Project-Induced In-Migration and Large-Scale Mining

A Scoping Study

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Authors

Assoc. Prof. Nicholas A. Bainton, Program Leader Extractives and Communities, Centre for Social Responsibility in Mining (CSRM).

Dr Vlado Vivoda, Research Fellow, Centre for Social Responsibility in Mining (CSRM).

Prof. Deanna Kemp, Director People Centres, The Sustainable Minerals Institute (SMI).

Assoc. Prof. John Owen, Centre for Social Responsibility in Mining (CSRM).

Julia Keenan, Research Assistant, Centre for Social Responsibility in Mining (CSRM).

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Acknowledgements

The Centre for Social Responsibility in Mining (CSRM) is a leading research centre, committed to improving the social performance of the resources industry globally.

We are part of the Sustainable Minerals Institute (SMI) at the University of Queensland, one of Australia's premier universities. SMI has a long track record of working to understand and apply the principles of sustainable development within the global resources industry.

At CSRM, our focus is on the social, economic and political challenges that occur when change is brought about by resource extraction and development. We work with companies, communities and governments in mining regions all over the world to improve social performance and deliver better outcomes for companies and communities. Since 2001, we have contributed to industry change through our research, teaching and consulting.

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Executive summary

Intent of the study

The Centre for Social Responsibility in Mining (CSRM) was engaged by Rio Tinto, under the Rio Tinto-CSRM Research Partnership, to undertake a scoping study into the management of project-induced in-migration (PIIM). The study included a review of available literature, evaluation of PIIM studies and management plans, and interviews with PIIM specialists. The purpose of the study was to better understand how extractive companies are responding to PIIM. This knowledge will be used to improve how Rio Tinto responds to population pressure around its mining projects and operations, and will be of interest to other companies and stakeholders such as governments, practitioners, and mine-affected communities.

Significance

- In-migration associated with economic opportunity, or PIIM, is a common phenomenon that can benefit trade, employment, infrastructure and services.
- This same phenomenon can also equally negatively affect the project area and host communities, especially with regards to environmental, social and health issues.
- These negative impacts can create social and business risks that jeopardise operations and social stability. The effects of these impacts have implications for multiple stakeholders.
- Proper understanding and management of in-migration is necessary to create a stable environment that supports business, and positive social and economic development.

Key insights

- In-migration is a social phenomenon, and should not be defined as an "issue" *per se*. Migration has shaped human societies for thousands of years.
- There is no universal definition of a "migrant" – it is always contextually defined.
- There are structural differences between mining and oil and gas and other large-scale development/infrastructure projects. These differences influence PIIM outcomes and settlement patterns.
- Resources for understanding and managing PIIM are already available to the mining industry.
- The International Finance Corporation's (IFC) *Handbook for Addressing Project-Induced In-migration* (2009) remains the most comprehensive publicly available resource for industry, practitioners and consultants.
- Some companies have social performance management frameworks that reflect the IFC guidance as the "base logic" for understanding and managing PIIM.
- There is a reasonable amount of published literature on: (i) the drivers for PIIM; and (ii) the impact of PIIM. However, there is little published literature/studies on the management of PIIM, in mining or other heavy footprint industries. The general knowledge base on the management of PIIM remains shallow and underdeveloped.

Principal enablers

The fundamental requirements for understanding and managing PIIM and related social and business risks are well established:

- **A social baseline and a monitoring system**: Detailed baseline studies, regular monitoring and analysis, and sound data management.
- **Social disciplinary influence**: Ability of social performance specialists to influence within the business to articulate the importance of understanding and managing PIIM.
- **Social performance competencies**: Broad based social performance competencies embedded within the business (i.e. beyond the CSP function) to oversee PIIM project work, from a management, financial, technical, and risk assurance perspective.

The IFC guidance, Rio Tinto's own communities and social performance (CSP) standard,[1] and participants in this study, confirmed the principal enablers that support successful management of PIIM. Likewise, there is general agreement on critical performance gaps.

Critical gaps

The above-listed enabling elements are often missing in the industry's approach to social performance in practice. These gaps ultimately limit how mining companies manage PIIM and other social and business risks.

Towards improved practice

This scoping study has identified common challenges facing Rio Tinto and the broader sector. The study authors have developed a checklist of essential actions to help Rio Tinto's site-based teams mitigate performance gaps, improve practice and maximise the availability of existing guidance. Further work is also required to address the paucity of literature and professional guidance for the sector on the management of PIIM. Some priority areas include:

- Investing in the development of detailed case studies
- Undertaking a comparative regulatory analysis
- Examining the relationship between PIIM and social closure planning

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[1]For details on Rio Tinto's CSP standard see:
http://www.riotinto.com/documents/RT_Rio_Tintos_approach_to_communities_and_social_performance.pdf

1. Introduction

This report summarises key findings from a scoping study into population movement around large-scale projects, also known as project-induced in-migration (PIIM). The purpose of the study was to better understand how extractive companies are responding to PIIM. This knowledge will assist industry, governments and communities to respond to population pressure around large-scale mining projects and operations.

This study confirms that many useful tools for understanding and managing PIIM are already available to the mining industry. Most major companies have developed social performance management frameworks that provide a "base logic" for understanding and managing PIIM. These frameworks reflect the guidance outlined in the International Finance Corporation's (IFC) *Handbook for Addressing Project-Induced In-migration* (2009), which remains the most comprehensive publically available resource on this topic.

CSRM's research confirms the importance of key social performance elements – as enablers – for understanding and managing PIIM, and related social and business risks:

- **Social baseline and monitoring system**: Detailed baseline studies, periodic monitoring and analysis, and sound data management.
- **Social disciplinary influence**: Ability of social performance specialists to influence within the business to articulate the importance of understanding and managing PIIM.
- **Social performance competencies**: Broad based social performance competencies must be embedded within the business (i.e. beyond the communities and social performance function) to manage PIIM project work, from a management, financial, technical, and risk assurance perspective.

This study has identified a number of critical performance gaps. These elements are often missing in the industry's approach to social performance in practice, which ultimately limits how companies respond to PIIM and other social and business risks. CSRM has developed a checklist of essential actions to help site-based teams mitigate these performance gaps, improve practice and maximise the availability of existing guidance.

1.1 Study scope and sample

CSRM was engaged by Rio Tinto, under the Rio Tinto-CSRM Research Partnership, to undertake a scoping study into the management of PIIM. The scope was to:

- Identify key lessons on the management of PIIM relevant to the extractive industries
- Develop a "checklist" for the preparation of in-migration management and monitoring plans
- Identify good practice case studies and success stories within/outside Rio Tinto

The study involved:

- A review of available literature on PIIM, including published studies and industry guidance
- Analysis of privately/publically available PIIM-related studies, management plans, strategies, and monitoring reports
- Interviews with mining industry specialists working on PIIM

Data for the study were drawn from the following sources.

Source	Type	Total number
Literature review	Journal articles, book chapters, industry guides and grey literature	50 +
Specialists	Semi-structured interviews	11
Company documentation	Studies and plans	12

This study concentrated on PIIM in developing country contexts. PIIM is common in developed countries; however, the management challenges, and the impacts experienced by stakeholders, are typically greater in less developed country contexts. The country sample is depicted in Figure 1 below.
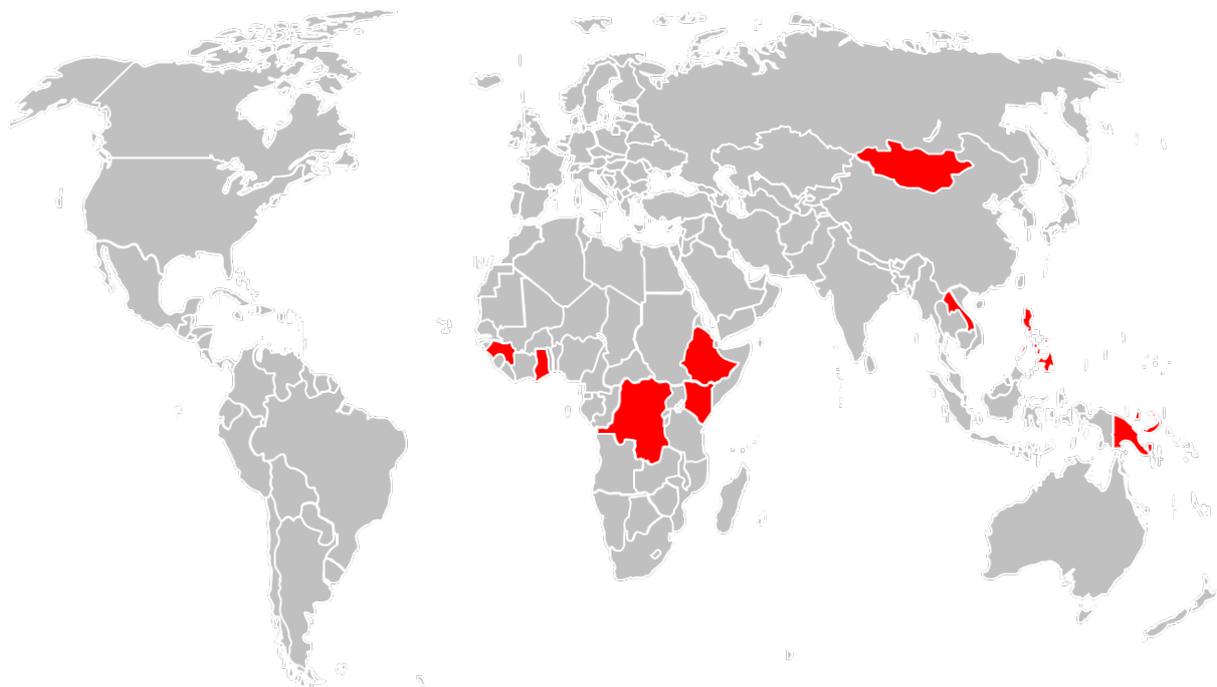
Figure 1. Country contexts for the in-migration studies and plans reviewed for this study (Papua New Guinea, Laos, Mongolia, Philippines, Ghana, Guinea, Kenya, DRC, and Ethiopia).

1.2   Limitations of the study

The primary challenges involved in conducting this study were the sourcing of data and the limitations of the methodology. Most PIIM management plans and studies are held privately by companies and consultants, and are not available for public use. The combination of confidentiality requirements and the difficulty in accessing experts and key site-based personnel has determined the sample size.

Assessment of PIIM management plans and strategies only provides limited insight into the actual management of PIIM. These are forward looking documents that provide an indication of the company's intent. The plans do not contain information about the success of specific interventions, the level of commitment to implement plans, or review and assess the suitability of certain actions. To overcome this limitation, the research team sought access to monitoring

reports (where available), and undertook additional interviews with specialists from across the industry.

As a desktop study it was not possible to "ground truth" the data or to confirm claims made by interviewees. Consequently, it was not possible for the study team to confidently identify "good practice" case studies as part of this study. The team found that the longitudinal monitoring data required to assess the success of specific management plans either did not exist or was not available. Moreover, studies in the scholarly literature focus on the impacts of in-migration, not the strategic orientation or effectiveness of management responses. Further research would be required to confidently identify good practice case studies and success stories within/outside Rio Tinto.

1.3   Report structure and terminology

The report summarises key findings and considerations for PIIM in large-scale mining. Some of these are specific to the mining industry, whereas others are applicable across the extractive industries. The report contains four main sections:

- Industry guidance: A brief overview
- Key findings and considerations
- Mining-specific lessons and considerations
- Lessons for the extractive industries more broadly

The final section of this report provides a checklist for the preparation of in-migration management and monitoring plans within Rio Tinto. This is followed by a brief outline on future research agendas to increase knowledge and awareness about PIIM in large-scale mining. Appendix 1 summarises the frequency of key PIIM interventions in the management plans reviewed for this study.

The terms "influx" and "in-migration" are used interchangeably in published literature and industry guidance. Throughout this report we have used "in-migration". The conflation of "influx" and "in-migration" can conceal important differences between people who come and temporarily reside around a project, and people who come primarily to live and perhaps work for a longer period of time. The term influx generally implies a rapid, and often unplanned and unmanaged, arrival of migrants, and carries a negative connotation. Whereas in-migration can occur at different rates and scales, and at different points in time throughout the project lifecycle. There are instances where in-migration can be a positive and desired outcome, especially if it is well managed. Likewise, it can have negative consequences for some groups. From this perspective we find "in-migration" to be a more encompassing and neutral term. We draw a distinction between "managed" and "unmanaged" in-migration, which is the key factor in terms of how companies respond to PIIM.

2.   Industry guidance

The IFC's *Handbook for Addressing Project-Induced In-migration* (2009) remains the only publicly available resource on PIIM for extractive companies, lending agencies, government authorities, consultants and practitioners. It was developed to fill an identified gap in assessing the risk of project induced in-migration and promoting a planned approach for effective management. The handbook is non-sector specific, and was designed to meet the needs of a wide range of sectors

and stakeholders. It provides a broad introduction to PIIM and management approaches and assumes a relatively high level of social performance competency among potential users.

Interviews with industry specialists confirm that the IFC handbook is comprehensive, and contains sound guidance on the principal enablers for understanding and managing PIIM. The IFC handbook is divided into five sections, with annexes that contain assessment and management plan templates. Sections include:

1. Making the business case for addressing project-induced in-migration
2. Understanding the dynamics of project-induced in-migration
3. Requirements for conducting risk assessments and baseline studies to support the development of management plans
4. Developing key management approaches, associated interventions and mitigation strategies
5. Guidance on developing influx management strategies and integration into the project

The IFC handbook complements the current suite of industry social performance standards and guidelines, e.g. IFC (2012) Environmental and Social Performance Standards; and the ICMM (2003) Sustainable Development Principles. These instruments provide the base logic for understanding and managing PIIM. However, they do not provide specific guidance on this topic. Likewise, the social impact and social risk assessment literature (e.g. Vanclay et al 2015; Vanclay and Esteves 2011; Goldman 2000; Barrow 2000) provides key tools for understanding and managing PIIM, but does not directly deal with PIIM as topic in its own right. This study confirms that there are specific challenges for understanding and managing PIIM in large-scale mining that are unique to this sector. We have sought to capture these in the sections that follow.

3. Key findings and considerations

The key findings and considerations presented in the following sections highlight performance gaps in the understanding and management of PIIM in mining. These gaps have been identified through the analysis of available studies, plans and monitoring reports, and interviews with industry specialists.

3.1 In-migration is a common social phenomenon, not an "issue" by definition

- Human migration is a common social phenomenon, *and not an issue per se*. Human migration has occurred throughout history, and continues in contemporary times.
- Conceptualising in-migration as a "normal" phenomenon helps to recognise that mining activities are part of a larger process of social change that can involve human migration.
- When in-migration is unexpected, unplanned, and unmanaged, it can become both a business risk and a social risk (see Text Box 1).
- Mining projects may be one of several causes or contributing factors for in-migration. The key management task is to differentiate project-specific causes of in-migration from general causes of in-migration and to understand the nature, scope and scale of in-migration and then to develop appropriate responses.

3.2 There is no universal definition of a migrant

- There is no universally agreed definition of a "migrant" or "in-migrant".
- The lack of an agreed definition is a result of the variability between how different groups categorise and view "incomers", and the range of guest/host relations or socio-cultural rights and entitlements that individuals and groups can exercise in any given context.
- As such, the term "migrant" must always be contextually defined.

Text Box 1: Social and business risks and consequences of unmanaged in-migration

Unmanaged PIIM will generate a diverse range of social and business risks and consequences within the project area, 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. How these impacts manifest will vary between different projects and different social and geographical contexts. The IFC handbook provides an overview of both positive and negative effects. This text box summarises some of the key issues that can arise when in-migration is not managed:

- Large numbers of new arrivals with a different ethnic/language background to that of local host communities can lead to social tension and even conflict.
- In-migrants often include large numbers of un-attached young men without jobs or livelihoods, resulting in anti-social behaviour and rising crime.
- Without proper preparation, large numbers of in-migrants put a strain on housing, health and education services, or may be excluded through the withholding of registration, leading to a growing "underclass" and social division.
- Land and house prices can rapidly inflate, also leading to extra costs for mining companies to house and remunerate its workforce.
- Increased pressure on natural resources (e.g. harvesting of fish, forest timbers, game) can lead to environmental and biodiversity decline, which may then be blamed on the company.
- Age imbalance in migrant populations combined with rapid social changes can mean that there are few leaders with sufficient influence to ensure social norms and customary governance structures are maintained.
- Gender imbalance in migrant populations can mean local women and local marriage norms are at risk, leading to social tension and violence.
- Large numbers of in-migrants can remain unregistered for voting or social services, leading to local political distortions and corruption.
- Crime rates can increase generally, targeting mining company equipment, and lead to increased security costs and overwhelm local police services.
- The presence of large numbers of migrants can compound existing legacy issues and/or complicate critical activities such as resettlement and livelihood restoration.
- In-migrants without conventional work prospects may turn to unwelcome and often "illegal" economic activity, such as ASM on lease areas, prostitution, protection racketeering, drug trafficking, begging etc., leading to increased social disorder.
- Increased use of local roads and waterways can lead to increased risk of accidents, injury and death; leading to political attention and public policy response that targets remedy from mining companies.

- This is critical for assessing the impacts of PIIM. For instance, "more people" should not be immediately equated with "more problems"; whereas more people who are categorised locally as "migrants" may pose more risks, and these migrants may become the target of local resentment and be more vulnerable.
- While the IFC handbook provides a useful table of migrant typologies, this should be regarded as a starting point only, not a definitive list to apply in all contexts. For instance, in some contexts it may be more appropriate to adopt the specific distinctions used by locals, as well as any research based categories or typologies.

3.3   Shallow knowledge base for PIIM

- The general knowledge base on the management of PIIM remains shallow and under-developed. There is not much depth to the literature on this topic, either for mining or more broadly. This sits in contrast to the literature available on other forms of in-migration, such as refugee studies, economic migration and the like.
- PIIM management plans are rarely publicly available, and there is little knowledge exchange across the extractive industries, between sectors/governments/civil society or between specialists. This is similar to other topics, such as mining and resettlement.
- There is virtually no published literature on the *management* of PIIM.[2] Knowledge about managing PIIM is largely held by a small group of specialist consultants. As these specialists are external to companies, and more often engaged in the design phase, most have a partial knowledge of how plans were actually implemented in practice.

3.4   Compliance is the key driver for developing PIIM management plans

- There is evidence that some companies have developed proactive PIIM management strategies in response to identified PIIM risks.
- However, compliance with financial lender conditions (i.e. Equator Principles and IFC Performance Standards etc.) is often cited by industry specialists as the primary reason for proactive development of PIIM management strategies. In other words, in the majority of cases the main incentive for developing PIIM management plans is to secure finance, rather than to manage risk over the longer term.
- When compliance requirements or immediate project risks are not present, experience indicates that PIIM is rarely prioritised. PIIM can pose significant social and business risk, but is often not attended to until it puts the operation at risk.

3.5   Deferral leads to reactive responses

- Senior managers may be reluctant to accept responsibility for managing PIIM based on the belief that this is the responsibility of other parties, such as governments or communities.
- Rather than engaging the issue to understand where responsibilities might lie, senior managers tend to delay or defer studies until the scale and rate of PIIM threatens the operation. This leads to a situation where managers are responding to in-migration that has built over time and become well-established. This is a more common situation than managers having to respond to an immediate influx of people into the project area.

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[2] The authors of this study intend to address this gap in the literature through future publications on the management of in-migration that will be drawn from this research.

- By the time the impacts of PIIM are entrenched, and the social and business risks are apparent, the management environment becomes pressurised. Social performance practitioners are less able to bring quality data to the table for informed decision-making and senior managers are more prone to reactive (uninformed) decision making.
- This results in strategies that address the *symptoms* of PIIM (e.g. additional services to relieve pressure or outrage from local communities, increased spending on security to manage social instability), rather than proactive strategies that can maximise the opportunities and minimise the adverse impacts of PIIM.
- It also means that opportunities will be lost to develop PIIM management plans in the early project phase that focus on minimising in-migration as a stated objective. For instance, in some contexts, where operations have a short lifecycle, it may prove more advantageous to optimise Fly-in/Fly-out (FIFO) and regional recruitment and development strategies that reduce in-migration and establish more sustainable regional growth beyond the life of the mining operation.

4. Mining-specific lessons and considerations

4.1 Mining projects are different from other extractive/development projects

- There are significant spatial (e.g. project footprint) and temporal (e.g. life span of projects) differences between mining and oil and gas and other development/infrastructure projects. These differences influence PIIM outcomes and settlement patterns.
- Differences between mining and other types of projects include:
  - Aside from during construction, mining workforces are often much larger than in other industries. The establishment of mining towns, accommodation camps, and service hubs in relatively close proximity to the project or operation can create a concentrated impact zone for a longer period of time than in other industries.
  - Local benefits streams tend to accumulate in quite discrete geographic locations, which can attract people into an area, and in some contexts this can mean that the local landowning community becomes a source of attraction in itself. Some states have benefit distribution regulations that exacerbate the concentration of benefits.
  - The industry has taken proactive steps to minimise the impact of in-migration by dispersing infrastructure, regional development and recruitment strategies, and use of FIFO and/or Bus-in/Bus-out (BIBO).
  - However, there is often strong local demand from stakeholders, or specific agreement obligations, for companies to invest in civil infrastructure and social development programs in project areas.
  - In mining, PIIM is not limited to a single project period: While PIIM often peaks during construction periods, progressive expansion of a mining project can attract in-migrants. Mine closure can also influence PIIM trends in quite distinct ways (e.g. the closure of a gold or coal mine can attract informal miners into an area, whereas this would not occur in other sectors).
  - The rise and fall of commodity prices is a major determining factor in PIIM in mining: when operations are doing well, there are likely to be more business and

sub-contracting opportunities, more employment opportunities, and more direct and indirect economic benefits for migrants.

- In other projects, such as dams or agriculture, occupancy close to the project offers no particular economic advantage other than employment. Mining often provides a range of other development benefits for local people, such as electrification, access to water and sanitation, health services and other types of infrastructure.
- In some cases, shared occupancy of the project lease areas with local people creates a particularly pressurised environment that is not seen in other sectors.

4.2 Project characteristics shape in-migration

- Some mining projects develop infrastructure across wide geographic zones, and include ports, pipelines, dams, power stations, roads and railways that increase the possibilities and complexity of PIIM patterns.
- Some commodity types, such as gold and coal, are associated with artisanal and small-scale mining (ASM). Some mines are developed in areas with pre-existing ASM activities that may already have experienced in-migration. The advent of a large-scale mine can open up new possibilities for ASM as ore bodies are exposed or "waste material" is created that can be economically processed.
- Environments with rich ore bodies where the productive material is readily observable; the mine is located in an area of weak governance; or where the ore can be readily extracted and processed by ASM methods, and where immediate sale is possible, are likely to attract larger numbers of opportunistic in-migrants.

4.3 Existing physical and social environments shape in-migration

- The existing geographical and physical environment of the project area has a determining effect on PIIM patterns (e.g. remote islands versus mainland, or mountainous interior regions with no pre-existing transport infrastructure compared with accessible developed coastal zones).
- Similarly, the social and cultural environment of the project area will shape PIIM outcomes. For example, kinship relations across space, community histories, and regional cultural and kinship settings.
- This means that two very similar mining projects can have very different PIIM profiles depending upon geographic and social factors.

4.4 The "project area" and "project's area of interest" need to be identified

- Following IFC guidance, most PIIM risk assessments and management plans consider sources of in-migration (e.g. areas where migrants are likely to come from, and the potential push/pull and enabling factors for in-migration). By focusing on push/pull factors, "hot spots", "honey pots", or areas most likely to experience in-migration and settlement can be identified, and this is typically informed by some understanding of broader regional migration patterns.
- It is important to identify/distinguish the "project area" (e.g. the lease areas) from immediate affected areas (which may include areas both inside/adjacent to the lease) and the "project's area of interest", which may include areas outside of the leases that experience minimal physical impacts, but where the population has significant capacity

to influence the project, experiences indirect social impacts, or has high expectations that need to be understood and managed where possible.

- Understanding the difference between the project area and the project's area of interest will allow managers and planners to identify where population movement, or population change, has occurred in relation to the project as a discrete geographic space, and more generally within the wider social area in which the project is located.
- This will also assist in identifying PIIM drivers, or related drivers, from among other social risks, and the likely effects of population movement within the project's area of interest.

5. Lessons for extractive industries more broadly

5.1 Embed core CSP competencies to understand and manage PIIM

- Few extractive companies have the "in-house" competencies (at site or corporate level) to undertake detailed social baseline assessment, strategic planning, monitoring and periodic assessment of PIIM (as activities distinct from the implementation of PIIM management plans). These tasks are often conducted on a project basis by specialist consultants.
- To ensure effective responses to PIIM (including maximising the work of consultants, and implementing strategic PIIM plans) and a wider range of activities of central importance to operations, extractive companies need to embed the following core competencies:
    - **Strong Social Performance governance 'architecture'** is required. Similar to resettlement, grievance management, stakeholder engagement and other social performance activities, effective PIIM management requires robust and integrated social performance management systems (or 'SP governance architecture') within the company. Where Rio Tinto has a strong SP governance architecture, this is less evident in some other companies.
    - **Strong generalist social performance competencies** are critical for understanding and addressing PIIM, from a project management, financial, technical and risk assurance perspective. Given that site General Managers have overall accountability for managing "strategic issues" (e.g. > 5yr business threatening trends), these social performance competencies need to be embedded within the executive functions of the business.
    - **Strong social performance leadership** is needed to secure senior management buy-in, and maintain internal visibility on PIIM.

5.2 Baseline data collection is critical for managing PIIM

- It will not be possible to assess or predict the levels of PIIM without detailed and disaggregated baseline data, including data on pre-project levels of in or out migration from the project affected area. This data provides the foundation for developing "fit for purpose" PIIM management plans and periodic monitoring and assessment to review PIIM trends against predictions, inform decision making processes or assess the success of specific interventions.
- To understand and manage PIIM, project affected people and legally entitled project beneficiaries must first be identified, and socio-cultural knowledge about "what constitutes a migrant" in the project context is required.
- A lack of data, or failure to interrogate, ground truth and utilise existing data, is a frequent cause of misinformed management decisions, especially on PIIM. This can lead

to situations where PIIM and related social and business risks are over/under-estimated resulting in inaccurate forecasts and budget allocations.

- At the same time, regular social monitoring programs are required throughout the life of the operation to pick up project-related changes that may result in new in-migration patterns (for instance, when low levels of in-migration are originally predicted, but subsequent changes to the project design or other regional changes create new possibilities for in-migration – see 6.8 below and Text Box 2).

5.3 Incorporate PIIM management plans into business plans

- Interviewee experience indicates that PIIM management plans, or high level strategies, are not operationalised or implemented in full.
- Non-operationalisation of PIIM management plans occurs when they are developed for compliance purposes, and not integrated into business level plans. This issue can also arise when the structure and content of strategic PIIM management plans are not suitable for site-based audiences. It can also arise during the transition period between project development and project operation, as different teams assume responsibility for different project phases.

Text Box 2: Social monitoring and unforeseen PIIM drivers at the Ok Tedi mine in Papua New Guinea

It has been frequently observed that when mining projects unearth certain ore bodies this can give rise to ASM, attracting greater numbers of in-migrants. These sorts of project "inflection points" can be unpredictable, which reinforces the need for a consistent level of social monitoring studies through time to pick up on new trends. This point is well illustrated by an example from the Ok Tedi copper mine situated in a remote region of Western Province in Papua New Guinea. When mine management were contemplating the likelihood of in-migration shortly after mine construction had commenced in the early 1980s, the general consensus was that the mine was too far away from anything to be concerned about in-migration. In-migration has in fact occurred over the life of the mine, but for reasons entirely unpredicted by earlier management. Since about 2003 there has been a growth in ASM activities around the mine, and a corresponding increase in the rate of in-migration. However, the growth of ASM around Ok Tedi is not a response to new access to the ore body. During the earlier years of depressed gold prices, the mine was primarily a copper mine, and it lacked a gold circuit at the process plant. Consequently, the mine is likely to have discharged a significant amount of gold particles into the river system annually for some 20 years before the rise in gold prices prompted the mine area communities to pay attention to the viability of alluvial gold recovery. At this point, large-scale in-migration, spurred by a new attraction, became a PIIM rush. Initial social monitoring programs established in the early 1990s had not been continued, and as a result this new trend was not understood until these new PIIM patterns were thoroughly entrenched.

- To operationalise strategic management plans, standard operating procedures and tactical action plans should be developed in collaboration with project teams to embed strategies into the daily operation of the business. Site teams should define a process to regularly discuss, monitor and evaluate management actions with key internal and external stakeholders. The higher level SP governance architecture should also ensure continuity of focus across management transitions throughout different project phases.

5.4 Coordinate PIIM management plans across operational functions

- The competencies for implementing different components of PIIM plans are likely to be spread across the extraction project – as different actions involve various functions, departments and stakeholders.
- However, the implementation of good plans is often undermined by a lack of internal coordination and disconnect from daily operational plans. As per above, it is important to define a process to regularly discuss, monitor and evaluate management actions with key internal and external stakeholders.
- Cross-linkages with other departments and business functions are critical, especially for identifying roles and responsibilities, reducing duplication of activities, or for identifying pre-existing activities and programs that may also positively contribute to the management of PIIM. Key examples include linkages and alignment with human resources teams (regarding local employment policies/procedures), and procurement teams (regarding local business engagement and contractor management).

5.5 Incorporate PIIM management plans with other project plans

- The IFC handbook recommends that PIIM management plans be considered alongside other social plans, such as resettlement action plans (RAPs), business development, stakeholder engagement, training and localisation, and other regional development plans. Expert interviewees endorsed this as the correct approach.
- There are often considerable overlaps between these plans and the stakeholders involved, and issues from one planning domain can easily spill over into another and jeopardise outcomes, which highlights the need for integrated management approaches.
- Where PIIM is business-critical, it is advisable to establish a "regional development/in-migration/resettlement" interdepartmental management committee.

5.6 Assessments should include other functions/disciplines/programs

- Disconnect between PIIM planning and monitoring and other operational plans and policies is a major reason for unsuccessful PIIM management outcomes.
- It is essential to undertake an assessment of the potential for existing policies and procedures for HR and employment, procurement, physical infrastructure, and social and community development to influence PIIM outcomes.
- For example, recruitment and sub-contracting practices often provide major pathways for in-migration. Hiring at the gate, mass recruitment drives that do not consider the potential to encourage rapid in-migration or generate widespread interest in the project, inability to identify project beneficiaries from opportunistic outsiders seeking jobs or contracts, or inadequate management of contract labour (e.g. sourcing, accommodation, employment conditions etc.) can all create adverse PIIM related impacts.
- Likewise, community development and physical planning activities should consider the potential for programs and projects to attract in-migrants, and the possibilities for positively shaping PIIM trends. For instance, investing in wider regional hubs has been shown in some contexts to help direct in-migration away from immediate project areas.

5.7 Effective management of PIIM requires multi-stakeholder approaches

- The IFC handbook recognises that projects cannot manage PIIM unilaterally. Multi-stakeholder approaches are recommended. Industry specialists interviewed for this study unanimously support this recommendation.
- Most of the PIIM management approaches/plans reviewed for this study have adopted a multi-stakeholder approach.
- Several interviewees identified examples where the absence of a multi-stakeholder approach, or the failure to ensure that other stakeholders are aligned with the PIIM strategy and understand their roles and responsibilities, undermined implementation of the strategy. In some contexts this may need to be reinforced through a formal document (such as an MOU) to which parties can be held accountable.
- Interviewees emphasised the need to understand the different objectives and agendas among stakeholders, and the relationships and tensions between these stakeholders, when negotiating multi-stakeholder approaches to managing PIIM.
- In some contexts, strategies that aim to minimise PIIM may be perceived by some stakeholders as limiting the opportunity for economic progress, or imposing a limit on a citizen's constitutional right to freedom of movement. This point reinforces the need for benchmarking and careful stakeholder engagement to obtain alignment.

5.8 Incorporate monitoring and evaluation programs into the PIIM plan

- The study team has not found evidence of sites consistently monitoring key social indicators after baseline studies have been completed in order to stay on top of social risks – rather investigations tend to focus on selected indicators once issues have been identified.
- The study team has found evidence of sites undertaking periodic and ad hoc monitoring on key social indicators. However, this is often driven by compliance requirements, grievances or other operational needs, such as project expansions or entrenched issues.
- Combined with limited project monitoring and evaluation, and public reporting on PIIM, this has ultimately contributed to the shallow knowledge base for PIIM, and the lack of verifiable information on the stated success of certain PIIM management interventions.
- Comments from interviewees indicate a negative feedback loop between a lack of monitoring and evaluation, inadequate/reactive management, and entrenched impacts related to PIIM.

5.9 Population growth is necessary for economic and social development

- Population growth is typically comprised of two components: organic growth and in-migration.
- Both elements may be useful for economic and social development when properly understood and managed – which means identifying the appropriate management strategy for a given context.
- This underscores the need for accurate population/monitoring data, and the ability to measure population growth. Projects need to consider their data sources – whether

government statistics are reliable, or whether surveys and demographic data collection need to be undertaken.

- A key sustainability factor to consider is whether infrastructure and economic activity can be supported by the local population after mine closure. In many instances, project areas experience high levels of out-migration towards the end of the project lifecycle which may undermine the viability of civil infrastructure.

5.10 Identify and understand cumulative impacts

- Projects need to be aware of the cumulative effect of multiple projects on unmanaged PIIM, and the impacts on regional population changes.
- Where cumulative socio-economic and political impacts are not identified and understood in the early stages of a project, or throughout the project lifecycle, the negative impacts related to PIIM may be amplified and it may become impossible for a research intervention to disentangle overlapping issues – such as resettlement, and land and livelihood pressures.
- In some contexts, where there are multiple extractive and development projects, there will be a greater need for companies and other key actors to develop joint management strategies for PIIM.

5.11 Project closure and out-migration

- The IFC handbook does not focus on project closure and out-migration.
- Similar to PIIM management, there is a shallow knowledge base for social closure planning, and there are few good case examples upon which to draw.
- Given that in-migration not only occurs during construction but also throughout the various phases of the project, a lifecycle view of the project is required so that PIIM assessment and planning incorporates project closure and expected/unexpected industry downturns or project downsizing.
- Where out-migration is not planned, and especially when it occurs on a rapid and large scale, this can generate significant socio-economic issues for host communities and likely increase pressure upon the project. This can include, for instance, the "hollowing out" of the workforce, or neighbouring regions or communities as residents migrate elsewhere for employment and business development opportunities.
- Tailored strategies are required for specific in-migration and out-migration legacy issues associated with project closure; such issues may have considerable implications for eventual relinquishment of the lease.

6. CHECKLISTS

Preparing PIIM management and monitoring plans

These checklists are designed to help site-based social performance teams mitigate those *performance gaps* that can prevent them from fully benefiting from the existing guidance. The checklists group key actions for the designing and developing phase, and the implementation and monitoring phase.[3]

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[3] These checklists are not intended to replicate or replace the detailed guidance provided in the IFC handbook. Refer to the handbook for detailed step-by-step guidance on managing PIIM.

CHECKLIST

Primary checklist for designing and developing PIIM management plans in the mining industry

☐ Has the site-based social performance team read the IFC handbook, along with the company's social performance standards, and the IFC Environmental and Social Performance Standards (IFC 2012), and identified any areas where further information is required or guidance that requires further explanation?

☐ Has the site-based social performance team checked if there are any company commitments, agreements or regulatory requirements in place that may influence PIIM?

☐ Have baseline studies been completed for the project, and do these provide disaggregated socio-economic and demographic data, information on kinship systems and social networks, previous patterns of migration, and land tenure/use data?

☐ Do the baseline studies provide ethnographic detail on how local communities understand and categorise incomers, and the likely "types" of migrants?

☐ Do the baseline studies need to be updated to account for in-migrants residing within the project affected areas?

☐ Has there been a risk assessment for PIIM?

☐ Do PIIM assessments project likely upper and lower levels of in-migration to different locations?

☐ Do PIIM assessments identify projected financial and social impacts of increased demand on existing services?

☐ Have any PIIM management plans already been developed for the project? If so, have these been reviewed, previously implemented, or shelved (and is this project history understood)?

CHECKLIST

Ancillary checklist for designing and developing PIIM management plans in the mining industry

☐ Where the risk of PIIM is medium to high, are these risks clearly visible within the company (site *and* corporate) and included in business level risk registers?

☐ Has the site-based social performance team secured senior management buy-in (at site *and* corporate) on the need to address PIIM? Is there a corporate "champion" or contact person that the site-based team connects to who has social performance responsibility at the corporate level?

☐ Are there sufficient social performance competencies within the company (site or corporate) to manage PIIM project work, from a technical, management, risk assurance, and financial perspective? Has there been any internal benchmarking or competencies audit to identify any gaps?

☐ Are there other project based activities that may influence or complicate PIIM patterns, such as resettlement (planned or in progress), infrastructure development or major service provision? If so, are there cross-linkages between the management plans for these activities?

☐ Has there been early consultation with internal stakeholders across other functions and departments to ensure alignment and input into PIIM management strategies?

☐ Are there other projects, significant developments, or events within the region that may influence or complicate PIIM patterns?

☐ Have any cumulative socio-economic impacts been identified that may influence or complicate PIIM patterns?

☐ Is PIIM already occurring at the project? Understanding the current status of PIIM is necessary to develop the right planning approach (e.g. limit the focus to mitigating impacts, or focus on opportunities to maximise the positive possibilities created by PIIM).

☐ Has the PIIM management plan been integrated with local, district and regional development plans?

☐ Has the PIIM management plan been integrated with sector based plans (including health, education, business development, law and order, land management etc.)?

☐ Has there been an assessment of policies and procedures for HR and employment, procurement, physical infrastructure, social and community development on PIIM?

☐ Is there an appropriate multi-stakeholder forum in place to engage external stakeholders in the design phase of the PIIM management strategies?

☐ Has there been early consultation with external stakeholders to ensure alignment and input into PIIM management strategies?

☐ Does the PIIM management plan include monitoring and evaluation of the implementation of the plan as a specific set of project activities?

CHECKLIST

Checklist for implementing PIIM management plans and monitoring in the mining industry

☐ Are there sufficient social performance competencies within the site-based team to manage the implementation of the PIIM management plan?

☐ Have the PIIM management roles and responsibilities of different internal functions/departments and external stakeholders been defined, and are they clearly understood?

☐ Are there adequate resources and governance mechanisms in place to ensure senior management is informed and involved in PIIM management (e.g. a standing agenda item on 'OpCo' meetings and an inter-departmental management committee, and external forums as appropriate, such as Relationship Committee meetings, Government briefings, Community Consultative Committees etc.)?

☐ Has the PIIM management plan been integrated with business level plans (e.g. is the strategic plan integrated into daily operational plans, annual budget cycles, and cascaded down to specific actions/responsibilities linked with individual position descriptions and KPIs)?

☐ Has the social performance team secured senior management buy-in on the need for on-going monitoring and evaluation to support implementation and manage social and business risks? (Even where PIIM management plans outline the need for monitoring and evaluation, this does not always guarantee that these activities will be properly resourced).

☐ Are there sufficient social performance competencies within the site-based team to manage and conduct monitoring work from a technical perspective (data collection and management, analysis and reporting/recommendations)?

☐ Is an appropriate multi-stakeholder forum in place for reporting on the progress of implementation and monitoring results?

☐ Is there a site grievance handling mechanism capable of receiving/addressing complaints and grievances related to PIIM?

☐ Is there a social closure plan for the mine and does it consider legacy issues related to PIIM?

7. Future research agendas on PIIM in large-scale mining

This scoping study has identified common challenges facing Rio Tinto and the broader sector. Further work is now required to develop detailed case studies and professional guidelines for the sector. Priority areas are:

- Development of detailed case studies on the successes/failures of specific management interventions in different contexts, including cases where management approaches have only addressed the symptoms of in-migration.
    - There is an absence of good case studies, which is partly a result of the lack of monitoring and reporting data to properly disentangle project related forms of in-migration and to understand the impact of specific interventions.
- Longitudinal demographic monitoring and assessment of socio-economic and health impacts experienced by in-migrants and host-communities – as a basis for understanding how resource development can contribute to wellbeing and achievement of sustainable development goals on key social indicators.
- The interface with government and other stakeholders on roles, responsibilities and rights in relation to the management of PIIM.
- Management decision making processes to prioritise/de-prioritise PIIM as a matter of importance to the project.
- The regulatory review process of PIIM management and monitoring and the impact upon management decisions.
- Relationship between in-migration and resettlement and the ways in which issues from one domain can spill over into another and create more entrenched social risks and impacts.
- Incorporating in-migration legacy issues into social closure planning.
- Monitoring and understanding post-closure demographic changes, especially whether "migrant populations" remain or move on to predicted locations, and the resulting socio-economic impacts.
- Understanding the impacts of rapid out-migration from the project area and the broader regional implications.

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Appendix 1. Primary interventions in PIIM management plans

Part Four of the IFC handbook sets out general management approaches and interventions for effective management of in-migration and its impacts (see Table 1). Table 2 provides an aggregate summary of the frequency of various approaches/interventions (as recommended in Part 4 of the IFC handbook) in the PIIM management plans and strategies (n=12) reviewed for this study.

The majority of PIIM management plans reviewed include approaches/interventions that conform to recommendations outlined in the IFC handbook. The variation between plans and attention to specific actions reflects the diversity of project contexts, the maturity of operations, the technical capacity of those people/teams who were responsible for developing the plans, and the operational phase in which the plans were developed (i.e. proactive plans developed during early project stages, or reactionary plans developed mid-operations after PIIM has become an entrenched issue).

Table 1. Recommended IFC interventions for managing in-migration

	APPROACH	CATEGORY	INTERVENTION
1	**Managing project-induced in-migration**	Minimising 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
			Use of buffer zones
			Spatial planning, administration and resource allocation
			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 & development of supply centres
			Definition of Project-Affected People, compensation, participation, and development
			Building multi-stakeholder frameworks and stakeholder capacity
2	**Stakeholder engagement and monitoring**	Stakeholder engagement	Ensure influx issues are addressed in stakeholder engagement plan
		Monitoring and evaluation	Early and effective monitoring systems
3	**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
			Reversal of negative social dynamics
			Spatial planning, housing, and water and sanitation
			Mitigating health impacts
			Project closure

Table 2. Frequency of key interventions recommended by the IFC included in PIIM management plans reviewed for this study

Frequency	IFC interventions included in PIIM plans	Details (as per IFC handbook Part 4)
High **(9-12)**	**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 be tapped illegally or otherwise utilised. An assessment of current capacity against predicted population increases will allow strategic planning and resource allocation decisions.
	Planning 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, prioritisation (e.g., a local-first recruitment policy), the use and location of local recruitment centres vs. recruitment centres distant from the project location, use of project transport, hiring policy and practice for day/casual labourers, medium-to-long-term localisation plans and worker mobilisation and demobilisation strategies, need to be defined at an early stage.
	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 50-100km 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 pre-empt the development of larger population centres close to the site; 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.
	Planning worker housing	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 50-100km 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 pre-empt the development of larger population centres close to the site; 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.
	Planning procurement of goods and services & development of supply centres	Project decisions regarding construction and operations phase procurement of goods and services will determine the location of economic activity. Localisation will create service towns entirely dependent upon the project for employment and the procurement of goods and services. To mitigate dependency, the development and use of more distant and, perhaps, established supply centres 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.
	Definition of PAPs, compensation,	Project ESIA and other documents (e.g., RAPs, IPDPs) define the basis for the recognition, compensation, participation, and development of project-affected people (PAPs).

	participation, and development	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. Therefore it is recommended that there be precise definition of the benefits and beneficiaries of the project's impact mitigation and development programs.
	Ensure influx issues are addressed in stakeholder engagement plan	With regard to in-migration, the key objectives for a project's Stakeholder Engagement Plan 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 and delivering project benefits, including employment.
	Early and effective monitoring systems	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.
	PAP definition, 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. Where Projects have failed to adequately implement these measures, corrective action to mitigate this failure and any consequent social unrest may be necessary.
	Workforce recruitment policy and management	Workforce recruitment and management policies and their effective implementation can significantly affect migrant settlement patterns.
	Project stakeholder engagement and communication	With regard to in-migration, the key objectives for a project's Stakeholder Engagement Plan 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 and delivering project benefits, including employment.
	Monitoring and evaluation	Effective management of the physical, social, and health footprint of in-migration requires reliable information on in-migration, including a baseline and periodic updates.
	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.
	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.
	Mitigating 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 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.

Medium (5-8)	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.
	Promoting regional diversified growth strategies	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.
	Managing the initial project footprint	The start-up phase of all projects involves the establishment of a project footprint. 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. Through these activities, the base becomes the target destination of potential in-migrants who, in turn, demand a range of goods and services.
	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.
	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.
	Building multi-stakeholder frameworks and stakeholder capacity	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.
	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.
	Project security	In addition to strengthening stakeholder engagement and monitoring capacity, a project can address the impacts of in-migration 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 effects. One of the most important public commitments a company can make is to abide by the Voluntary Principles for Security and Human Rights (VPSHR).
	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.

	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.
	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.
	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.
Low (1-4)	**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 settlement proximate to construction and operations and, together with appropriate workforce recruitment policies, may encourage settlement in the nearest villages and towns.
	Bank services and micro-finance	Providing local people with opportunities to save and invest construction-phase windfalls is an important aspect of sustaining project benefits.
	Planning material transportation	Projects involving the development of major new access routes 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; 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.