsets to allow the project to invest in the same. Such investment should take account of responsibility for ongoing management, operations, and maintenance.



EXAMPLE: THE SIMANDOU PROJECT SUPPORT OF SPATIAL PLANNING FOR MORIBADOU VILLAGE

The Simandou Influx Management Plan identified that Moribadou (the village closest to the Project main camp) experienced both high and relatively constant rates of in-migration, with the population increasing from approximately 800 inhabitants in 2005 to just over 4000 in 2008. It was recognized that the traditional village management structures were unable to cope with high influx rates, lacking both the experience and resources to direct village development, whilst also embarking on a land for cash strategy. Accordingly the Simandou Project supported a participatory, consultative process (involving villagers and local government) aimed at developing a spatial plan that would allow for the managed expansion of the village away from the main access roads and neighbouring villages. The resultant spatial plan involved: (i) definition and allocation of public spaces for markets, water pumps, education, sports fields, health, places of worship, bus stops; (ii) definition of areas for construction plots (two new areas sufficient respectively for 230 and 200 plots were opened up). This included the re-opening of an abandoned road which gives the village a triangular (rather than linear) shape. Overall, the exercise allows for the planned integration of up to 7000 more inhabitants.

Six months later, the village leaders used the plan for selecting the sites for new water wells and people have started building on plots situated in the new construction areas as the population continues to increase.

In addition, the relationship between granting of mineral rights and surface rights differs between countries. Local government and traditional authorities are not necessarily aware of the relationship between surface and mineral rights, or the laws and regulations that govern the allocation of rights and the implications of these. Projects need to work with local government and traditional authorities to ensure all parties are aware of and understand the legal bases of these changes and their respective roles in facilitating the process.

PLANNING INFRASTRUCTURE, SERVICES, AND UTILITIES

The availability of infrastructure, services, and utilities can affect settlement patterns. For example, project development of infrastructure, services, and utilities for its own use often requires development of these facilities outside of the project site. Both the infrastructure and the increased availability of services and utilities may lead to considerable social pressure being placed on the project to either share their own resources or meet the cost of providing resources to the public. Alternatively, project resources may also be tapped illegally or otherwise utilized.

An assessment of current capacity against predicted population increases will allow strategic planning and resource allocation decisions. Working together with government, the project may develop mechanisms to share responsibility for development of infrastructure and utilities. For example, the project could elect to support the local government to provide services to a sector of the company – the mine camp or management housing – and the company becomes a customer of the local authority utility and pays for most of the running costs of the utility. The marginal cost of providing additional energy/water to others is low, and company payments can cross-subsidize the fees for poorer users. The company can provide initial technical help and sit on the local authority utility board, helping to build management capacity. The project may also wish to promote alternative, simple, low-maintenance technologies that meet key needs.



EXAMPLE: PROVIDING SERVICES TO LOCAL POPULATIONS

When providing services to local communities, projects should be wary of creating unsustainable dependencies. At Sadiola Gold Mine, Mali, a separate water supply system (boreholes) was initially established for the local village. However, when this broke down, the village was temporarily connected to the mine's water supply system (a 70-km large pipeline bringing water from the Senegal River). Eight years later, the village is still "temporarily" connected to this major water pipeline. At mine closure, this is going to be a major problem, since the local economy is not large enough to maintain and operate the pipeline.

WORKFORCE RECRUITMENT POLICY AND MANAGEMENT

Workforce recruitment and management policies and their effective implementation can significantly affect migrant settlement patterns. Key workforce policy and management issues, including workforce targets, prioritization (e.g., a local-first recruitment policy), the use and location of local recruitment centers vs. recruitment centers distant from the project location, use of project transport (see page 80), hiring policy and practice for day/casual laborers, medium-to-long-term localization plans and worker mobilization and de-mobilization strategies, need to be defined at an early stage.

Decisions regarding workforce recruitment and management must be accompanied by determination of the practical bases and implications of applying these policies and management strategies. These may include:

- Definition of "local," the type of evidence required to demonstrate local status, and the establishment of accepted verifiable criteria to demonstrate local status (see case study, P. 79); the registration of locals;
- Management of contractors and labor suppliers or brokers;
- Establishment of migrant reception centers providing information on registration, accommodation (including appropriate technology for housing, water, and sanitation), health issues, and the project workforce recruitment policies and practices;
- Establishment of workforce recruitment centers; and
- Availability of transportation services that meet project safety criteria.



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Image 16. People disembark and goods are unloaded from a regional ferry docked in Babo, the location of a logistical base and only 40 km (by boat) from the Tangguh LNG Project site. Weak institutional systems for registration and monitoring of migrants made it very difficult for the Project to distinguish between local people resident within the project area of influence and people coming from across Papua and beyond. The Project worked with local government to help ensure that local people were able to obtain identification cards.

Where government systems are weak, high levels of internal migration may impose high costs on project human resource management, and also require capacity building of the relevant government bodies.

Projects which may also experience and benefit from international (cross-border) migration should be aware of country policies and requirements for recruitment of migrant labor. In addition the project should be aware of the requirements of ILO Conventions 97 Migration for Employment (1949) and ILO Convention 143 Migrant Workers – Supplementary Provisions (1975). These conventions require that migrants be treated in the same manner as nationals (with regard to freedom of association, salaries, and social security). Particular concerns include: (i) rights to join or form a union and engage in union activities; (ii) avoiding the withholding of worker documents or financial deposits; (iii) the ability of migrants to transfer benefits from social security and pension schemes to their home country; and (iv) migrant workers' access to health services.

Finally, a project should also consider migrant worker accommodation.[2] Often internal and cross-border migrants reside in poor circumstances; yet where they are recruited as "locals" projects may not be obliged to consider their living conditions.

2 IFC/EBRD (2009) *Workers' Accommodation: Processes and Standards* http://www.ifc.org/ifcext/sustainability.nsf/AttachmentsByTitle/p_WorkersAccommodation/$FILE/workers_accomodation.pdf



EXAMPLE: CROSS-BORDER EMPLOYMENT IN ANGOLA

Projects operating in Cabinda, Angola encounter the effects of international migration in their recruitment of "local" people. The long civil war that devastated Angola between 1975-2002 caused large numbers of Angolans to flee into neighboring Congo, where, given the length of the conflict, the people established new livelihoods, started or expanded their families, etc. With peace, the refugees returned to their place of origin. However, their ability to secure employment is constrained – in many cases the people do not have proof of citizenship; they may have been born in DRC, and as a result they are deemed to be cross-border economic migrants. Securing employment requires the issuance of an appropriate permit and identify card from the Angolan authorities.



EXAMPLE: WORKFORCE MANAGEMENT

Rio Tinto is developing the Simandou Project in Guinea. The project supported the development of an Influx Management Plan, which was informed by a review of four major projects operating in the region: Alumina Refinery Project (BHP-Billiton) Sangaredi/Kamsar; Friguia Project (Bauxite Mine and Alumina Refinery), FRIA; Ashanti Goldfields Corp Project A(AGC) Siguiri; and Soguipah Project (Palm Oil and Rubber Tree Plantation, Diecke). The review covered many aspects of the projects, including employment. The key lessons learned regarding employment were:

- Employment is the number-one problem in all large-scale projects;
- Clear, precise, and well-defined employment policy and transparent procedures are required to explain the situation, avoid conflict, and minimize expectations. In order for the policy to be known by the people, it should be widely distributed, particularly in areas with great concentration of migrant populations; and
- The employment issue cannot be permanently resolved. Even with the best policies and procedures in place and after years of operation, employment remains a sensitive issue prone to creating conflicts.



DEFINING THE LOCAL LABOR POOL, GHANA

During the construction of the Ahafo gold mine in Brong Ahafo, Ghana, Newmont established a labor pool system to maximize employment of unskilled labor from affected communities. In consultation with traditional authorities and political leaders, Newmont defined "local" as encompassing the two administrative regions potentially affected by the project (Asutifi and Tano North districts). The project asked all interested local applicants for the labor pool to obtain verification from their respective leaders that they were legitimately local. Newmont set a target of 100 percent of the project's unskilled labor needs to be recruited locally. A quota for each community was negotiated with community leaders based on population size, size of village landholding affected, and proximity to site. Bussing arrangements ensured that employees came from the entire concession area, instead of favoring those who lived close to site.

Newmont communicated its plan to employ as many local people as possible throughout the local area and solicited applications from interested locals. Street theater groups were used to disseminate the information. As a result of this communication effort, the company received 13,223 applications for work. Based on the estimated unskilled workforce requirements for the construction phase, more than 700 positions were available in the labor pool. Applicants were short-listed through meeting basic requirements and a village-based public lottery.

A Newmont training coordinator was on-site prior to the start of construction. Short-listed local applicants were enrolled in a three-week orientation training program. The induction program (and further vocational training) was provided through an existing vocational training center, rather than requiring construction of a new facility. Following successful graduation from the induction program, trainees became part of the unskilled local labor pool and were offered employment by the company and contractors on an as-needed basis. Contractors were contractually obliged to hire 100 percent of their non-skilled personnel through the labor pool and provide further on-the-job training. Employees that excelled at their job received training as semi-skilled laborers to become trade helpers. The best 24 of the semi-skilled employees received apprenticeships (at a recognized institute providing accreditation) and were subsequently employed as operators, warehouse staff, etc. during mine operations.

Sources:
Newmont ahafo Resettlement Action Plan (Chapter 11.1),
http://www.newmont.com/en/operations/projectpipeline/ahafo/docs/resettlepan.asp

CDA Collaborative Learning Projects Corporate Engagement Project (CEP),
www.cdainc.com/publications/cep/fieldvisits/cepVisit18Ghana.pdf



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Image 17. The Sadiola Gold Mine is located in a remote area in north-west Mali. The Project relies heavily on vehicular transport to supply the operations. One consequence of a regular trucking schedule reliant on an established access route, has been the proliferation of road-side shops, the majority of which have been established by and are operated by migrants. Besides obvious health and safety issues with unplanned roadside development, the migrant capture of such small business opportunities represents a missed opportunity for local people.

PLANNING MATERIAL TRANSPORTATION

Projects located in remote areas and that are reliant on the development and use of dedicated and/or public transportation (e.g., road, rail) for the supply of inputs and transport of ore to processing or export facilities should include an analysis of the route and potential in-migration effects. Good practice involves the definition of the route, driver codes-of conduct, established trucking stops and tracking systems to monitor trucks.

PLANNING WORKER TRANSPORTATION

The provision of project transportation services may affect the need for local and regional migration toward the project. Transportation services for a project workforce living within a 50-100-km radius of the project may reduce the need for migration toward the project site, reduce the demand for local housing, reduce the pressure on local infrastructure, services, and utilities, and thus preempt the development of larger population centers close to the site.

The number of in-migrants located near a project can be reduced by having a "fly-in, fly-out " policy for workers, which involves basing workers and their families in distant towns or cities and then flying them in for short-term shifts where they stay in dormitories at the project site. Such a policy is often used in remote and sensitive environments such as sub-arctic/arctic or rainforest sites, where there are few nearby indigenous settlements.

EXAMPLE: ORION PULP MILL PROJECT

Sponsors of the Orion Pulp Mill Project, Uruguay, anticipated that a large influx of construction labor force required by the project would have adverse social impacts on the project area. To avoid such impacts, much of the civil construction labor was recruited within a 50-km radius of the project and transported to the site from designated pick-up points via buses operated by the project sponsor. Highly skilled labor required for the electro-mechanical construction of the project was recruited internationally. A large number of these workers were housed in apartment blocks constructed by the sponsor near the project site but removed from the project area's main population center, while the balance were housed in modified 40-foot containers laid out adjacent to these blocks. When the project's construction was completed, the flats were turned over to the municipal government for use as low-income housing and the containers were removed and shipped back to their supplier.

PLANNING WORKER HOUSING

Decisions regarding the provision of worker housing have the potential to affect: (i) the local demand for housing; (ii) the pressure placed on existing infrastructure, services, and utilities; (iii) the development of local economies to support the workforce; and (iv) the development of local-level jealousies regarding standards of housing, utilities, and services, as well as post-project disposal of housing.

Projects in isolated and lowly populated areas that require a temporary, largely migrant construction-phase workforce should utilize on-site temporary housing.

Depending on the project context, construction and/or operational phase worker housing may be developed within or outside the project property boundaries, the latter as project housing suburbs or integrated housing. On-site housing minimizes workforce-host community interactions, reduces pressure on existing infrastructure, services, and utilities and reduces workforce absentee-ism. It can also preempt the development of various economic activities, including housing booms and the supply of goods and services such as cigarettes, alcohol, drugs, or prostitution. On the other hand, problems at the housing site have the potential to spill over to the project, and vice versa.

The decision to utilize or develop on-site or host-community construction-phase workforce housing should be based on proximity to larger, established population centers and the assimilative capacity of the environment. Larger, established population centers may have existing and surplus housing, and established systems for the supply of goods and services, making them able to readily assimilate the project workforce. However, projects in isolated and lowly populated areas that require a temporary, largely migrant construction-phase workforce should utilize on-site temporary housing.

Permanent housing for the operations-phase workforce may be developed on- or off-site. Development of integrated housing or housing suburbs should be approached with caution, to avoid creation of local-level resentment regarding standards of housing, utilities, and services, as well as avoid the need for post-project disposal of housing. If a project anticipates that the workforce is to be resident within the local community, providing financing options for locals to develop hostels and other housing options may provide local benefit while mitigating various environmental and social impacts.

Irrespective of where the staff housing is located, the company should develop a Code of Conduct to guide staff interaction with local "host" communities for both construction and operations phase activities.

PROCUREMENT OF GOODS AND SERVICES

Project decisions regarding construction and operations phase procurement of goods and services will determine the location of economic activity. Localization will create service towns entirely dependent upon the project for employment and the procurement of goods and services. For large-scale oil, gas, and mining projects in remote locations, the creation of service towns has also been typically associated with the provision of infrastructure, services, and utilities to the public. To mitigate dependency, the development and use of more distant and, perhaps, established supply centers that serve multiple sectors within the region should be considered, with full accounting of the medium-to-long-term economic, financial, and social costs and benefits.

At the same time, it should be recognized that local people often demand local development. This can be offset to some extent by creating vocational training and placement opportunities in the goods and services sector.

DEFINITION OF PROJECT AFFECTED PEOPLE (PAPS), COMPENSATION AND BENEFITS

Project ESIA and other documents (e.g., RAPs, IPDPs) define the basis for the recognition, compensation, participation, and development of project-affected people (PAPs). In many circumstances, the population within the broader project area of influence is either not aware of or does not understand the basis for identification of PAPs, and has a considerably different set of expectations with respect to entitlement to the benefits to be derived from the project. Hence while Project recognition and compensation of PAPs may initially

deemed to be a private matter between the PAPs and the project, when tangible benefits become visible, it very quickly becomes a public issue. The visibility and consequent public awareness of the benefits may lead to jealousy, increased competition for benefits between locals, and the return and/or in-migration of groups seeking to claim benefits.

Securing the support of the broader population for the project's approach to managing impacts and sharing project benefits is an important part of securing support for the project itself, and protecting local benefits from in-migration. Public and government awareness, understanding, acceptance, and support of the project's basis for defining PAPs and delivering benefits to them are necessary. The key points to be addressed include:

- Precise definition of the benefits and beneficiaries of the project's impact mitigation and development programs, including entitlement cut-off dates, the structure of the benefit package in terms of the nature, schedule, and distribution of compensation and other development benefits among PAPs (e.g. through compensation, resettlement, indigenous peoples development plans, social and economic development programs, etc.)
- Adequate consultation with government, key leaders and communities in the project area so as to ensure awareness, understanding, and support of project impacts and their relationship to mitigation and compensation;
- Dissemination of PAP eligibility criteria within the project area of influence using criteria that are readily understood, communicated and culturally appropriate
- Definition of mechanisms by which new claimants can put forward their claims and have them evaluated;
- PAP group conflict resolution approaches; and
- Dissemination of information regarding how people outside the project area of influence will receive benefits, in the context of regional development benefits derived from project.

At the outset, impact mitigation and compensation and development benefits should be placed in the context of the project's long-term strategic plan for community development. This should also take into account the role of government, the project's more general corporate social responsibility programs and the additional benefits that they may bring to project-affected people, and a managed exit strategy. Dissemination of such information prior to the delivery of tangible benefits becoming available is critical.

BUILDING MULTI-STAKEHOLDER FRAMEWORKS AND STAKEHOLDER CAPACITY

As described on page 68, stakeholders that may be involved in managing project-induced in-migration may include local, regional and national government; non-government organizations; community-based organizations; religious groups; and affected communities themselves.

Many of the possible approaches and component activities for managing in-migration involve the awareness, understanding, and support of many stakeholders, and their implementation requires ongoing coordination and collaboration with these stakeholders. This may include developing and communicating a consistent voice supporting agreed policies and programs, and direct participation in their implementation.

The project should conduct a thorough analysis of the potential (and real) roles and responsibilities of all stakeholders in delivering the intended outcomes of policy and program specific interventions. Where shared roles and responsibilities are identified, the project retains the lead role, and ensures that: (i) all stakeholders speak with one voice in support of the agreed policies and programs; (ii) all stakeholders contribute resources to implementation of recommended actions; (iii) where appropriate, management responsibilities are assumed by the relevant stakeholder; and (iv) systems promoting accountability and responsibility are adopted.

Where government will, capacity, and resources are limited, the project may be required to assume and/or support three key roles: advocacy, facilitation, and capacity building.

Where government will, capacity, and resources are limited, the project may be required to assume and/or support three key roles: advocacy, facilitation, and capacity building. These activities may need to be coordinated and implemented at the national, regional, and local levels.

Advocacy seeks to promote awareness, understanding, and action. It is important to assess and recognize the motivation and willpower of key stakeholders and their role and capacity to manage influx. Some countries have legal frameworks that guarantee freedom of movement within the country. At the national level, stakeholders may not be aware or concerned about project-induced in-migration, and may provide considerable resistance to proactive management. Political will may not support strategic regional development if such development falls outside the jurisdiction of the project area. District or regional government may not support management of in-migration, as funding from the national government often hinges on indicators associated with increased population. Finally, it must not be assumed that the principles of representative government and "the common good" are held by all. At all levels of society, the economic (and other) opportunities offered by project-induced in-migration often undermine multi-stakeholder commitment to influx management.

Capacity building aims to define institutional roles and responsibilities and build capacity. It requires time and interest, and often does not match the urgency associated with the implicit rates of change seen at the start of a project. Capacity building interventions may therefore need to include: (i) secondment of experienced government personnel into local and regional government departments to ensure that adequate progress can be made from the outset; and (ii) partnership with MFIs and/or bilaterals and NGOs to provide technical assistance/ capacity building to local and regional governments in governance and revenue management, infrastructure planning and delivery, and improved delivery of health and education services.

STAKEHOLDER ENGAGEMENT AND MONITORING OF THE MIGRANT POPULATION

Approach	Category of Intervention	Interventions
Stakeholder engagement and monitoring	Stakeholder engagement	Ensure influx issues are addressed in stakeholder engagment plan
	Monitoring and evaluation	Early and effective monitoring systems

STAKEHOLDER ENGAGEMENT

With regard to in-migration, the key objectives for a project's Stakeholder Engagement Plan[3] should be to challenge commonly held perceptions affecting potential in-migration, help manage expectations, and help promote widespread awareness, understanding, and support for defining the project-affected population (PAP) and delivering project benefits, including employment.

Typically, early in the project development cycle, the public knows a project only through feasibility stage activities, the ESIA consultation processes, and the tangible physical expression of the project presence. Yet expectations, often unrealistic, are formed at this time: locals develop expectations based on experience with previous projects and the general commitments outlined in the ESIA; a migrant travels to the logistical base on the presumption that this will be the point of recruitment; a business enterprise is established in the local town on the presumption that the project will procure goods and services locally; local government plans the development of infrastructure, services, and utilities on the presumption of project behavior. In the absence of project-specific information, rumors abound as the local political and economic elite jockey for position and influence. Early and improved communication about project development, the development of supply bases/centers, and labor needs, recruitment policies, and management plans is key to managing the expectations of politicians, the economic elite, and the public, and thus also managing the inflow of in-migrants.

Although the final destination of in-migrants is known, the processes by which they arrive within the immediate area of the project actually occur outside the project area. Efforts to manage project-induced in-migration therefore require project activity well outside the immediate project area. A key question is how to define the relevant area to be considered for mitigation of in-migration.

The stakeholder engagement plan needs to reach *all affected stakeholders*, including the project affected population, stakeholders within the project area of influence, and potential stakeholders beyond the area of influence, with clear, timely and accurate information. For project stakeholder engagement, information dissemination, and communication to be effective, the project needs to be aware of and understand the significance of local and

3 IFC Sustainability Policy and Performance Standards define requirements for project stakeholder engagement. Further, *IFC Stakeholder Engagement - A Good Practice Handbook for Companies Doing Business in Emerging Markets* provides guidance on best practice.

regional, formal and informal, communication networks and communication channels throughout the project development cycle, as well as the relative importance of the type and timing of information flows.

The engagement plan should include the following:

- Commitment to early and comprehensive development of a stakeholder engagement plan that reaches beyond the boundaries of the project area of operations;
- Establishment of project liaison offices outside the project area of operations to support stakeholder engagement, workforce recruitment, etc. (physical presence is an important indicator of project commitment);
- Identification of main potential sources of in-migrants;
- Identification and use of migrant networks to engage potential in-migrants;
- Use of recognized transit centers for stakeholder engagement;
- Development of migrant reception centers staffed by locals;
- Early dissemination of information addressing key rationale for in-migration;
- Early formulation and dissemination of key project policies and procedures regarding potential benefits, such as employment;
- Early engagement of key stakeholders building awareness and understanding on in-migration and its impacts and respective roles and responsibilities in management; and
- Establishment of Influx Management Committees at appropriate level/s.

MONITORING THE MIGRANT POPULATION

Effective management of the physical, social, and health footprint of in-migration requires reliable information on in-migration, including a baseline and periodic updates. While national or regional population data are usually available, the survey data are often out-of-date and inaccurate. While the project ESIA may draw on national population data, it is important to implement a population census of the project area to establish a verifiable "pre-project" baseline. The baseline information can be further supplemented through the use of remote sensing strategies.

Monitoring ongoing in-migration is difficult because most countries allow spontaneous internal migration, immediate local registration may not be required, and policing is often absent or weak.

Proactive management of in-migration and its impacts requires timely data regarding in-migration and key environmental, social, and health indicators, as well as a definition of change rates that would trigger action. These might include population growth rates greater than 5 percent, rate of increase of new abodes, or change in number of occupants per house. The development of an agreed monitoring and evaluation framework, with agreed indicators, frequency of measurements, and definition of critical change rates is critical.

Monitoring ongoing in-migration is difficult, because most countries allow spontaneous internal migration, immediate local registration may not be required, and policing is often absent or weak. In the absence of established registration systems, incentives for registration need to be developed and implemented, such as strengthening government capacity to provide registration cards, and requiring such cards for employment. Monitoring and surveys of arrivals at transit centers and identified "hotspots" can provide early indications of influx while the establishment of a regular demographic survey of identified hotspots and villages and towns within the project area of influence can provide updates of the evolving situation. An appropriate system involving local government, heads of villages, and village health services can be developed. Identifying and measuring early indicators of impact may serve as a proxy for population surveys. Aerial photography and remote sensing can contribute to ongoing monitoring. The box below describes the use of aerial photography and remote sensing. Finally, the box on page 88 discusses monitoring health indicators.

Establishing an Influx Management Committee or Forum bringing together stakeholders, including government, traditional authorities, and other relevant parties, will help to ensure awareness of monitoring and evaluation data and opens the door for further stakeholder engagement.



MONITORING THE MIGRANT POPULATION

Aerial photography and remote sensing techniques have the potential to revolutionize community studies, as significant amounts of data are acquired in a defined geographical area at a variety of spatial resolutions. The use of aerial photography and remote sensing strategies (i.e., high resolution satellite imagery) can play a critical role in establishing an objective pre-project baseline footprint and providing regular updates. Objective quantification of key environmental, ecological, social, and health features may result from detailed analysis of the imagery. Examples include type and number of buildings, location and housing density, location of agricultural lands and forests, key surface water bodies, etc. While it is essential to "ground truth" the satellite imagery, the accurate determination of many of the key community and area baseline features can be readily established. [Aerial imagery can inform the baseline at pre-feasibility and feasibility stages, when it is not possible nor practical to do ground-based studies.]

Sequential imagery (i.e., semi-annual or annual) can help establish the geographical extent of any influx that may be occurring. In terms of health impact assessment, remote sensing strategies can significantly add to the understanding of both disease ecology and certain key determinants of health (i.e., housing density, location of water sources, and transportation routes and access patterns). Therefore, remote sensing provides significant insight into both baseline conditions and the likelihood of external (project-related) impacts on underlying burdens of disease.



MONITORING HEALTH INDICATORS

With regard to health, the monitoring, evaluation and verification system should be based on appropriate, applicable, and relevant key performance indicators (KPIs).

In general, health KPIs can be divided into three types:

- **Structural indicators** include buildings, equipment, drugs, medical supplies, and vehicles; personnel; money; organizational arrangements;
- **Process indicators** include what is actually done to and for a patient in giving and receiving care. Process indicators try to capture availability, use, and quality of medical services. Efficiency and effectiveness are often considered to be process indicators. Process outcomes include functions, patient and provider compliance, numbers of individuals trained and to be trained, programs, and support tasks;
- **Outcome indicators** are the end results of the process of patient care and of the timely availability of the necessary inputs. Outcome is typically measured using indicators of mortality, morbidity, and functional impairment. The five D's: death, disease, disability, discomfort, and dissatisfaction are typically considered to be outcome measures. The morbidity and mortality outcome indicators are calculated as rates.

Within these three types of indicators, it is necessary to pick a suite of KPIs that can be realistically and cost-effectively measured and tied to the influx-related impacts identified within an Environmental Health Areas analysis (see p. 32 and Annex 1 for more on this). Fortunately, many of the most important health KPIs are cross-linked to environmental and social data sets, which is not surprising as critical environmental, social, and health outcomes, particularly in a developing country setting, are strongly tied to wealth quintiles. Standard demographic health surveys collect and analyze health data as a function of wealth quintile, because it is an extremely powerful predictor of health status. Households in the lowest (first) quintile are usually considered as extremely vulnerable and are almost always below the money metric poverty line. Some of the most important KPIs include:

Structural

- Household characteristics – household size, number of rooms;
- Pharmacy supplies of specific categories of drugs, e.g., anti-malarials;
- Numbers of latrines; and
- Number of stand pipes and boreholes.



MONITORING HEALTH INDICATORS CONTINUED

Process

- Changes in access times for secure water supplies;
- Access to maternal medical services such as trained birth attendants, and number of pre-delivery visits;
- In migration patterns – place of origin of household members, professional status of household members; and
- Knowledge, attitudes, practices, and beliefs surrounding prevailing diseases, including malaria, soil-transmitted helminths, HIV/AIDS, etc.

Outcome

- Disease-specific prevalence rates (e.g., malaria and STIs);
- Anemia prevalence in children and women of reproductive age;
- Anthropometric measurements (height and weight for age) of young children;
- Alcohol use, smoking rates, domestic violence, and accidents; and
- Appearance of new diseases.

These KPIs are extremely sensitive to community level influx. Some examples follow:

- Most public health studies indicate that in order to minimize diarrheal diseases, there should be approximately one latrine per 25 individuals at a community level. In many settings, local communities do not meet this target value even before the arrival of a significant industrial project. If the community population rapidly rises without a corresponding increase in functioning latrines, the risk of infectious diarrheal outcomes significantly rises. Similarly, if the quantity of water per household declines because of dramatic population influx pressure, the risk of diarrheal disease will also rise.
- If project-induced in-migration leads to decreases in the availability of food and the nutritional value of diets, e.g., through increased demand for food, increases in the cost of food or changes in agricultural production and seasonal distribution of food and food stores, there can be a decrease in nutritional status leading to an increase in childhood levels of anemia and a decrease in anthropometric indices.
- Influx-triggered changes in rates of specific diseases (e.g., malaria or HIV/AIDS) are a far more complex undertaking. Malaria rates tend to have marked seasonal variations, even in locations that have year-round parasite transmission. Therefore, the timing and frequency of community monitoring surveys are critical, so that valid data are obtained. Similarly, collecting community STI data, particularly HIV status, is a highly sensitive process that should be performed by or in conjunction with the relevant public health authorities. Although private companies are not advised to undertake unassisted community HIV prevalence surveys, HIV prevention efforts should be strongly encouraged and are an effort that many projects strongly participate in and support.

MITIGATING THE NEGATIVE IMPACTS OF PROJECT-INDUCED IN-MIGRATION

Approach	Category of Intervention	Interventions
Mitigating impacts	Effective delivery of project benefits to project-affected people (PAPs)	• PAP definition, compensation, and benefits • Workforce recruitment and training • Bank services and micro-finance • Enterprise development
	Strengthening project capacity	• Project security • Project stakeholder engagement and communication • Monitoring and evaluation
	Addressing negative social impacts	• Governance • Law and order • Managing social change • Retrieval of negative social dynamics • Spatial planning, housing, and water and sanitation • Health • Project closure

As discussed in Part 2 of this document, there can be a wide range of negative environmental, social, and health impacts of project-induced in-migration. There are three main categories of interventions that have been effective in addressing these impacts: (i) ensuring effective delivery of project benefits; (ii) strengthening project capacity to address in-migration and its impacts, and; (iii) addressing the potential negative social impacts of project-induced in-migration. These strategies are discussed in more detail below.

Effective management of the negative impacts of in-migration involves focused programs in various development sectors that are typically already part of the project's social and community development programs. Where such programs exist, it is not necessary to develop a parallel program. Rather, a review of the existing programs in the context of project-induced in-migration is required. This review may lead to the adaptation of existing programs to incorporate the further objective of managing in-migration or its impacts. This may require a change or addition of program approaches and components and consequent changes in the monitoring and evaluation (M&E) systems to ensure that indicators reflecting attainment of these objectives are also measured.

EFFECTIVE DELIVERY OF PROJECT BENEFITS

One of the key challenges in addressing the impacts of in-migration is the effective delivery of project benefits to the appropriate project-affected people (PAPs), so that the benefits are clear and can be delivered and the PAPs are in a position to sustain those benefits. The ability to sustain benefits will frequently require defining and enforcing eligibility criteria and capacity building among PAPs. A number of measures can assist in achieving effective and sustainable delivery of benefits.

PAP Definition, Compensation, and Benefits

The previous section described the need for and methods for ensuring that the Project adequately defined PAPs, compensation and benefits and shared this information with all stakeholders in the project area of influence and beyond. Where Projects have failed to adequately implement these measures, corrective action to mitigate this failure and any consequent social unrest may be necessary.

Vocational Training

Vocational training may be implemented by the project and its contractors. The objective of vocational training is generally expressed in term of increasing the competitiveness and participation rates of the local population through focused training in requisite skills. Where vocational training is considered, the proactive training and skills development of local inhabitants must take place prior to project construction and operation to ensure that relevant capacity is developed on a timely basis that allows local communities to take advantage of employment opportunities.

While this objective serves the project's ends and meets the requirement to be seen to be doing something to promote local participation, the fundamental premise and promise of vocational training is problematic. Key issues include: (i) the time, cost, and efficacy of in-situ project-owned vocational training; (ii) the potential for vocational training to deliver increased local participation in project construction and operations in a timely manner (particularly given the low levels of educational achievement often seen in the project area of influence); and (iii) the link of vocational training to regional sectoral and development needs. In light of these issues, consideration should be given to:

- Exploring on-the-job training opportunities that can then be built into contractor requirements;
- Focusing vocational training on supply chain linkages and business and employment opportunities therein; and
- Developing collaborative sector-level approaches to strengthen existing, or developing new, regional vocational training centers to address common needs.

Banking Services and Micro-finance

Providing local people with opportunities to save and invest construction-phase windfalls is an important aspect of sustaining project benefits. Developing a basis for savings and investment is the first step in creating opportunities to retain and invest benefits. In certain circumstances, creative solutions to the problems of limited access and communication may be needed, such as introducing mobile banking services or remote access systems.

Where communities have had limited experience with accumulating wealth through banking and investment, the project can create incentives to encourage saving, through the selected method of workforce payment or the creation of incentive schemes, such

as matching funds, for savings and investment. Similar consideration should be given to providing options for the investment, management, and use of royalty payments and compensation. Where appropriate, the project may also consider supporting the introduction of micro-finance schemes providing local people with access to finance to develop micro- and small-enterprises.

Enterprise Development

Retention, investment, and development of benefits can also occur through assessment of sectoral opportunities (by assessing project and local/regional demand for goods and services), assessment of project support of entrepreneurship and business development, and training and SME initiatives. Both the opportunities directly related to the project, and the opportunities that arise from induced impacts, such as the need for housing, should be evaluated. Some projects have also facilitated the establishment and management of large-scale enterprises, including transportation, catering, and supplies of goods and services. Such efforts have faced real challenges in addressing local capacity, ensuring delivery of goods and services, and ensuring sustainability.



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Image 18. Linkages Program, Ahafo, Newmont Ghana. The opening of the Ahafo mine created an opportunity for Patrick Boakye's small business (PKC) to supply Newmont with plastic sampling bags.

SADIOLA MINE, MALI: TAILORING ELIGIBILITY REQUIREMENTS TO AVOID EXACERBATING LOCAL SOCIAL DIVISIONS

With the creation of the Sadiola mine, an influx of work-seeking migrants arrived in the district (3000 migrants during construction). While many of these "new arrivals" left once the mine started production and the number of jobs decreased, a significant number remained (1,250 during operations). Compared to the "original inhabitants", these new arrivals demonstrated greater entrepreneurial initiative and skill in identifying and exploiting new business opportunities. This skill created tension with the "original inhabitants" who perceived the newcomers' success as detrimental to their own. To address this tension, special attention was given to helping "original inhabitants" take advantage of community investment activities such as micro-credit programs. Measures included actively seeking proposals from "original inhabitants" and weighing them higher than those from "new arrivals," while not excluding new arrivals entirely.

Source: AG MacKenzie & J. Pooley, "Sustainability Challenges: Community Development Initiatives at Sadiola & Yatela Gold Mines, Mali, West Africa."participate in and support.



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Image 19. Peanut Butter Producers Trained by Sadiola Foundation, Sadiola, Mali.

STRENGTHENING PROJECT CAPACITY

When in-migration is identified as a problem after the project is underway, the Project may need to strengthen its own capacity in a number of areas, including stakeholder engagement, monitoring and evaluation and project security. Stakeholder engagement and monitoring and evaluation were described in a previous section.

Strengthening Project Security

In addition to strengthening stakeholder engagement and monitoring capacity, a project can address the impacts of in-migration is through the strengthening of project security. A project's security program has a number of tools at its disposal to address security threats and mitigate their negative affects.

One of the most important public commitments a company can make is to abide by the Voluntary Principles for Security and Human Rights (VPSHR).[4] The VPSHR are gaining general acceptance as an internationally accepted standard for extractive industries operating in developing countries to maintain their security while protecting human rights and enhancing the professionalism of host nation public security forces. While the standard was developed in relation to extractive industries, its basic themes can be applied to any type of development project.

Human Resources and the Composition of the Security Force

Security guards are normally a relatively high percentage of a typical project's workforce, because security posts and responsibilities continue 24 hours a day. This is especially true during full production, when the construction workforce has demobilized and only the plant operating workforce remains. The training requirements for security guards, while extensive, can tap the semi-skilled labor pool. The local inhabitants are often keen to join the security guard force, seeing it as long-term employment requiring little hard physical labor. However, one concern with using local inhabitants is that they may have divided loyalties when maintaining protection for high-value, easily stolen property. Traditional social structures may dissuade them from deterring or reporting a family member involved in a crime against the project. This concern is manageable, however. Although bringing in all the security guards from outside the local area[5] is likely to be unacceptable to local leaders who see it as another example of the project marginalizing them, hiring a blend of local and non-local security men will often address this issue.

4 http://www.voluntaryprinciples.org/

5 Security guard companies normally favor this approach, because it reduces their liability and limits the possibility of guard collusion with local criminals. It also tends to reduce absenteeism as non-local guards live at the company accommodation area and are under control of their supervisors.

In some critical locations such as fuel storage areas, property warehouses, and sensitive access control points, two guards – one local and one non-local – will be the most effective security arrangement. When hiring "local" guards, security and human resources must collaborate to ensure those selected are actually indigenous and not newcomers who may have bribed an official for a local residency card.

Contracted Security Services

A project can exert direct pressure on a contracted security guard company to accept and adhere to the project's ethical standards, the VPSHR, and the project's hiring guidelines as part of the guard service contract. In addition, the security guard contractor can have a significant influence on local conditions by skillfully managing personnel recruiting and advancement.

It may be helpful to require the guard company to employ an equal number of local and non-local guards as required by the project, but to assign some of them outside the local area. This meets the expectation that security guard jobs are available to the local inhabitants. The private security guard force will require thorough, professional training in the use of force, in order to prevent an abuse of force when the guards confront disruptive behavior on or near the project's operations. All concerned must be transparent in this effort to prevent misunderstandings.

Security Interaction in the Community

In coordination with the community relations manager, the security manager has a role to play in communicating and forewarning the local community of the likely consequences of unrestricted in-migration. This phenomenon may be unexpected or underestimated by local traditional leaders. A Community Security Forum, meeting regularly, is a useful expedient to share information, manage expectations, defuse frustrations, and channel disputes toward resolution.

Physical Security, Encroachment, and Entrepreneurs

One of the most insidious phenomena of in-migration is the encroachment of newcomers onto project property, along perimeter fences, or on the access right of way. Squatters, artisanal miners, and small vendors spring up literally overnight. Even refuse dumps and discard areas will attract scavengers and opportunists. The spread of instant occupations, the conversion from hovels to tents, shacks, houses, and villages can be an almost unbelievably rapid transition. Once established, they are extremely resistant to being moved, while others see their success and emulate it. Once in-migrants have established themselves on land important to the project, the magnitude of the problem becomes apparent, so the greater the distance between the project's key facilities and the project perimeter the better.

The project must have a robust physical security envelope that protects all, or at the very least the most vulnerable and sensitive areas of the project's operations. Security managers are normally attuned to this danger and take prompt action, but they must communicate this adequately to the project, its workforce, and the local community.

MITIGATING ENVIRONMENTAL IMPACTS

Risks of landscape-level environmental impacts can be of particular concern when a large population influx is observed and environmentally sensitive areas are located at or near a project area. Environmental impacts can be avoided or minimized if these risks are recognized in a timely manner, and a degree of focused environmental and land use planning and management is implemented by the project in cooperation with the local or national authorities.

Where impacts affecting forests and biodiversity through logging and harvesting of timber and wildlife hunting are potentially significant, cooperation and coordination with competent authorities for natural resource management and environmental protection should be sought at the project's onset. If environmentally sensitive areas and resources are present in or near the project area and may be affected by impacts induced by an increased population pressure, an inventory of these sensitive areas should be available from the early stages of the project and should be maintained by the project throughout the construction phase and after, as needed. This inventory will provide both a baseline and a tool to monitor impacts during project implementation.

It is recommended that observations are shared with the local authorities. Land use mapping and other planning tools can also be designed to provide support in mitigating and managing impacts due to uncontrolled exploitation of borrow pits and soil resources for construction materials. Where appropriate, the project might consider supporting the newly settled communities, providing assistance for fuel wood and construction material from local suppliers, and designing community programs to promote sustainable use of forests and natural resources.

Point-specific impacts are associated with environmental degradation caused by improper disposal of solid waste and wastewater, and depletion of water resources. The project should work with the communities to identify water availability and management options, and promote sustainable management of water sources and infrastructure and safe management of waste. Mitigation measures include sanitization of settlements, with provision of run-off drainage infrastructure, properly designed latrines and septic tanks (taking into account seepage risks and impact on water resources), garbage collection, and provision of water supply systems (water wells, springhouses, and surface water intakes).

Establishing community committees for maintenance and management of water supply and sanitation is recommended, coupled with training in the operation and maintenance of water points, drainage networks, and garbage collection. Rehabilitation of land at waste dumps, latrines and sewage discharge drainage, and other potentially contaminated sites should also be implemented, as well as due diligence and clean up of spontaneous settlement sites, whenever they disappear when construction camps demobilize.

ADDRESSING NEGATIVE SOCIAL IMPACTS

The negative social impacts of project-induced in-migration can be addressed through the following activities:

1. Strengthening government capacity;
2. Building awareness and the capacity of civil society to be involved in managing the changing social dynamic; and
3. Addressing key potential impacts through improved spatial planning and improvements in housing, water and sanitation, and health.

Governance

Local government awareness, understanding, and capacity may often be limited, and the government may be unable to respond effectively to the rapidly evolving situation. In such cases, there is a need to strengthen government and departmental capacity in planning, management, and delivery of relevant and timely programs.

The strengthening of governance and sectoral capacity may be achieved through, for example, programs that deliver training in planning, budgeting, performance, and resourcing; focused interventions in sectors or on specific issues, such as revenue management, health and education; and the temporary secondment of senior and experienced government departmental staff to local and regional government.

Law and Order

The local police and possibly other state security elements have a legal and sovereign right and obligation to maintain order and the rule of law. The inevitable in-migration of outsiders will increase the workload of local police, often without bringing additional state resources to manage that workload. Beyond the question of resources, in many countries the local authorities will rarely have the management capacity and training to deal with the complex problems in-migration and rapid population growth will bring.

The project can take steps to press national level authorities to provide the resources, manpower, and equipment and training to address the new problems. If the project cannot persuade the government to provide this from tax and royalty revenues, then the project must assume responsibility for the task itself or face potentially serious consequences.

One effective program that serves the best interests of the project, community, and police is a Community-Oriented Police Program. This internationally recognized training and coaching program brings together the community and police with the aim of improving the community's confidence in the effectiveness of the police, and developing the capacity of police in communication and appropriate methods to maintain law and order without excessive force or human rights abuse. A respected and professional police force, operating in communities that feel they have a stake in their security and can voice their concerns with a high expectation they will be addressed, defuses a major cause of security incidents.

Managing Social Change

This intervention aims to improve the capacity of individuals, families, communities and civil society to manage the accelerated rates of changes that project development and an influx of migrants brings. The intervention is based upon building awareness and understanding of potential changes, identifying the basis for local ownership of change management programs, and supporting change management programs. Activities may include:

- A stakeholder engagement framework that leads to early recognition and engagement of new stakeholders as they appear;
- Establishment of representative migrant groups and community fora;
- Measures to strengthen cultural and social cohesion;
- The involvement of religious and cultural institutions and security elements in migrant and community group fora;
- Development and implementation of community events such as sports events, or participation in community events such as national day celebrations, to promote greater awareness and understanding and improved community relations; and
- Development and delivery of specific sectoral change management messages through mass media.



EXAMPLE: MANAGING CHANGE, THE FUTURE IS IN YOUR HANDS, TANGGUH PROJECT, PAPUA/INDONESIA

The Tangguh Project in Papua/Indonesia developed a video concerning the management of project-induced change that was used to promote awareness and understanding of the changes that the project might bring and encourage community level management. The video drew on documentary evidence from other OGM projects, including projects in Alaska, Ok Tedi in PNG, etc., to highlight potential impacts and provide local people with an opportunity to contextualize the changes they see occurring around them. The video concluded by identifying the need for all stakeholders to be involved in proactive management rather than remain passive observers of an ongoing phenomenon.

REVERSAL OF NEGATIVE SOCIAL DYNAMICS

Some existing projects may face a situation where the social environment has deteriorated to the extent that the pre-conditions for the interventions identified in this section no longer exist. These projects have achieved a steady-state negative equilibrium, allowing the project and the surrounding communities to co-exist with periodic conflict and to some extent periodic infusions of additional benefits. Such a state is not particularly developmental, and these projects face the challenge of reversing an adverse social dynamic. Various activities may contribute to the analysis of the situation and development of action plans, including:

- Disaggregating and analyzing the key issues;
- Analyzing stakeholders, including identification of powerbrokers, their relations and networks;
- Analyzing stakeholder objectives and identification of common objectives;
- Identifying commonalities and differences between stakeholders with a view to identifying deal breakers;
- Finding common understanding of roles, responsibilities, and what is achievable;
- Developing solutions that provide benefits to all stakeholders, develop clarity regarding trade-offs and their consequences, and provide incentives for behavior change; and
- Ensuring that agreed solutions include community-level checks and balances.

Spatial Planning, Housing, and Water and Sanitation

Unregulated, spontaneous growth of settlements is typically associated with high-density occupancy and poor living conditions, including inadequate housing, water, and sanitation. The development of spatial plans and investment in the delivery of better-planned settlements with improved housing and access to water and sanitation can be a significant contribution to alleviating poor living conditions associated with high levels of in-migration. Appropriate technology options for housing, electricity, water, and sanitation should also be promoted. Where appropriate, the project might consider the introduction and support of micro-finance options that support this.



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Image 20. After fires in 2002 and 2003, the local government and the oil consortium worked together to establish a buffer zone along the main road between the Komé Atan settlement and the oil consortium construction camp in Chad, near the Chad-Cameroon Oil Pipeline Project. The photograph shows the buffer zone separating the first row of houses from the road. Before the fires, this area was occupied by large numbers of randomly placed temporary thatch buildings stretching along the length of the road. Such development was associated with higher exposure to dust from passing traffic and higher risks of traffic accidents.



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Image 21. Komé Atan settlement, Chad near Chad Cameroon Oil Pipeline Project. After the 2002 and 2003, fires an increasing number of houses were built using permanent materials allowing Komé Atan to evolve from an informal, albeit long-established settlement into a new village recognized by local government.



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Image 22. A new street in Komé Atan settlement, Chad, near the Chad-Cameroon Oil Pipeline Project. After the 2002 and 2003 fires, the local government and the Oil Consortium worked together to develop an organized village layout with wider streets.



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Image 23. Project-sponsored village water well, Komé Atan settlement, Chad, near the Chad-Cameroon Oil Pipeline Project. Water availability and management was recognized to be an important contributor to improving harsh living conditions in the informal settlements located around the project facilities. In Komé Atan, a Villagers' Water Committee for Water and Sanitation was established, and training in the operation and maintenance of water points and drainage network was provided. The establishment of a tariff for water promoted sustainable maintenance of water points.

Mitigation of Health Impacts

Based on the level of risk of potential influx-related health impacts in a project area, a project may need specific programs to mitigate health impacts. The Environmental Health Areas (EHAs) framework is a standard method for analyzing project-triggered health impacts. The EHA framework allows for a systematic evaluation of a project's potential health impacts by considering 12 areas of risk.

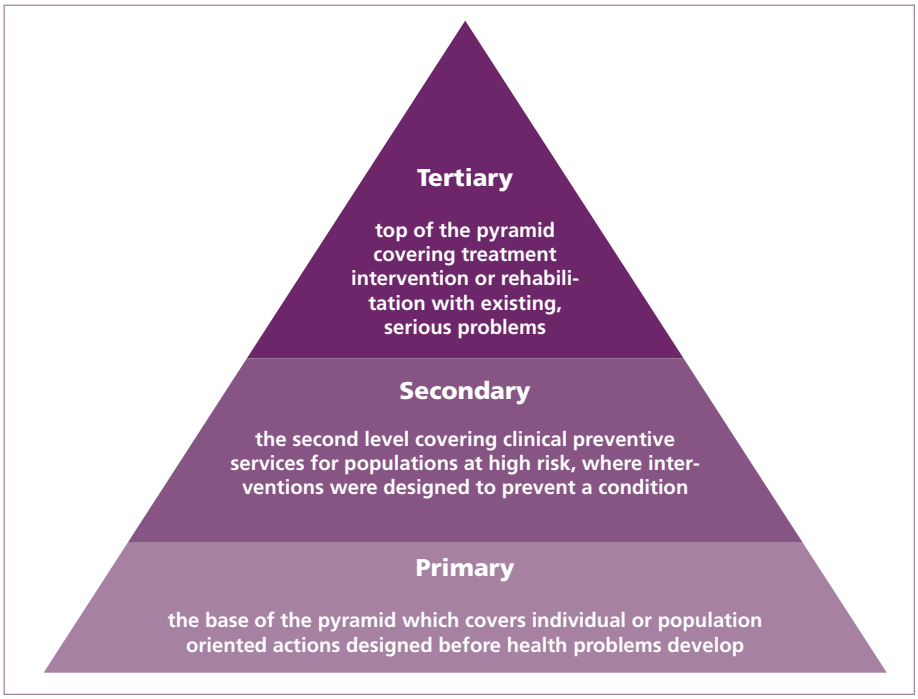
Any overall health impact mitigation strategies should be organized around two fundamental public health concepts: health promotion and disease prevention.

The overall mitigation of influx-related health impacts should be an integrated effort, since health is intertwined with environmental and social determinants. It is far more cost-effective and efficient to develop an integrated effort rather than multiple discrete plans. For example, increases in road traffic accidents can be a direct consequence of a project and significantly exacerbated by in-migration. The social and health burdens are significant, and local communities rarely have the required traffic management systems. An integrated approach to mitigating this type of impact is essential, as the health system alone will not be able to solve the problem.

In general, influx produces a series of impacts across the defined EHAs that can be reasonably anticipated, allowing for the development of a series of generic mitigation strategies. (See Annex 2 for general mitigation measures for each EHA.) However, each project and location has unique features and should adapt these strategies based on the site-specific characteristics.

Any overall health impact mitigation strategies should be organized around two fundamental public health concepts: health promotion and disease prevention. Health promotion and education strategies include any intervention that seeks to eliminate or reduce exposure to harmful factors by modifying human behaviors, or any combination of health education and related organizational, political, and economic interventions designed to facilitate behavioral and environmental adaptations that will improve or protect health.

FIGURE 9. DISEASE PREVENTION PYRAMID



Disease prevention strategies include any intervention that seeks to reduce or eliminate diagnosable conditions. These strategies may be applied at the individual level, as in immunization, or at the community level, as in the chlorination of the water supply. Disease prevention is often illustrated by the prevention pyramid (Figure 9) which is composed of:

- **Primary interventions** (the base of the pyramid), which cover population-oriented actions designed to prevent health problems before they develop;
- **Secondary interventions** (the second level), which include clinical preventive services for populations at high risk, where interventions are designed to prevent a condition; and
- **Tertiary interventions** (the top of the pyramid), covering treatment intervention or rehabilitation with existing, serious problems.

The placement of population-oriented prevention at the base is significant in its focus on all of the people as recipients, its broad, long-lasting impact on health, and its role in defining and facilitating the entire system.

Project Closure

Legacy issues associated with in-migration are associated with economic decline and the concomitant threat of unemployment and poverty, the lack of sustainability of infrastructure, services, and utilities, and out-migration. The project should develop and disseminate project closure plans well in advance of closure that address these issues.



5 PART FIVE: Developing an Influx Management Strategy and Integrating it into the Project



Once a project recognizes risk and management is aware of and understands potential management approaches, the next steps involve developing a management strategy and integrating it into the project. This section aims to answer the following questions:

- **How do you develop an influx management strategy?**
- **Should the project develop a stand-alone In-Migration Management Plan?**
- **What should a strategy or plan look like?**
- **What combination of management approaches and interventions should be adopted?**
- **What is the minimum set of measures that a project should adopt and implement?**
- **What are the management implications associated with the strategy and selected measures?**

Introduction

As indicated in Part Three, all projects where in-migration is likely to occur and is recognized as having the potential to cause changes in the project context need to conduct a situation analysis. This provides the basis for understanding the likely pattern of development of the in-migration phenomenon, and identifying its most significant potential environmental and social impacts. The situation analysis will inform management options and should lead to the development of a management strategy, and possibly a stand-alone implementation plan Annex 6 provides a summary of project approaches to in-migration management.
Annex 7 presents an outline of an influx management strategy and implementation plan.

Every project needs a strategy, but not every project needs a stand-alone plan.

PLANS THAT MAY INTEGRATE INFLUX MANAGEMENT INTERVENTIONS

- Human resource management plan
- Stakeholder engagement plan
- Resettlement action plan
- Indigenous peoples' development plan
- Environmental and social impact management plans
- Community development plans
- Security plans

Should a Project develop a stand-alone influx management plan (IMP)? In general, it is recommended that if selected interventions can be considered the responsibility of existing project operations or programs, they should be integrated into these operations and programs. For example, a project may already have developed, or be in the process of developing, plans and programs in support of project implementation and that address its environmental and social impacts. Human resource management plans will describe workforce recruitment and management; a stakeholder engagement plan will describe how the project will engage stakeholders; resettlement and indigenous peoples' plans will have been developed where needed, and community development plans will include sector-specific programs covering governance, law and order, banking, health, etc. In such cases, it is not recommended that projects establish parallel influx-specific programs.

Where such plans and programs are under development or already exist, implementation of the influx management strategy should include:

(i) a review of these operational responsibilities and programs;
(ii) integration of the selected influx management interventions (including objectives, actions, and M&E indicators) into existing operations and programs; and
(iii) ongoing monitoring and evaluation to assess their effectiveness.

DETERMINANTS OF AN INFLUX MANAGEMENT STRATEGY AND IMPLEMENTATION PLAN

The development of a project influx management strategy, specifically the combination of management approaches and component interventions selected, will depend on several factors including:

- Definition of the project;
- The objectives of the strategy;
- The project context;
- Project status;
- Progress of in-migration phenomenon and its impacts;
- Buy-in and capacity of potential partners to collaborate in the design and implementation of the selected measures and their ongoing management requirements; and
- Resource costs of both the individual and the combination of selected management approaches.

The following sections consider these factors in more detail.

Defining the Project

A project in-migration management strategy must be based upon an agreed definition of the project. It is recommended that:

- Where project-induced in-migration is recognized as a problem at early stages of the project and for specific project locations, the analysis should still be conducted for all stages of the project cycle.
- Project-induced in-migration be considered for the project as whole, as defined by the project's physical footprint at operations and its broader area of influence, i.e., the likely project relationship to the local and regional context at the operational stage.
- An analysis of multi-local projects should consider each location. Projects whose footprint (or components thereof) changes over time should base the strategy on the core project footprint but incorporate approaches to address temporal changes in project focus.

In this way, the selected strategy will be based upon an end-game, rather than any specific project phase.

Objectives

At the outset, the project needs to define appropriate objectives in relation to management of project-induced in-migration and its impacts. Depending on the circumstances, project viability may be conditional upon broad-scale economic change, such as the development of mining towns providing goods and services for the mine. Therefore, no project should define success in terms of the absence of project-induced in-migration or its impacts. The

overarching goal is to successfully define and implement measures to manage the in-migration phenomenon, and avoid, prevent, and mitigate the direct and indirect adverse impacts associated with project-induced in-migration.

No project should define success in terms of the absence of project-induced in-migration or its impacts.

Like other environmental and social programs, an in-migration management strategy and/or plan may only be necessary and/or relevant for a defined period within the project life cycle. Projects with high construction phase demand for labor and goods and services may only require an in-migration strategy during exploration, feasibility and construction. As the project moves into operations, in-migration management activities may be increasingly directed towards strategic contributions to the economic development of the region. However, projects with construction and operations phase demand for labor and goods and services may require a longer-term in-migration management strategy and plan. Ideally, all projects facing a medium to high probability of influx should integrate influx management considerations in their design.

The definition of useful project objectives will require reference to the project context and the time when management of influx and its impacts is considered, relative to the project cycle and the onset of in-migration and its impacts. For example, at the start of a project, where there may be scope to manage in-migration through appropriate design and planning, a project may consider successful management in terms of minimizing in-migration of speculative job seekers. As such, the objective may be expressed in terms of limiting the rate of population influx.

Ideally, all projects facing a medium to high probability of influx should integrate influx management considerations in their design.

Where the project is more concerned with managing the in-migration footprint and/or where in-migration processes are already underway, a project may consider successful management in terms of objectives related to managing the influx footprint and/or specific influx-related impacts. Later, a project may seek to address the adverse social dynamics brought about by in-migration.

Project Context

The project context is important in defining the probability of in-migration, the risk of in-migration induced impacts on the project context and the relevance of selected interventions. The tendency toward concentration and dependency and the assimilative capacity of the area are critical in determining the impacts of in-migration. Refer to Part 3 (p. 54) for an assessment of the probability and likely impacts of influx.

Status of the Project

The status of the project is important in that it determines the range of potential management options available to the project. Considering the risk of influx at the start of a project provides the opportunity to select from all identified approaches, and combine selected interventions from each of them.

By combining approaches involving reducing in-migration, managing its footprint and addressing its potential negative impacts, early consideration is likely to be associated with a greater degree of success in influx management. Early consideration also facilitates the integration of the selected interventions within the project, thereby also increasing their chances of success. Late consideration limits the range of options available, and often focuses on management of in-migration impacts, although opportunities to manage in-migration and its physical and social footprint should continue to be considered.

Progress of In-Migration Phenomenon

The status of the in-migration phenomenon – ongoing in-migration, its footprint, the type, scale and severity of impacts – will determine the need for and relevance of potential interventions. Where in-migration is already underway, projects often focus on management of impacts. Nonetheless opportunities to manage in-migration and its physical and social footprint should also be considered.

Key Actors: Capacity, Roles, and Responsibilities

At the outset, it should be recognized that all stakeholders have a role to play in managing in-migration. Private sector projects occasionally take the position that either in-migration is attributable to the broader economic development of the region, and/or the government is responsible for managing in-migration and its environmental and social impacts. However, this view fails to take account of two key issues:

(i) The project role and responsibility in inducing in-migration in the project area of influence and the very real local impacts of in-migration felt by the project-affected population and the project alike; and
(ii) The will, capacity, and resources of government (and other stakeholders) to act in a timely manner.

Whether project development serves to induce in-migration or is a catalyst for the broader economic development of the region, thereby leading to in-migration, it is still within the project's ability to contribute to a reduction in in-migration and to the prevention and/or mitigation of its impacts. It is therefore effectively "enlightened self-interest" for a project to address project-induced in-migration.

The section on page 68 describes stakeholder identification and assessment. The section on page 83 describes the need for stakeholder capacity building, recognizing that where government will, capacity, and resources are limited, there may be a need for additional project level investment and programming in advocacy, capacity building and resources. The issue of resources is discussed below.

Resources

One of the key issues associated with managing in-migration is who should provide the resources to support the development of the risk assessment and situation analysis and the implementation of the influx management plan and its component activities.

While the risk assessment, situation analysis, and development of an influx management plan are the responsibility of the project, implementation of the influx management plan may require the support, participation, and resources of multiple stakeholders.

At the outset, it should be recognized that, while triggered by the project, the major burden and costs of influx fall on the local population and local and regional governments responsible for public infrastructure, services, and utilities - although the latter often lack the capacity and/or resources to respond in a timely and adequate fashion. Influx costs also usually occur before the government is receiving any revenue stream that would allow them to address these costs. The project should recognize that management of project-induced in-migration is unlikely to become a government priority.

With limited government human and financial resources, government contributions to influx management programs will inevitably rely on securing additional resources. There are various opportunities for securing additional financial resources for local and regional governments, including:

(i) Multi-partite infrastructure contribution agreements involving central, regional, and local governments and the project that define what infrastructure is to be provided, when, by whom, and how it will be financed, and who will be responsible for management;
(ii) Use of tax breaks or royalty offsets for company contributions;
(iii) Promotion of more rapid and direct tax and revenue distribution by central government to regional and local governments carrying the burden of influx; and
(iv) Partnership with MFIs and/or bilaterals.[1]

[1]MFIs and bilateral agencies can provide loans against future government revenue streams associated with the project.

The selection of interventions should also consider the resource costs of individual approaches, or the combination of selected management approaches. Where interventions involve the development of infrastructure, services, or utilities, the construction, operating, and maintenance requirements of these interventions, including technical skills, supply logistics (source, transportation, cost, reliability), and financial resources needs to be considered, agreed upon, and verified prior to agreeing on specific actions.

SELECTION OF INTERVENTIONS

In Part 4 of this document, three management approaches intended to address the key aspects of the in-migration phenomenon and its impacts were described. The key objectives of each of these approaches were as follows:

- Management of project-induced in-migration into the project area, which includes minimizing in-migration, managing the inflow of in-migrants, and managing the physical and social footprint of in-migration within the project area;
- Improved stakeholder engagement and monitoring and information flows; and
- Mitigation of adverse impacts associated with in-migration.

It is likely that the project strategy will comprise interventions from all three approaches, although as discussed the relative emphasis will depend on when, in the project cycle, influx management is considered. This section addresses the basis for selection of interventions.

Assessing Potential Interventions

5 KEY STEPS IN ASSESSING POTENTIAL INTERVENTIONS

1. Define Scope and/or Need
2. Assess Design, Construction and Management Requirements
3. Assess Resource Requirements
4. Compare Alternatives
5. Finalize Objectives

Step 1: Define Scope and/or Need for Possible Interventions

The first step in the selection of interventions is to define the scope and/or need for the interventions. The need for the intervention is based upon the assessment of probable impacts conducted in the situation analysis (Part 3). In addition, there should be an assessment of whether the intervention is still possible and relevant, given the state of the project and the project-induced in-migration impact. The existence of the programmatic intervention in other project programs (impact mitigation, CSR) should also be taken into account. Table 11 provides a template for documenting relevance and impact for the interventions identified in Part 4.

Given that project-induced in-migration is an early onset and rapid phenomenon, it is critical that the project develop and implement early and effective monitoring systems to inform management of influx and its associated impacts on a timely basis. Further adoption of appropriate labor management and recruitment policies should be done as a matter of best practice. Finally, stakeholder engagement and a clear definition of Project Affected People and benefits should be a matter of best practice. Accordingly, in the table these interventions are ticked in the affirmative.

TABLE 11

	Intervention	Applicable/ Identified Impact Y/N	Existing Program? Y/N	Comment
Stakeholder Engagement and Monitoring of the Migrant Population				
1	Stakeholder engagement	Y	Y	
2	Monitoring the migrant population	Y	Y	
Managing Project-induced In-migration (Inflow and footprint)				
1	Promotion of regional diversified growth strategies			
2	Use of buffer zones			
3	Planning access routes			
4	Initial project footprint			
5	Spatial planning, administration, and resource allocation			
6	Planning infrastructure, services, and utilities			
7	Workforce recruitment policy and management	Y	Y	
8	Planning worker transportation			
9	Planning worker housing			
10	Procurement of goods and services			
11	Definition of project-affected people (PAPs) and benefits	Y	Y	
12	Local and regional government capacity			
Mitigating the Negative Impacts of Project-induced In-Migration				
1	*Effective Delivery of Project Benefits*			
	PAP definition, compensation and benefits			
	Vocational training			
	Banking services			
	Enterprise development			

TABLE 11 CONTINUED

	Intervention	Applicable/ Identified Impact Y/N	Existing Program? Y/N	Comment
2	*Strengthening Project Capacity*			
	Security			
	Stakeholder engagement and M&E			
3	*Negative Environmental Impacts*			
4	*Negative Social Impacts*			
	Governance			
	Law and order			
	Managing social change			
	Reversal of negative social dynamics			
	Spatial planning, housing and water and sanitation			
	Mitigation of health impacts			
	Legacy issues			

NB. The boxes ticked in the affirmative indicate the minimum requirements for an in-migration mitigation strategy/ plan

Table 12 sets out the relevance of interventions at different stages of the project cycle. Interventions requiring modification of project design need to be identified and adopted early in the project cycle - often prior to the ESIA and any physical presence of the project on the ground. Programmatic interventions can be implemented throughout the project cycle, although their impact is greater when implemented early in the cycle.

TABLE 12

	Selected Approach and Intervention	Design	Construction and Operations	Programs
Stakeholder Engagement and Monitoring of the Migrant Population				
1	Stakeholder engagement			X
2	Monitoring the migrant population			X
Managing Project-induced In-migration (Inflow and footprint)				
1	Promotion of regional diversified growth strategies	X		X
2	Use of buffer zones	X		
3	Planning access routes	X	X	
4	Initial project footprint	X	X	
5	Planning access control	X	X	
6	Spatial planning, administration, and resource allocation	X	X	X
7	Planning infrastructure, services, and utilities	X	X	X
8	Workforce recruitment policy and management		X	
9	Planning worker transportation	X	X	
10	Planning worker housing	X	X	
11	Procurement of goods and services	X	X	
12	Definition of project-affected people (PAPs) and benefits	X	X	
13	Local and regional government capacity	X	X	X

TABLE 12 CONTINUED

Selected Approach and Intervention		Design	Construction and Operations	Programs
Mitigating the Negative Impacts of Project-induced In-Migration				
1	*Effective Delivery of Project Benefits*			
	PAP definition, compensation and benefits		X	X
	Vocational training		X	X
	Banking services			X
	Enterprise development			X
2	*Strengthening Project Capacity*			
	Project security		X	
	Stakeholder engagement		X	
	Monitoring and evaluation		X	
3	*Negative Environmental Impacts*		X	X
4	*Negative Social Impacts*			
	Governance			X
	Law and order			X
	Managing social change			X
	Reversal of negative social dynamics			X
	Spatial planning, housing and water and sanitation			X
	Mitigation of health impacts			X
	Legacy issues	X	X	X

Step 2: Assess Design, Construction, and Management Requirements

Program design, construction, and/or management may involve various stakeholders, including the project, local and regional government, non-governmental organizations, community-based organizations, and the affected communities.

Many projects demonstrate good intentions by recognizing the risk of in-migration and induced impacts, but subsequently lose focus in defining programs.

The project should conduct an analysis of the proposed interventions in terms of the need for stakeholder involvement in design, construction, and/or management of the selected interventions. Often, a project elects to design and implement the selected intervention because it is an acute problem and government lacks the will, capacity, and resources to effectively participate. This is often done with the intention of handing over the intervention to local government for ongoing management. However, with limited engagement, limited capacity, and resources, government may be reluctant to assume responsibility and by default projects get drawn into functioning as de facto government or public service providers. Table 13 outlines typical responsibilities for design, implementation, and management, highlighting those interventions which often, by default, become the ongoing responsibility of the project.

Step 3: Assess Resource Requirements

The resource requirements for the design, implementation, and ongoing management of selected interventions should be assessed. Interventions requiring public sector contributions should be identified and means of securing public sector commitment to provision of resources identified.

Step 4. Compare Alternatives – Outcome, Cost, Time

The project should conduct a thorough analysis of the potential effectiveness, complexity, and cost of each of the proposed interventions by considering:

- Their ability to address the key in-migration and negative environmental and social impacts experienced by the project;
- The timeframe in which these outcomes are to be achieved;
- The requirements for stakeholder participation and action in design, construction, and management; and
- Their cost.

While the majority of interventions are complementary in nature, where resources are limited and/or competing interventions are being considered, this analysis should inform decisions regarding the final selection of the interventions.

Step 5. Final Selection and Definition of Objectives

On the basis of Step 4, the project should select its interventions. Subsequently, in addition to definition of a project-level objective for management of project-induced in-migration and its adverse environmental and social impacts, the selection of specific policies and sector-specific programmatic interventions should be accompanied by a statement of the objective of the intervention (vis-à-vis project-induced in-migration and its impacts), how the intervention will help achieve the objective, the intended outcomes (vis-à-vis in-migration), and the time frame within which these outcomes might be expected.

Many projects demonstrate good intentions by recognizing the risk of in-migration and induced impacts, but subsequently lose focus in defining programs. For example, adoption of a preferential local workforce recruitment policy can lead to increased employment of local people on the project, but will not in and of itself necessarily stem project-induced in-migration. Similarly, implementation of a vocational training program may be useful to develop the capacity of the local population to participate in the project, but in itself will not have any impact on in-migration. In both examples, the objective of the interventions relate to protection of the benefits of PAPs. It is worth noting that in both cases the interventions need explicit definitions of the target group and appropriate enforcement and M&E is required.

Minimum Requirements

Minimum requirements comprise a project commitment to: (i) stakeholder engagement - development and use of appropriate communication media and messaging beyond the immediate project area of influence; (ii) development and support of appropriate workforce recruitment and management policies and procedures; (iii) a monitoring, evaluation, and response plan, including monitoring of in-migration and potential impacts together with a response plan; and (iv) the definition of project affected people and benefits.

Integration into the Project

The above analysis will provide a final list of selected interventions, together with information about their overlap with existing programming initiatives, resource requirements, and third party involvement in design, implementation and management.

The final step is to either: (i) integrate an in-migration dimension into existing programs; or (ii) design, plan and implement new programs. Integration into existing operational or programmatic initiatives should be a thorough and rigorous exercise involving meeting with owners of the existing activities and integration of objectives, activities, monitoring, and evaluation into the activity and an agreed reporting requirement. New resources may be required to be added to existing departments and programs, and new initiatives need to be assigned to the relevant department, and planned, resourced, and implemented as appropriate.

TABLE 13

Intervention		Design			Implementation			Management		
		Prjt	Govt	Other	Prjt	Govt	Other	Prjt	Govt	Other
Stakeholder Engagement and Monitoring of the Migrant Population										
1	Stakeholder engagement	X			X			X		
2	Monitoring the migrant population	X	X		X	X		X	X	
Managing Project-induced In-migration (Inflow and footprint)										
1	Promotion of regional diversified growth strategies	X	X		X	X			X	
2	Use of buffer zones	X								
3	Initial project footprint	X			X					
4	Spatial planning, administration, and resource allocation	X	X		X	X		X	X	
5	Planning infrastructure, services, and utilities	X	X		X	X		X	X	
6	Workforce recruitment policy and management	X			X			X		
7	Planning worker transportation	X			X			X		
8	Planning worker housing	X			X			X		
9	Procurement of goods and services	X			X			X		
10	Definition of project-affected people (PAPs) and benefits	X			X			X		
11	Local and regional government capacity	X	X		X	X		X	X	

TABLE 13 CONTINUED

Intervention		Design			Implementation			Management		
		Prjt	Govt	Other	Prjt	Govt	Other	Prjt	Govt	Other
Mitigating the Negative Impacts of Project-induced In-Migration										
1	Effective Delivery of Project Benefits	X			X			X		
2	*Strengthening Project Capacity*									
	Security	X			X			X		
	Stakeholder engagement	X			X			X		
	M&E	X			X			X		
3	Negative Environmental Impacts	X			X			X		
4	*Negative Social Impacts*									
	Governance	X	X			X			X	
	Law and order	X	X			X			X	
	Managing social change	X	X		X	X		X	X	
	Reversal of negative social dynamics	X	X		X	X		X	X	
	Spatial planning, housing and water and sanitation	X	X		X	X		X	X	
	Mitigation of health impacts	X	X		X	X		X	X	
	Legacy issues	X	X		X	X		X	X	

Annexes

- **Annex 1:** Assessing the Risk of Project-induced In-migration Health Impacts
- **Annex 2:** Mitigation of the Potential Health Impacts of Project-induced In-migration
- **Annex 3:** Terms of Reference for an Influx Risk Assessment and Situation Analysis
- **Annex 4:** Analysis of Predicted Environmental and Social Impacts from Project-induced In-migration
- **Annex 5:** Outline of Influx Management Strategy and Implementation Plan
- **Annex 6:** Project Approaches to the Management of In-migration
- **Annex 7:** Terms of Reference for an Influx Management Strategy/Plan

Annexes

ANNEX 1:

ASSESSING THE RISK OF PROJECT INDUCED IN-MIGRATION HEALTH IMPACTS

The potential health impacts (positive, negative, or neutral) related to project triggered in-migration can be considered within each EHA category. Using this approach, it is possible to create a series of descriptive "risk assessments" for each of the EHAs relative to project-induced influx and/or its potential effects. Each risk assessment should include a description of (i) current baseline conditions; (ii) the postulated impact; and (iii) analysis of the rationale for the potential impact. When considering in-migration induced health risks for each EHA category, attention should be given to:

- **Impact** – overall positive, negative, or neutral;
- **Nature** – direct, indirect, or cumulative;
- **Duration** – exploration, feasibility, construction, operations, and closure;
- **Extent** – localities where the projected influx impact is most likely to be experienced (local or regional);
- **Magnitude** – the sense of degree, extensiveness, and scale, particularly in terms of existing baseline conditions; and
- **Likelihood** – the overall positive or negative risk potential.

RISK ASSESSMENTS FOR EACH ENVIRONMENTAL HEALTH AREA

The following section offers more information and guidance on how to create a descriptive risk assessment for each Environmental Health Area

1. Housing and Respiratory Issues

Baseline	Analysis of the key baseline conditions would include understanding the basic housing demographics for the potentially affected communities, including approximate population, number of occupants per room, age-pyramids, housing construction materials (particularly roofs and floors), monthly rental costs, etc. Much of this information is gathered in baseline social surveys. Many important features can be obtained using remote sensing techniques with selective ground-truthing.
Impact	The project triggers significant in-migration from extended family, job seekers, traders, and camp followers.
Analysis	In-migration pressure on existing occupancy levels can dramatically increase number of occupants per room. Respiratory disease transmission for influenza, lower respiratory tract infections, and TB can significantly increase. In resettlement programs, new housing can come under severe demographic pressure as extended family moves in and occupancy per room rises; hence the new housing is effectively under-designed.

2. Vector-related Diseases

Baseline — An understanding of the transmission dynamics of the key vector-borne diseases in the potentially affected communities is essential. Critical data may include entomological surveys, presence/absence/use of bed nets per household, prevalence surveys for children under age five (malaria), breeding site surveys, etc.

Impact — In-migration and associated spontaneous local construction introduces new reservoirs of the disease (e.g., malaria) and creates significant new breeding sites.

Analysis — In-migrants may or may not have the same levels of acquired immunity that are present in local communities; hence the risk of an epidemic surge is created. Often local construction techniques create an enormous set of new breeding sites (e.g., borrow pits) in immediate proximity to residents.

3. Sexually Transmitted Infections (including HIV/AIDS)

Baseline — There may be very little reliable information known about the baseline burden of STIs, including HIV/AIDS. The most useful HIV prevalence data comes from pre-natal clinic sites, but this information is infrequently available for most locations. Knowledge, Attitudes, Beliefs, and Practices (KABP) surveys may or may not be available. Usually there are significant baseline data gaps, as individuals typically do not seek medical care of STIs from government hospitals/clinics because of embarrassment and confidentiality concerns. Local pharmacies are much better sources of information, as patients can typically buy antibiotics directly from pharmacies without a prescription. The overall number of commercial sex workers (CSWs) is difficult to objectively determine, as significant levels of transactional sex may be occurring above and beyond recognizable "outside" sex workers.

Impact — In-migration triggers a dramatic rise in the "four M's": men, money, movement (influx), and mixing (i.e., the interaction between high and low disease prevalence groups). These factors are the conditions necessary to produce a surge in STIs.

Analysis — The numbers of CSWs typically rises as a function of in-migration and improved transportation access. In addition, long-haul truckers are a main core group that usually has higher disease prevalence rates and sufficient income to afford transactional sex. There is a synergistic effect of induced access via new and/or improved transportation routes, money, and mixing between local women and in-migrants.

4. Soil- and Water-Borne Diseases

Baseline

Soil- and water-borne diseases are extremely common in a developing country setting. Soil-transmitted parasites are known as geohelminths (e.g., pinworms, hookworms, whipworms, ascaris, etc.). These parasites can survive in soil without an intermediate host or vector. This is in contrast to mosquito-borne parasitic infections (e.g., malaria) which require an intermediate host for development. The geohelminths can infect both humans and animals and are spread by the fecal contamination of soil, foods, and water. Geohelminth infection is a significant cause of illness (morbidity) in young, school-age children. Individuals can be infected with multiple geohelminths (known as polyparasitism), and serious long-term chronic effects include malnutrition, delayed growth, anemia, vitamin-A deficiency, and poor school performance. Water-related diseases are typically classified into four types: (i) *water-borne*, resulting from consumption of water contaminated by human or animal excreta that contains disease causing pathogens (e.g., dysentery, cholera); (ii) *water-washed* (water-scarce), associated with insufficient quantities of water for personal hygiene and washing (e.g. trachoma eye infections) or general fecal-oral infections spread by lack of hand washing; (iii) *water-based*, caused by parasites living in other organisms that inhabit a water source and occurring when humans drink or contact the contaminated water (e.g. guinea worm, schistosomiasis); and (iv) *water-related* (insect-vector), diseases caused by insects (particularly flies and mosquitoes) that breed or feed in water sources, e.g., malaria, dengue, onchocerciasis, etc.

Impact

Significant influx can easily overwhelm existing, fragile community resources and increase the risk of a sudden disease outbreak. While projects prepare design specifications for increases in construction workforces, local communities rarely have the technical or financial wherewithal to proactively anticipate, design, and initiate water access and supply infrastructure enhancements.

Analysis

Significant community-level impacts should be anticipated. While there is a large body of experience related to community water-sanitation (WATSAN) development, the long-term sustainability of these efforts is often disappointing, because the technical and financial resources necessary for stable operations and maintenance are more difficult than anticipated. Community participation and buy-in are essential.

5. Food- and Nutrition-Related Issues

Baseline

For greenfield projects in rural settings, a high percentage of community members are typically engaged in some form of subsistence agriculture. Unrelated to influx, projects can have profound effects on local agricultural practices because of changes in land-use and a shift from a subsistence

economy to a cash system. Influx can rapidly exacerbate the underlying situation with increased pressure and competition on existing subsistence resources, e.g., fishing, hunting, small plot farming. Rapid influx can quickly trigger food inflation with serious health consequences for existing vulnerable populations. The baseline anthropometric measurement of children (under age five) provides broad insight into the underlying local nutritional situation. Anthropometric measurements include height and weight relative to age. These measurements are typically performed at local health facilities and do not require sophisticated laboratory support. As a function of age, young children follow a well-known "road-to health" that can be easily plotted against international norms. In addition, household-level nutrition surveys can be performed, although this requires advanced planning and preparation. Laboratory surveys of micronutrient levels (e.g., iron by measuring blood hemoglobin) can be easily performed in the field, although some technical equipment is required. More sophisticated vitamin assays are also possible; however, this level of effort requires much more sophisticated technical and laboratory support.

Impact — Changes to subsistence-level agricultural practices regularly occur in association with large infrastructure projects. Influx can significantly accelerate the direction of these anticipated changes. Food inflation should be anticipated. Overall impacts are likely to be mixed, i.e., both positive and negatives effects may be seen, as improved employment and change-over to a cash economy can trigger rapid improvement in nutritional status.

Analysis — Baseline data, including household and market basket surveys, are extremely useful for establishing baseline conditions. From a health perspective, baseline anthropometric data are often available and are an extremely useful way to monitor and evaluate short- and long-term community-level trends.

6. Accidents and Injuries

Baseline — Road traffic accidents and injuries are a huge and growing problem in the developing world, regardless of whether the setting is rural or urban. In addition, there are often very high rates of household injuries and accidents, such as burns, slips/falls, and drowning. Dramatic upsurges in local populations usually outpace the development of effective transportation infrastructure; hence, there is a significant risk of road traffic accidents that is superimposed on a fragile medical response system. In many developing country settings, urban area hospitals have an enormous burden of accident victims, and it is not uncommon to find almost 50 percent of in-patient beds occupied by trauma patients.

Impact — Direct road traffic accident impacts are a function of increased numbers of vehicles, bicycles, and pedestrians on an existing inadequately designed road infrastructure. Poor driving practices and vehicle maintenance, and a lack of a traffic enforcement system are also major contributors. Projects typically make substantial improvements to road design and quality, and this will eventually improve the situation; however, there is a lag between project-triggered influx and enhanced road capacity. Significantly increased road traffic is also associated with a greater emissions profile, including vehicular exhaust and road dust on unpaved but heavily trafficked highways. Many projects are surprised at the density of households within 200 meters of a road. The 200-meter distance is a typical "fallout" range for visible dust particulates generated by road traffic. During periods of rapid road construction, there is greater likelihood of creating breeding sites for vector-borne diseases such as malaria. Finally, leaks and spills are more likely to occur with increased traffic.

Analysis — Influx triggers a rapid rise in the burden that a fragile transportation system must bear. While local residents often are very enthusiastic about road and bridge improvements, it must be recognized that the creation of new and safe infrastructure will lag behind the rise in local population. Hence, during this "transportation transition," there is a period of extreme vulnerability for both projects and local communities.

7. Exposure to Potentially Hazardous Materials

Baseline — Exposure to potentially hazardous materials is primarily, although not exclusively, a site-related issue. Secure and safe transport of hazardous materials should be assured. Typically community exposures would be related to releases associated with spills, leaks, accidents, or process malfunctions. Improper disposal of site materials could also be a problem, particularly at landfills, as many local residents are attracted to these sites for economic scavenging. Incinerators are another source of airborne releases of potentially hazardous materials, e.g. heavy metals, dioxins, volatiles, etc. Improper final disposal of solid/liquid wastes, including sewage or food wastes is also a potential concern to the local communities. Empty containers from a project are highly sought after and used for a multitude of purposes, including rainwater catchment containers and food storage. Influx into local communities increases the demand for containers and enhances the likelihood of inadvertent commingling of residual industrial container residues with local water and food. In addition, potentially hazardous materials can be pilfered from construction sites and enter into community food chains as adulterants and contaminants.

Impact — Influx allows for more community residents to be exposed to and have direct contact with potentially hazardous materials.

Analysis — Rapid influx means a larger population, which enhances the likelihood of individual, household, and community exposure.

8. Social Determinants of Health

Baseline — Most communities have some underlying level of abnormal drug, alcohol, smoking, and gender violence, and local social cohesion, or lack thereof, may be present to some degree. However, project-induced influx, as a general stressor to the community, typically accentuates fissures and pathologies that may already be present. Core welfare indicators questionnaires (CWIQ) are a useful tool for understanding pre-project baseline conditions. These surveys have been developed by the World Bank and have been frequently utilized in sub-Saharan Africa. Project-induced influx may have both positive and negative effects on key social determinants of health. The influx of personnel and job seekers will potentially create disruption in the existing social cohesion, creating stress and potentially increasing violence due to the mixing of cultures and competition for limited resources and economic opportunities.

Impact — Local communities, especially in a greenfield subsistence location, often see immediate and unwelcome transformation triggered by new arrivals. Rapid economic changes can create a sense of "haves and have-nots" that destroys community cohesion and produces numerous population-level adverse effects, including a rise in crime, prostitution, personal violence, and drug and alcohol usage.

Analysis — A well-designed household-level social survey and monitoring system will capture the changes in key social determinants of health. This analysis overlaps with a project's social impact assessment, and the two efforts should be carefully coordinated. Rapid influx is virtually certain to produce short- and long-term impacts, both positive and negative, on local communities. The health ramifications of these changes are direct, indirect, and potentially cumulative in nature. As many of the long-term consequences are indirect and cumulative, and monitoring and evaluation of these influx-related changes is difficult and occasionally controversial, it is extremely important to carefully define the specific health-related impacts that are under consideration, so that overlap is avoided and a causal link between the project and the effect is maintained.

9. Cultural Health

Baseline — Although traditional healers and herbalists are common and are often used as the first source of health care in rural project areas, the extent and influence of indigenous healers is often poorly understood. Rapid influx of job seekers and extended family members from urban settings can alter the balance and influence of the indigenous local community health providers.

Impact — Influx can change the balance and use of local indigenous health practices and shift community thinking toward a more urban and western model. In terms of health outcomes, this transformation can be positive, negative, or both.

Analysis — Influx changes to local community health practices are inevitable if the influx is large and sustained over many years.

10. Health Services Infrastructure and Capacity/Program Management Delivery Systems

Baseline — In a developing country setting, local health care delivery systems are often precariously balanced in the best of situations. A rapid influx of job seekers and extended family members can place an immediate and unmanageable burden on local infrastructure, capacity, and program management delivery systems. Understanding the existing system, in terms of performance, is critical. In addition, local clinics and hospitals may be structurally understaffed and unable to meet new demands.

Impact — Rapid influx can overwhelm the local health care system. However, this scenario is not necessarily inevitable. Many projects have "inside the fence line" medical departments that absorb and meet the medical needs of the project workforce, especially during peak construction. In some situations, project medical departments see both workers and family dependents, which can significantly lower the burden on local health care providers and may mean that local services are not overwhelmed. It is extremely important for the project medical department to coordinate with local resources. The project can act as a medical magnet in terms of nurses and physicians and adversely affect government-run facilities, as public clinics typically do not pay as well as project services. Conversely, projects often help facilitate the movement of private clinics and providers into a community.

Analysis — Influx is likely to place substantial strain on local medical infrastructure; however, advance planning and coordination can significantly mitigate potential impacts. In addition, a project can have an enormous positive impact on program management delivery, e.g. bed net distribution and immunizations (via enhanced development of cold-chain and other logistics).

11. Non-communicable Diseases (NCDs)

Baseline — The rates of non-communicable diseases (NCDs) are a function of where local populations are in terms of the "epidemiologic transition," which is the movement of populations from a burden of infectious diseases to one dominated by hypertension, diabetes, and cardiovascular disorders. Rural populations tend to have large burdens of infectious diseases, while more urban areas have begun the transition to NCDs, particularly hypertension

and diabetes. If there is project influx from more urban areas, the local disease profile can rapidly change. Experience with large industrial sites in a developing country setting indicates that the switch from an infectious to a non-infectious disease burden can be rapid and dramatic, particularly for the project workforce and even in local communities, as rising incomes trigger significant changes in nutrition and physical activity patterns. Local medical clinics and hospitals are often unprepared for a significant burden of NCDs and lack the expertise and diagnostic back-up for diagnosing and managing these disorders. In addition, the local pharmacies rarely have the correct formularies necessary to treat these diseases.

Impact — Rapid influx, particularly urban to rural, by job seekers can alter the underlying community burden of disease pattern with significant consequences. Large local workforces may rapidly transition to NCDs and place a substantial burden on the health care system.

Analysis — The epidemiological transition is a well-observed pattern that is likely to occur over time in local communities. This transition can be rapidly accelerated by urban influx, with adverse effects on local health services.

12. Veterinary Medicine/Zoonotic Issues

Baseline — Zoonotics are those diseases that can be transmitted from animals to people or, more specifically, a disease that normally exists in animals but that can infect humans. Veterinary services have a crucial role in controlling highly contagious diseases and zoonotic infections, which have implications for human health as well as that of livestock. Livestock contribute to the livelihoods of at least 70 percent of the world's rural poor. Rapid influx or changed migration patterns can introduce significant zoonotic risks into local communities.

Impact — Rapid influx can alter the interaction between animals and humans in local communities in unpredictable ways. In-migrants may introduce new diseases that can rapidly affect existing local livestock with enormous damage to the physical and economic health of local communities.

Analysis — Veterinary public health is an extremely important area and has the potential for widespread improvement in local populations. Livestock are a form of currency reservoir; hence, any improvement or decline in animal populations can have a significant impact on vulnerable local communities.

ANNEX 2:

MITIGATION OF THE POTENTIAL HEALTH IMPACTS OF PROJECT INDUCED IN-MIGRATION

1. Housing and Respiratory Issues

- **Primary prevention** *(opportunities designed before health problems develop):* improved community immunization and education; design specifications for new housing (i.e., encouraging locals who do develop speculative housing to build an adequate number of rooms); road condition maintenance;
- **Secondary prevention** *(populations at high risk, where interventions were designed to prevent a condition):* appropriate community-level air monitoring for PM10 road dust and vehicle emission sources; monitoring primary pollutant emissions from potential on-site incinerator sources; and
- **Tertiary prevention** *(intervention or rehabilitation of existing, serious problems):* treatment of responsive respiratory diseases (e.g., bacterial pneumonia); coordination and alignment with host government TB programmes for appropriate referral and treatment.

2. Vector-related Diseases

Malaria is one of the most important vector-borne diseases that occurs in many tropical environments. While malaria is not the only significant vector-borne disease, many of the mitigation strategies that are useful for malaria will also have a significant positive impact on other vector-borne diseases.

Primary prevention malaria control measures are environmental modification, manipulation, and changes in man-vector contact. These strategies are non-toxic, cost-effective, and typically environmentally sustainable.

Environmental modification refers to measures that try to create a permanent or long-lasting effect on land, water, or vegetation in order to reduce vector habitats, including:

- Improved surface water drainage for roadways and other construction activities;
- Provision of educational materials regarding the reduction of borrow pits and the life extension of bricks for home construction by adding cement. Unpublished experiments in Africa indicate that the provision of cement as an additive to mud in brick making activities makes bricks/structures last longer, which decreases the numbers of borrow pits needed, thereby decreasing the numbers of mosquito breeding sites;
- Systematic elimination of standing pools of water;
- Installation and maintenance of drains;
- Deepening, filling, levelling;
- Diking, canal and shoreline straightening, and/or alteration of slope profiles; and
- Changing of water salinity.

Environmental manipulation activities, which produce temporarily unfavorable conditions for the vector, include:

- Water level management;
- Vegetation management;
- Flooding; and
- Dewatering.

Finally, activities seeking to modify or manipulate human habitation or behavior to reduce man–vector contact include:

- increasing the distance between vector locations and human settlements (dry belting). Malaria risk generally increases with proximity to breeding sources; in some cases, a progressive gradient of risk can be demonstrated in homes adjoining well-defined breeding sources;
- encouraging local residents to mosquito-proof project houses and tanks;
- improving the design and construction of project housing, closing eaves;
- coordinating with and supplementing distribution of insecticide-treated bed nets (ITNs); and
- community outreach to improve knowledge, attitudes, practices, and beliefs surrounding malaria control strategies, particularly the use of treated bed nets.

3. Sexually Transmitted Infections (including HIV/AIDS)

A well-developed, monitored, and sustained multi-component HIV/AIDS program is of paramount importance. Influx-triggered HIV/AIDS impacts are so potentially significant that the development, review, funding, and coordination (or direct management) with any existing national programs is critical.

The approach to mitigation should focus on activities that support existing local measures aimed at reducing the incidence of STIs, including HIV/AIDS, including:

- Participating in updating community guidelines for HIV/AIDS prevention in collaboration with local and regional programs;
- Assisting and supporting the health community in improving HIV/AIDS control program management;
- Assisting and supporting the health community in HIV surveillance and data management;
- Assisting and supporting health leadership in community and individual behavior change intervention programs;
- Focusing on comprehensive school-based HIV/AIDS and sex education programs; and
- Including HIV/AIDS awareness programs as part of the company and contractor health education programs.

Specific mitigation measures might include:

- Conducting STI, HIV/AIDS education programs for all project workers, including pictorial handouts for take-home use;
- Developing peer educator program for workers and providing work time for peer educator's activities;
- Distributing condoms to project workers and educating them regarding use;

- Contractually requiring project transportation contractors to provide HIV/AIDS education programs, condom distribution, and case finding/treatment of curable STIs during required medical exams for truckers. This obligations should be documented, and performance evaluated periodically;
- Providing opportunity for rotation of district health personnel through the site clinic for skills enhancement and training regarding newer diagnostic and treatment protocols for STIs; and
- Providing support for the Voluntary Counseling and Treatment (VCT) program at the local hospital, based on needs.

4. Soil- and Water-Borne Diseases

The underlying sanitation conditions in most potentially affected communities are likely to be extremely poor prior to the project, and there will be minimal residual capacity of the community infrastructure to absorb a dramatic rise in community populations. Thus, proper planning for project-related influx is essential. The ideal type of toilet to install is a pour flush or low volume cistern flush toilet at the rate of one compartment for every 25 people served. The 1:25 ratio is a benchmark that can be used for project mitigation calculations.

Projects can also collaborate with local water sanitation committees, the local water sanitation agency (if one exists), and local government structures to support the replacement of drinking water structures and sources that the project impacts. The community demands for water and sanitation services will exceed the "true" actual impacts, particularly for water source and access improvements. The project must decide what level of effort to make. In some cases, the community water/sanitation/municipal sanitation "deficit" may be so substantial that it is not possible to fix the problem. However, rational mitigation is possible based on:

- Continued use of primary design improvements in new housing construction;
- More careful influx management during construction with assistance of the development of additional WES facilities based on influx estimates; and
- Collaboration and support of district assembly efforts, where appropriate.

One potential strategy related to influx management is to specify in contractor documents that rental housing contracts must meet specific WES specifications. This approach encourages the private sector to respond with appropriate new housing.

5. Food- and Nutrition- Related Issues

Anthropometric measurement (physical dimensions and gross composition of the body) of children under age five and adults is a safe and non-invasive method of obtaining important data regarding nutrition status across project-affected communities and for specific sub-populations, such as defined vulnerable groups. Physical measurement techniques can be supplemented with field assessment of hemoglobin levels using simple equipment that requires finger stick quantities of blood. These nutritional surveys should be expanded and performed at least annually, particularly for potentially vulnerable populations. Projects can also:

- Monitor costs of food products obtained locally, and rotate suppliers if feasible to spread the income distribution;

- Provide visual educational materials to local health service units for use in educating local food vendors who sell or provide food to project workers; and
- Conduct periodic food inflation surveys in potentially affected communities and also control areas.

6. Accidents and Injuries

Some steps that projects can take to mitigate the potential accident and injury-related impacts of project development and influx include:

- Conduct a risk analysis of transportation routes;
- Establish and maintain pictorial road safety signage, including in the local language, along project roadways directly surrounding project facilities, particularly heavy equipment crossing areas;
- Collaborate with local authorities to establish and implement project/community road safety committees to educate community leaders regarding road safety and to collaboratively develop accident-prevention measures;
- Collaborate with any local law enforcement units to implement a law enforcement campaign for road safety hazards (speeding, reckless driving, seat belt usage, etc.) in all project areas and towns/villages where project-related vehicles circulate;
- Evaluate local emergency medical response capabilities and develop realistic plans for assisting in rescue and transfer protocols. It is unrealistic to develop a local trauma center capability in most settings.

7. Exposure to Potentially Hazardous Materials

To address the potential for impacts related to exposure to hazardous materials, projects should develop appropriate internal control and response plans. A critical part of this activity is communication and liaison with local communities.

8. Social Determinants of Health

Psychosocial impacts are often difficult to assess and monitor. Standard questionnaire instruments such as the Core Welfare Indicators Questionnaire (CWIQ) can be used to track changes in household and community attitudes. In addition, projects should establish systems to monitor violence and social cohesion in the community related to project activities.

9. Cultural Health

To address the potential impacts of the project and in-migration cultural health issues in the community, projects should:

- Include community traditional health providers and chemical sellers in health education programs offered in the potentially affected communities; and
- Determine cultural health beliefs related to local area rivers, and implement controls to avoid disruption of these health beliefs.

10. Health Services Infrastructure and Capacity/Program Management Delivery Systems

The overwhelming problem facing most local health care systems is staffing vacancies at the professional doctor and nurse level, and a direct infusion of significant project monies into local-level health infrastructure is highly unlikely to change the systemic and structural staffing problem that currently exists. In addition, local-level housing inflation is a significant concern for the recruitment of public service employees. The project should clearly differentiate philanthropy efforts from mitigation impact opportunities, which might include:

- Conducting local housing inflation surveys, to determine whether influx may "price out" critical health workers needed to supply the existing community health infrastructure;
- Providing health care services to workers to decrease demand on local health care systems;
- Monitoring utilization levels in local health care facilities; and
- Providing the opportunity for local medical doctors, medical assistants, and district health workers to rotate through the project medical facilities to enhance skills regarding appropriate diagnostic and treatment protocols for STIs and respiratory, vector-related, food and water-related, and non-communicable diseases.

11. Non-communicable Diseases (NCDs)

To mitigate the potentially adverse impacts of the epidemiological transition, projects can:

- Provide opportunities for local health care professionals to rotate through project medical facilities to learn about hypertension, diabetes, and cardiovascular disease prevention, treatment, and follow-up; and
- Encourage the performance of nutritional assessments on adolescents and adults, including measurement of blood pressure, weight, and body mass index (BMI), as part of on-site clinic visits.

12. Veterinary Medicine/Zoonotic Issues

If there is an identified influx-related risk in this area, appropriate host country resources should be identified. If these resources exist, they are likely to be at a national university level; hence, resource identification and contact are essential. Targeted animal vaccination programs are highly cost-effective, as long as appropriate community education is also concomitantly provided.

ANNEX 3:

TERMS OF REFERENCE FOR AN INFLUX RISK ASSESSMENT AND SITUATION ANALYSIS

1. INTRODUCTION

(**INSERT PROJECT NAME**) in (**INSERT REGION AND COUNTRY**) is in the early phases of development and is seeking a **Consultant/Organization** to develop an Influx Situation Analysis. A situation analysis provides the basis for understanding the potential for project-induced in-migration, the likely pattern of in-migration, and its potential impacts. The analysis informs decisions about the management strategy and is an integral component of an Influx Management Plan (IMP).

2. CONTEXT

This section is to be used to provide a high-level description of the project context.

3. SCOPE OF WORK / DELIVERABLES

The key deliverable of the selected **CONSULTANT/ORGANIZATION** is the development of an Influx Situation Analysis for **COMPANY, PROJECT NAME**. This document should include:

1. A review of national laws pertaining to internal migration, population registration, census, etc.

2. A review of comparable projects at various stages of development where project-induced in-migration is or has been an issue. This review should assess the potential for, key drivers, and impacts associated with, project-induced in-migration at each project;

3. A description of the project, including:
   - the project, logistical bases, and associated facilities and the extent to which the project is required to develop additional infrastructure, services, and utilities;
   - the project development schedule;
   - sub-contractor/construction phase workforce requirements, and demand for goods and services; and
   - operations phase workforce requirements, and demand for goods and services.

4. A description of the project context including:
   - local and regional biophysical and socioeconomic context;
   - assessment of local and regional development; and
   - a review of capacity of local and regional government, infrastructure, services, and utilities

5. A description and analysis of the current status of project-induced in-migration, including an analysis of the dynamics of in-migration and its environmental, health, and social impacts.

6. An assessment of the predicted routes for project-induced in-migration.

7. An assessment of the key expected environmental and social impacts associated with project-induced in-migration.

8. Identification of Stakeholders: Identification of key stakeholders either affected by and potentially involved in the management of project induced in-migration, their capacity and potential roles and responsibilities

In addition to presenting the results of the above studies and analyses, the final section of the situation analysis report should identify the potential approaches and interventions for addressing project-induced in-migration; an understanding of the relationship of potential approaches with key project variables, such as cost, schedule, and existing programs (human rights, project security, community development, resettlement action plan, indigenous peoples development program, etc); and recommendations regarding their integration into the project.

4. SCHEDULE

It is anticipated that the development of the Influx Situation Analysis will take **X** months to complete. [**Indicate timeline for each project deliverable**].

5. REQUIREMENTS

The Consultant/Organization shall submit the following to the Company to be considered for the assignment:

- Proposal
- Influx Situation Analysis Outline
- Actions
- Deliverables
- Timeline
- Budget
- Personnel with clarity on support required from COMPANY

6. QUALIFICATIONS

The **Consultant/Organization** shall possess the following skills:

- Experience in planning and implementing social assessment, socio-economic surveys, multi-stakeholder engagement processes;
- Experience in developing ESIA, ESHIA, SIA, RAP, Community Development Strategies, etc.;
- Experience within sector and within region and country preferred;
- Ability to provide a multi-sectoral team with expertise in the following areas: anthropology, social sciences, health, economics, urban and regional planning, governance, etc.; and Ability to meet **Company** time frame.

7. RESOURCES

Company will make available relevant documentation, and also facilitate logistics to the extent it involves access to and around project location. In addition the Consultant is referred to the following:

IFC 2008, ***Project-Induced In-Migration: Risk Assessment and Management Strategies,*** Washington DC: Environment and Social Division, CommDev.

ANNEX 4:

ANALYSIS OF PREDICTED ENVIRONMENTAL AND SOCIAL IMPACTS FROM PROJECT-INDUCED IN-MIGRATION

Applicability (Yes/No)

- Indicate whether impact is applicable to the project

Probability/Scale (Low/Medium/High)

- Indicate anticipated probability or scale of impact

Time-frame (Short-term, Medium-term, Long-term)

- Indicate whether anticipated impact is expected to occur in the short-, medium- or long-term;
- Indicate whether impact is likely to be of short-, medium- or long-term duration

Severity (Low/Medium/High)

- Indicate predicted severity of impact; this section will probably reflect an overall analysis as well as location-specific analyses demonstrating impacts in in-migration hotspots

ANALYSIS OF PREDICTED ENVIRONMENTAL AND SOCIAL IMPACTS FROM PROJECT-INDUCED IN-MIGRATIONS

Category	Potential Impacts	Applicability	Probability/Scale	Timeframe	Severity
		Y/N	L/M/H	S/M/L	L/M/H
POSITIVE IMPACTS	Comments:				
Increased links to mainstream economy					
Increased local skills base					
Business development opportunities					
Employment creation					
Increased local labor pool					
Opening of new markets for local products and services					
Increased accessibility and availability of goods and services					
Alternate livelihood opportunities					
Improved wage and income levels					
Increased local tax revenue levels					
Increased individual, household, and community empowerment					
Improved local training and skills development opportunities					
Monetization of remote rural economies					
Opportunities to build community organizational structures					
Improved access through development of road systems					
Improved information and communication					
Improved housing, water, and sanitation					
Improved access to and expansion of infrastructure and public services					
Increased attention and input by government authorities, NGOs, etc.					
Increased political power					

ANALYSIS OF PREDICTED ENVIRONMENTAL AND SOCIAL IMPACTS FROM PROJECT-INDUCED IN-MIGRATIONS CONTINUED

Category	Potential Impacts	Applicability	Probability/Scale	Timeframe	Severity
ADVERSE IMPACTS					
Environmental	Comments:				
Logging					
Deforestation					
Exploitation and loss of biodiversity					
Land-use change					
Land degradation					
Depletion of natural resources					
Erosion and loss of soil productivity					
Air, water, and soil pollution					
Disruption of waterways					
Increased pressure on, and possible disputes over, land use and common property natural resources					
Project Security	Comments:				
Reduced ability to protect the workforce					
Reduced ability to safeguard physical assets					
Increased threats to business continuity					
Increased threats to corporate reputation on the project (social license to operate)					
Infrastructure, Services, and Utilities	Comments:				
Increased use of existing roads and transportation systems					
Increased pressure on education and health services					
Increased demand for electricity, water supplies, and sanitation					
Increased pressure on waste management systems					
Unplanned and uncontrolled development of squatter settlements					

ANALYSIS OF PREDICTED ENVIRONMENTAL AND SOCIAL IMPACTS FROM PROJECT-INDUCED IN-MIGRATIONS CONTINUED

Category	Potential Impacts	Applicability	Probability/Scale	Timeframe	Severity
Increased demand on communications networks					
Increased demand for housing					
Increased use/demand for community, religious, and recreational facilities					
Economics and Livelihood Strategies	Comment:				
Increased cost of living (inflation)					
Reduced availability and increased cost of land, food, fuel, and housing					
Increased dependence on broader cash-based economy to meet needs					
Reduced reliance on local subsistence production systems					
Competition for economic resources					
Increased economic vulnerability for marginal groups (women, elderly, minorities, etc.)					
"Boom /Bust" cycles associated with initial construction, eventual closure					
Health	Comment:				
Proliferation of communicable diseases					
Insufficient number of health centers, staff, and medical supplies					
Inadequate public hygiene facilities					
Pollution (air, water, dust, noise, traffic)					
Increased incidence of accidents and fatalities					
Changes in nutrition status					
Social Dynamics	Comment:				
Increased poverty					
Loss of local identity					
Loss of knowledge, skills, and experience related to traditional livelihood activities					

ANALYSIS OF PREDICTED ENVIRONMENTAL AND SOCIAL IMPACTS FROM PROJECT-INDUCED IN-MIGRATIONS CONTINUED

Category	Potential Impacts	Applicability	Probability/Scale	Timeframe	Severity
Upheaval in traditional leadership, behavior, customs, values, and norms					
Changes in power relationships, including undermining and changing of leadership and traditional authority structures					
Changing relationships between groups (gender, age, socioeconomic status, ethnicity)					
Dilution of social cohesion and cultural disruption (separation of households and communities)					
Increased incidence of social ills, including alcoholism, drug abuse, prostitution, gambling					
Creation of land markets leading to changes in traditional land tenure systems					
Increased tension, disputes, and conflicts between locals and migrants concerning natural resources, employment opportunities, and other project benefits					
Welfare imbalances and differential wage incomes, wealth accumulation and opportunities					
Possible marginalization of women, ethnic minorities, and other vulnerable groups					
Increase in domestic violence					
Increase in criminality					
Increase in ethnic tension and violence					
Decrease in law and order					
Project Closure	Comments:				
Economic decline					
Sustainability of infrastructure, services, and utilities					
Out-migration					
Continued residence of more vulnerable groups					
Changing social dynamic as balance between local and migrant population changes					

ANNEX 5:

OUTLINE OF AN INFLUX MANAGEMENT STRATEGY AND IMPLEMENTATION PLAN

Preamble
Proponent's Commitment
Key Terminology
Executive Summary

1. INTRODUCTION

Project description
Purpose of this Document
Scope of IM Strategy/Plan

2. PROJECT DESCRIPTION

- The Project
- Construction Phase Activity Description
- Operations Phase Activity Description

A comprehensive description of the project based on the "end-game" should be developed. The description should provide an overview of the project and subsequently describe the construction and operational phases of the project, i.e., consider the whoile project lifecycle. Key aspects relevant to in-migration and local development, such as labor and project demand for goods and services, should be described in detail.

3. INSTITUTIONAL AND LEGAL FRAMEWORK

The objective is to identify and review national (and where relevant, regional) legislation pertaining to internal and cross-border migration and the ability of the project to manage in-migration and its impacts utilizing the approaches identified in this document. While this will involve consideration of a country's laws regarding freedom of movement, the legal status of cross-border migrants, etc., consideration should also be given to review of other potentially relevant laws, including labor laws and regulations.

4. PROJECT SETTING

This section is to describe the project setting. The following list includes aspects to be considered and described:

- Political and administrative context
- Biophysical environment
- Social and economic context
  - Access and transportation
  - Infrastructure, services, and utilities
  - Demography
  - Health
  - Education
  - Local and regional industrial and commercial development

5. ANALYSIS OF PROJECT-INDUCED INFLUX ON COMPARABLE PROJECTS

Where other large-scale projects have been developed in similar settings (whether they be in the same region or perhaps even a proximate country), the document should include a description and analysis of the project-induced in-migration experienced by these projects.

6. PROJECT-INDUCED IN-MIGRATION: RISK ANALYSIS AND IMPACTS

- Risk assessment
- Physical expression
- Key impacts

The project should assess the risk of project-induced in-migration, predict its likely pattern of development, and identify and assess potential impacts in terms of the probability of the impact occurring, the timeframe in which the impact will develop and become tangible, and the likely severity of the impact. The latter should be conducted for both the entire project area of influence and each identified hotspot.

7. STATUS OF PROJECT-INDUCED IN-MIGRATION

Projects already affected by project-induced in-migration should describe the current status of influx, including an analysis of the dynamics of in-migration and its environmental and social impacts.

8. IDENTIFICATION OF STAKEHOLDERS

9. STRATEGY & OBJECTIVES

This section should define the strategy and goals and objectives guiding the development of an influx management plan. The strategy should define and provide a rationale for the selected combination of approaches and their component interventions. To the greatest extent possible, objectives should be specific, measurable, achievable, realistic, and time bound (SMART), so as to provide specific guidance to the development of the component programs and interventions that comprise the impact mitigation plan.

10. COMPONENT DESCRIPTION

This section should provide the plan for every selected intervention/ program. Each component plan should, to the greatest extent possible, include the following:

- Rationale;
- Goals/Objectives;
- Activities (specifying how the activity will help achieve objectives, intended outcomes, and timeframe within which these outcomes will be achieved);
- Implementation;
- Resource requirements;
- Indicators and an M&E framework, specifying what and when to measure to evaluate effectiveness of the intervention/program. Where influx management objectives are added into existing mitigation and community development programs, consideration should be given to developing and integrating influx-specific indicators.

11. PROJECT IMPLEMENTATION

Human Resources

- Overview
- Roles and responsibilities

Implementation Partners/Organizational Responsibilities

- Project social-development programs (stakeholder engagement, community development, Resettlement Action Plans, Indigenous Peoples Development Plan)
- Government
- NGOs
- Communities
- Implementation Schedule

12. BUDGET

Budgets for the component interventions/programs and the total cost of the influx mitigation program should be presented.

- Program budgets
- Total budget

13. MONITORING AND EVALUATION

An overall monitoring and evaluation framework that integrates the M&E requirements for the component interventions/programs should developed. Based on this framework, a monitoring and evaluation plan should be defined. This may require plan-specific M&E activities, as well as rely on M&E activities of the project's existing mitigation and community development programs. All in-migration specific indicators for every component intervention/program should be identified as should the relevant influx indicators for existing mitigation and community development programs.

- .M&E Framework
- M&E Plan
- In-migration M&E Indicators
- Program M&E Indicators

ANNEX 6:

PROJECT APPROACHES TO THE MANAGEMENT OF IN-MIGRATION

A review of project approaches to influx management indicates that few projects have developed specific in-migration management plans. Many projects included component activities that were either developed proactively to manage in-migration or in response to high levels of in-migration and the appearance of negative impacts. This table provides a summary of project approaches to management of in-migration from around the world.

SUMMARY OF PROJECT IN-MIGRATION MANAGEMENT INTERVENTIONS

Project Name	Owner/Operator (Partners)	Location	Industry	In-Migration Management Interventions
The Sadiola Hill Gold Project	AngloGold Ashanti (Other partners include IAMGOLD, the Republic of of Mali, and IFC)	Mali	Mining	• Village-level spatial planning • Development of services and utilities (water, markets) • Community development initiatives – health (malaria, STIs), food security
PT Freeport Grasberg Mine	Freeport McMoRan	Papua/ Indonesia	Mining	• Relocation of in-migrants • Development of infrastructure and services in remote areas • Regional health program
Simandou Iron Ore Project	Rio Tinto	Guinea	Mining	• Influx Management Plan • Workforce recruitment • Village-level spatial planning • Community development
Tangguh LNG Project	BP	Papua/ Indonesia	LNG	• Security • Workforce recruitment • Strengthening of *Adat institutions* • In-migration and adverse induced impacts • Health
Chad-Cameroon Petroleum Development and Pipeline Project	ExxonMobil (Other partners include Esso Exploration Production Chad, COTCO and TOTCO)	Chad	Oil and Gas	• Village-level spatial planning • Water supply and management systems • Sanitation and waste management systems
Peru LNG	Hunt Oil Company (Other partners include Repsol YPF, SK Energy Co. Ltd, Marubeni Corporation)	Peru	LNG	• Creation of buffer zone • Influx Management Statement • Workforce recruitment • Transportation Policy

ANNEX 7:

TERMS OF REFERENCE FOR AN INFLUX MANAGEMENT STRATEGY/PLAN

1. INTRODUCTION

(**INSERT PROJECT NAME**) in (**INSERT REGION AND COUNTRY**) is under development and/or experiencing levels of influx to the project site. The objective of this assignment is to develop an Influx Management Plan (IMP) to provide guidance to (**INSERT COMPANY**) to help assess, plan for and manage the environmental, economic, and social impacts associated with influx.

2. CONTEXT

This section is to be used to provide a high-level description of the project context.

3. SCOPE OF WORK - OBJECTIVES

(**INSERT COMPANY**) is required to develop an Influx Management Plan (IMP). The IMP for the (**INSERT PROJECT NAME**) Project should:

- Focus on an agreed definition of the project that looks at the whole project and its broader area of influence and full project lifecycle;
- Define appropriate objectives with reference to the project context and the time when management of influx and its impacts is considered;
- Recognize the importance of early action and the reality that the processes that drive in-migration generally occur outside the direct project area of influence;
- Include social considerations in project design and planning;
- Identify the key stakeholders who have a role to play in managing in-migration and develop ongoing coordination and collaboration activities with these stakeholders;
- Clearly define responsibilities for providing the resources to conduct a risk assessment and situation analysis and implement the influx management plan and its component activities; and
- Select appropriate interventions based on three possible approaches (i.e., inflow and footprint, stakeholder engagement and monitoring, and managing impacts), based on potential effectiveness, complexity and cost.
- Provide recommendations as to how a project can best integrate selected interventions into existing operational and programmatic activities

4. DELIVERABLES

The key deliverable of this assignment is for the **CONSULTANT/ORGANIZATION** to develop an Influx Management Plan (IMP) for (**INSERT COMPANY/ORGANIZATION**) (**INSERT PROJECT NAME**) Project. The precise content and form of deliverables will be determined in consultation with (**INSERT COMPANY**).

The IMP should be structured as follows:

I. **Project Description:** The description should provide an overview of the project and subsequently describe the construction and operational phases of the project. Key aspects relevant to in-migration and local development, i.e., labor, and project demand for goods and services, should be described in detail.

II. **Legal Context:** The objective is to identify and review national (and where relevant, regional) legislation pertaining to internal and cross-border migration and the ability of the project to manage in-migration and its impacts utilizing the approaches identified in IFC's Project-Induced In-Migration Toolkit. While this will involve consideration of a country's laws regarding freedom of movement, the legal status of cross-border migrants, and other issues, consideration should also be given to review of other potentially relevant laws including labor laws and regulations, etc.

III. **Project Setting:** The following list identifies aspects to be considered and described:
- Political and administrative context
- Biophysical environment
- Social and economic context
  - Access and transportation
  - Infrastructure, services, and utilities
  - Demography
  - Health
  - Education
  - Local and regional industrial and commercial development

IV. **Analysis of Project-Induced Influx on Comparable Projects:** Where other large-scale projects have been developed in similar settings (whether they be in the same region or perhaps even a proximate country), the document should include a description and analysis of the influx experienced by these projects.

V. **Stakeholder Identification:** Identification of key stakeholders either affected by and potentially involved in the management of project induced in-migration, their capacity and potential roles and responsibilities

VI. **Risk Analysis:** The project should assess the probability of influx, predict its likely pattern of development and identify and assess potential impacts in terms of the probability of the impact occurring, the timeframe in which the impact will develop and become tangible, and the likely effect of the impact on the project. The latter should be conducted for both the entire project area of influence and each identified hotspot [1].

1 An assessment of potential in-migration pathways will identify in-migration hotspots. These hotspots may be towns, villages or project facilities (i.e., camps, airstrips, roads, jetties) serving as the key destinations for in-migrants and as aconsequence for the development of in-migration induced impacts.

VII. **Status of Project-Induced In-migration:** Projects already affected by project-induced in-migration should describe the current status of influx, including an analysis of the dynamics of influx and its environmental and social impacts.

VIII. **Strategy and Objectives:** This section should define the strategy and goals and objectives guiding the development of an influx management plan. The strategy should define and provide a rationale for the selected combination of approaches and their component interventions. To the greatest extent possible, objectives should be specific, measurable, achievable, realistic and timebound (SMART), so as to provide specific guidance to the development of the component programs and interventions that comprise the impact mitigation plan.

IX. **Component Description:** This section should provide the plan for every selected intervention/ program. Each component plan should, to the greatest extent possible, include the following:
- Rationale;
- Goals and objectives;
- Activities (specifying how the activity will help achieve the objectives);
- Intended outcomes, and timeframe within which these outcomes will be achieved;
- Implementation;
- Resource requirements;
- Indicators and an M&E framework i.e, specifying what and when to measure to evaluate effectiveness of the intervention/program. Where influx management objectives are added into existing mitigation and community development programs, consideration should be given to developing and integrating influx-specific indicators.

X. **Project Implementation:**

Human Resources
- Overview
- Roles and responsibilities

Implementation Partners/Organizational Responsibilities
- Project social-development programs (stakeholder engagement, community development, Resettlement Action Plans, Indigenous Peoples Development Plan)
- Government
- NGOs
- Communities

Implementation Schedule

XI. **Budget:** Budgets for the component interventions/programs and the total cost of the influx mitigation program should be presented.

XII. **Monitoring and Evaluation:** An overall monitoring and evaluation framework that integrates the M&E requirements for the component interventions/programs should be developed. Based on this framework, a monitoring and evaluation plan should be defined.

This may require plan-specific M&E activities as well as rely on M&E activities of the project's existing mitigation and community development programs. All in-migration specific indicators for every component intervention/program should be identified, as should the relevant influx indicators for existing mitigation and community development programs.

5. SCHEDULE

It is anticipated that the development of the IMP will take **X** months to complete. [**Indicate timeline for each project deliverable**].

6. REQUIREMENTS

The **Consultant/Organization** shall submit the following to the **Company** to be considered for the assignment:

a. Proposal
b. IMP outline
c. Actions
d. Deliverables
e. Timeline
f. Budget
g. Personnel, with clarity on support required from **COMPANY**

7. QUALIFICATIONS

The **Consultant/Organization** shall possess the following skills:

- Experience in planning and implementing social assessment, socio-economic surveys, multi-stakeholder engagement processes;
- Experience in developing ESIA, ESHIA, SIA, RAP, Community Development Strategies, etc.;
- Experience within sector and within region and country preferred;
- Ability to provide a multi-sectoral team with expertise in the following areas: anthropology, social sciences, health, economics, urban and regional planning, governance, etc.; and
- Ability to meet **Company** time frame.

8. RESOURCES

Company will make available relevant documentation, and also facilitate logistics to the extent it involves access to and around project location. In addition, please refer to:

Projects and People: A Handbook for Addressing Project-Induced In-Migration, Washington DC: International Finance Corporation, 2009.

Acknowledgements

IFC developed this document in response to an identified gap in assessing the risk of project-induced in-migration and its management. Justin Pooley and others developed a concept note, on the basis of which IFC's Environment and Social Development Department and CommDev developed this publication. The paper was written by Robert Gerrits (lead writer), Anna Hidalgo and Arjun Bhalla. Various sections (e.g., security and health impacts and their management and some case studies) were contracted to qualified parties and contributed by IFC environment and social specialists. The views expressed in the document are those of the authors only.

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