

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

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) <i>water-borne</i> , resulting from consumption of water contaminated by human or animal excreta that contains disease causing pathogens (e.g., dysentery, cholera); (ii) <i>water-washed</i> (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) <i>water-based</i> , 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) <i>water-related</i> (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
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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.
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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
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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 whole 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 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.

- 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 Mali, and IFC)	Mali	Mining	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Relocation of in-migrants • Development of infrastructure and services in remote areas • Regional health program
Simandou Iron Ore Project	Rio Tinto	Guinea	Mining	<ul style="list-style-type: none"> • Influx Management Plan • Workforce recruitment • Village-level spatial planning • Community development
Tanggung LNG Project	BP	Papua/ Indonesia	LNG	<ul style="list-style-type: none"> • Security • Workforce recruitment • Strengthening of <i>Adat institutions</i> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 a consequence 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.

We received valuable comments and feedback from IFC's Environment and Social Development specialists, including Justin Pooley, Ted Pollett, Paolo Lombardo, and Isabelle Paris, as well as external parties, including Robert Barclay, Ron Bisset, Luc Zandvliet, Don McFetridge, Una Meades, Jonathan Rigg, Andrew Grant, Mike Steyn (RePlan), and Aidan Davy and Christine Copley (ICMM). Diana Baird, Paolo Lombardo, Sofie Michaelsen, Rosa Orellana, and Shaza Zeinelabdin provided valuable support and contributions in the development of the case studies and specific sections of the publication. The publication was edited by Anna Hidalgo, Susan Holleran, and Amy Sweeting. Layout and design was done by Studio Grafik.

Thanks are also due to those who provided valuable comments to the team on various drafts during the peer review and public comment process.

Finally, we would like to gratefully acknowledge the support of the companies that provided permission to develop case studies of projects experiencing in-migration and to utilize vignettes and photographs to allow us to better illustrate the material. In allowing the authors to describe projects affected by the in-migration phenomenon, its positive and negative impacts, and the projects' management responses, the companies have demonstrated admirable generosity in allowing real-world experience and lessons contained therein to contribute to better assessment and management of the phenomenon.