



# Step 07

## Closure

At this seventh step mines are wound down, operations are closed and rehabilitation is accelerated. All mines close and many close prematurely, so it is important that mine closure planning start from the beginning of the mining cycle. Progressive rehabilitation of areas no longer needed should start during operations rather than during final closure. An integrated approach to mine closure planning integrates environmental, social and economic planning and involves local communities and other stakeholders throughout the process.

### Primary Target Audience

- Mining Authorities
- Environmental Authorities
- Social Authorities & Human Rights Authorities & Local Government

### Summary of Step 7: Closure

#### KEY ACTIONS IN THIS STEP

#### KEY MESSAGES

- A** **Plan for Closure and Post-Closure in an Integrated Manner**
- B** **Involve Stakeholders as a Core Part of the Closure Process**
- C** **Carry Out Progressive Closure throughout Mine Operation**

Integrating ESHR management decisions into strategic closure planning from the start can achieve more effective mine closure and completion. The objective of closure should be to prevent or minimize adverse long-term environmental, physical, social and economic impacts, to create a stable land form suitable for some agreed subsequent land use and to maximize social benefits.

Community engagement from the earliest possible time and throughout the closure planning process is both an important expression of the right of the public to participation, but is also essential to effective closure planning. The goal should be community ownership of the closure plan, as the community will eventually inherit the project area.

Actions that are part of closure will start in the production phase (Step 6) as progressive rehabilitation of areas no longer needed gets underway. Monitoring these actions to understand their effectiveness and using the results to refine future rehabilitation efforts will be important and should continue through post-closures (Step 8).

# A Plan for Closure and Post-Closure in an Integrated Manner

Planning for closure and post-closure is most usefully done from the very start of considering mining and at each stage of the mining cycle while recognising that mines can close at any point in the cycle, including at the construction phase.

Mine closure today is less of a technical challenge and more of a management challenge. An integrated approach combines the economic dimensions of closure with ESHR considerations.<sup>307</sup>

## Setting the Foundations (Step 1)

### Does the country's mining policy and legal framework cover closure and post-closure?

- As a first step, mining policy should set out the government's objectives on closure and post-closure that are implemented through mining laws and regulations, licensing/mining agreements and key approval regimes (particularly environment, planning and mining-related legislation).<sup>308</sup>
- In addition, authorities should consider how specifically targeted legislation can be enhanced or coordinated with closure requirements to improve protection, including environmental requirements around contamination; the protection of flora and fauna; landfills; controlled waste; dangerous goods; land management; and social requirements including labour, social protection, gender equality, non-discrimination and indigenous peoples.
- In low-capacity environments, requiring that mining companies apply international standards,<sup>309</sup> combined with independent monitoring and reporting, can compensate for a lack of internal capacity.

## Land Use Planning (Step 2)

### Has the land use planning process considered the issue of closure and post-closure?

- The aim of integrated land use planning is to produce land use (spatial) plans to guide the development of mining settlements and ensure that the long-term land uses of the surrounding areas are capable of replacing the economic activities and contributions once the mine(s) is closed. This should include the management of mine waste.

## Exploration (Step 3)

### Do the exploration requirements/permits address any relevant closure steps?

- Closure planning could commence at exploration. Unless there are specific requirements to do so, there are often disincentives for exploration companies to address closure, but growing international practice to draw on.<sup>310</sup>

307 See [http://api.ning.com/files/zBuXAPjY2N7fQLQH6Hwmus3kO3S\\*zOZsqiRG4kkRfw0eN2kfX9UvHnhvBzdwUTsEozw0KIoSAV-nwnoB4jwQOn6tv2mqP\\*gf/EGPKnowledgeProductwebinaronmanagemntofminingwaste.pdf](http://api.ning.com/files/zBuXAPjY2N7fQLQH6Hwmus3kO3S*zOZsqiRG4kkRfw0eN2kfX9UvHnhvBzdwUTsEozw0KIoSAV-nwnoB4jwQOn6tv2mqP*gf/EGPKnowledgeProductwebinaronmanagemntofminingwaste.pdf)

308 See in particular the Asia Pacific Economic Commission, "Mine Closure: Checklist for Governments," <https://mail.google.com/mail/u/0/#label/4.+UNDP/15f07a05ba4de500?projector=1>. The objective of the Mine Closure Checklist for Governments is to provide policymakers in the APEC region with the essential elements of a successful mine closure governance framework based on leading international guidelines and standards, as well as international experience. This checklist is designed to provide a logical, sequential series of steps that will allow policymakers to identify gaps in their current mine closure framework and identify how to address those gaps.

309 See, for example, Australia, "Leading Practice Sustainable Development Program for the Mining Industry – Mine Closure Handbook," (2016), <https://industry.gov.au/resource/Programs/LPSD/Pages/LPSDhandbooks.aspx>

310 PDAC, E3Plus Toolkit – Module on Reclamation and Disclosure, <http://www.pdac.ca/programs/e3-plus/toolkits/environmental-stewardship/reclamation-and-closure>

## Feasibility and Licensing (Step 4)

### Do the authorities require that feasibility studies cover closure and provide a preliminary closure plan?

- Authorities should consider the following steps:
  - Make the ESHR impacts of closure an integral part of the ESIA/ESMP, complemented by a separate comprehensive closure plan that starts with a preliminary plan and is revised over time, including plans for sudden or unexpected closure. (See Box 73 for IGF recommendations on closure plans.)
  - Make the ESHR impacts of closure an integral part of the feasibility study. (See Box 49 on closure issues that should be covered in feasibility studies.) Once the preparation of the feasibility studies have yielded baseline and projected impact information (after environmental and socio-economic studies have been completed), mine design principles to support certain closure outcomes<sup>311</sup> can be incorporated into the design.

### Do the mining contract/license impose closure requirements?

- Require a closure plan and adequate financial assurance before the requisite mining permits for a new mine are approved so that the appropriate funds (or guarantee of funds) are put aside from the beginning of the mining operation.
- The funds or guarantee should ensure that the operator has sufficient funds to close the mine and carry out environmental and social reclamation, or, if the operator is unable or unavailable to complete the work, that the funds are made available to the government for third-party contractors to complete the work. (See Box 74 for IGR recommendations on financial assurance.)  
The mining authorities should address:
  - Where is this money held (in country or off shore)?
  - Who is accountability for it – i.e., who has access to it and what are the criteria for accessing and spending the funds?
  - What happens when these funds are not sufficient either because the closure came sooner than expected or funds were calculated as a share of profit and there was not sufficient profit?
  - Should the government set up a fund for affected communities for remediation of long-term impacts as a part of a closure plan or should these costs be covered by the company?
- Do the contracts impose legal obligations (in addition to financial obligations) on companies beyond the lifetime of the project into final relinquishment at post-closure? (See also [Step 8 on Post-Closure](#).)

### How do the authorities deal with changes in ownership/mergers & acquisitions?

- Increasingly mines change owners at least once – and perhaps several times during a mine's life and, with it, the burden of closure.<sup>312</sup> Authorities should ensure that new owners are required to take over any closure requirements. They will need to keep a close eye on planning and budgeting for closure during the course of approving ownership changes.

## Construction (Step 5)

### Were the mining operations and ancillary facilities and infrastructure constructed with post-closure in mind?

- During the construction phase, many long-term decisions are made, all of which influence final decommissioning and closure. Construction activities should be carried out while bearing in mind the implications for the short-term or longer-term eventual closure of the mine.<sup>313</sup>

311 ICMM, Planning for Integrated Mine Closure Toolkit (2008), p. 48, <http://www.icmm.com/website/publications/pdfs/310.pdf>

312 ICMM, Planning for Integrated Mine Closure Toolkit (2008), p. 48, <http://www.icmm.com/website/publications/pdfs/310.pdf>, noting that management at a mine site may, quite pragmatically, preferentially allocate resources to production targets rather than closure – an activity that may not be the current owner's responsibility in future years

313 Australia Guide to Leading Sustainable Practices in Mining, (2011), Chapter 3 on Construction and Development, <https://industry.gov.au/resource/Documents/LPSPD/guideLPSPD.pdf>

- This should include considerations of:
  - Elements that are especially subject to changes during construction and affect (primarily) environmental closure issues: tailings dams, water supply infrastructure, catchment water management, roads and transport infrastructure and creek and river diversions<sup>314</sup>
  - Social impacts: for example, the impact of the reduction in construction workforces as part of longer-term retraining programmes

## Production (Step 6)

### Are closure plans and activities updated throughout the production cycle?

- Closure planning should be subject to periodic review and, as necessary, adjusted in response to relevant changes in conditions, regulations or expectations of the community or other stakeholders during lifetime of the mine (see Box 75 on planning for sudden closures).
- Requiring progressive rehabilitation as mining areas are closed helps limit the ESHR footprint and reduces future closure costs.
- The final step is the effective transition to closure, which should be set out in a detailed decommissioning and post-closure plan (see [Step 8 – Post-Closure](#)).

## Box 73

### IGF Recommendations on Closure Plans

- Requiring the use of external experts by entities to contribute to the development of closure plans and to validate the risk assessments, studies and activities associated with high-risk elements such as tailings dams, waste dumps and acid rock drainage
- Requiring that internationally accepted guidelines and best practices (such as IFC Performance Standards on Social & Environmental Sustainability) be followed
- Requiring the periodic reassessment and independent auditing of closure plans: more frequently for mines with an expected short operating life, less frequently for large operations with economic life expectancies measured in decades
- Putting in place a framework to encourage progressive rehabilitation in mining areas as soon as the disturbed area is no longer needed for mining. This would reduce future closure liabilities and reverse or minimize future environmental, economic and social impacts<sup>315</sup>

314 ICMM, Planning for Integrated Mine Closure Toolkit (2008), p. 28, <http://www.icmm.com/website/publications/pdfs/310.pdf>

315 IGF, "Mining Policy Framework - Post-Mining Transition Section," (2013), pp. 13-15, <http://igfmining.org/mining-policy-framework/>

## Box 74

## IGF Recommendations on Financial Assurance for Closure and Post-Closure

Ensuring that financial assurance for closure and post-closure expenses is present and adequate to the task and by adopting legislation, regulations and guidelines for financial assurance. This would:

- Require an adequate level of financial assurance based on realistic estimates to cover the cost of all outstanding work programmes at any time, including premature closure and the conduct of closure programmes by third-party contractors in the event that the mine operator is unable or unavailable to complete the work
- Require that each closure plan and its cost estimates be validated or approved by the responsible authorities
- Establish appropriate forms of financial security (bonds, insurance, etc.), including their specific details and conditions
- Require that the financial securities be issued or held only by qualified and approved financial institutions
- Give governments, based on their sole discretion, the right to gain immediate and unencumbered access to the full amount of the financial assurance securities
- Allow the draw-down or release of security instruments only as each work programme or other requirement is satisfied<sup>316</sup>

## Box 75

## The Need to Plan for Sudden Closure as Part of Closure Planning

Circumstances such as economic or market downturns, technical problems or civil unrest may cause an operation to close suddenly, perhaps several years or decades before its scheduled closure. Sudden closure can have serious ESHR impacts. Being prepared for sudden closure relies on having

an updated detailed closure plan, to provide a good basis for decision-making. Issues that cannot be resolved during the short timespan of sudden closure should be folded into an ongoing care and maintenance program until a closure plan can be implemented.<sup>317</sup>

## Box 75

## Key Issues to Consider When Closing – Goxi Learning Series

The Goxi Learning Series on mine waste and design for closure highlighted the following technical and administrative issues that need to be addressed when closing a mine, most of which have financial implications:

- Cost estimates require expertise and experience from the point of view of the regulators and the mining companies.
- Any environmental guarantee or bond that is set aside must be guarded against potential effects of inflation and exchange rate fluctuations.
- The cost of closure of a mine is dependent on the set objective and will change over time. The availability of funds needs to be ensured and protected and should not be allowed to be used for addressing any other issues.
- Closure of a mine can be a difficult process. It is important to guarantee the availability of expertise.

316 IGF, "Mining Policy Framework - Post-Mining Transition Section," (2013), pp. 13-15, <http://igfmining.org/mining-policy-framework/>

317 ICMM, Planning for Integrated Mine Closure Toolkit (2008), p. 38, <http://www.icmm.com/website/publications/pdfs/310.pdf>

## B Involve Stakeholders as a Core Part of the Closure Process

In addition to the mining company itself, a combination of authorities is likely to be involved in closure planning, as both sides play an important role in closure planning, engagement and activities. Local, provincial and national governments provide the institutional capacity and can offer important perspectives on local and national economies and the sustainability of social clo-

sure outcomes.<sup>318</sup> Whereas many environmental closure outcomes rely on the mining company's expertise to conceptualize and deliver results for social closure programmes, the communities and local governments have the most local history, knowledge and interest to inform the development of social closure outcomes.

### Public Participation in Planning for Closure

**Do the authorities engage and require the mining company to engage with the affected communities and other stakeholders periodically in the development and revision of closure and post-closure planning?**

- Communities surrounding mines are unlikely to understand the concept of mine closure, so it is particularly important that this concept be explored with the community early and that closure planning involve community throughout – and not just at the initial ESIA stage. This will help minimize long-term legacies of unrealized expectations post-closure.<sup>319</sup> Communities that have different levels of dependence on the operation that must be addressed – dependent communities will be much more sensitive to the presence or absence of the operation.
- Public participation in closure planning and decision-making should be programmed in at the following stages:
  - At the **feasibility stage**, when preliminary plans for closure are being prepared. This includes agreement on the objectives of closure, including around achieving lasting benefits at local and regional levels.
  - As part of the **finalization of the initial closure plan** that is submitted as part of **the approval process**, with an agreed set of closure objectives and completion criteria that the company must meet to relinquish the site in a manner that meets regulatory requirements and community expectations.
  - Periodically **during operations** as part of the review and update of the closure plan.
  - More intensely as part of the development of the **decommissioning and post-closure plan** to help communities prepare for changes to their environment. A key focus is on preparing workers and local communities for the intended closure date – workers can plan to find alternative employment and the community can work with the mine to ensure sustainable benefits from the mining activities.
- Participation will need to take a **variety of different forms**:
  - Potentially **core community liaison or advisory groups** specifically for the mining project and/or closure. (See Box 77 for a case example of community involvement in closure planning.)
  - **Expert meetings** focused on particular topics such as biodiversity or water reclamation

<sup>318</sup> See in particular Australia, "Leading Practice Sustainable Development Program for the Mining Industry – Mine Closure Handbook," (2016), <https://industry.gov.au/resource/Programs/LPSD/Pages/LPSDhandbooks.aspx#>

<sup>319</sup> Id.

- Consultations with **workers and their representatives**
- Consultations with diverse groups of **women** to understand their perspectives, and analysis of the gender-related impacts of closure and to design appropriate mitigation measures
- Consultations with **vulnerable groups** to understand the differentiated impacts on them and to design appropriate mitigation measures
- Broader information sessions and consultations with the **general public** to explain key issues

## Accessible Information

### Do the authorities make available or require the mining company to make available relevant information on closure impacts?

- There will likely be a range of information that stakeholders should see, given the likely range of interests:
  - For environmental groups, this is likely to be full sets of plans for environmental and biodiversity remediation & monitoring reports of existing rehabilitation/reclamation activities.
  - Local communities and trade unions are likely to be interested plans on job-retraining, microfinance schemes, other support services and relocation options.
  - A wide range of stakeholders will likely be interested in planned land and infrastructure re-use options for the area.
  - The risk of temporary or permanent closure for unexpected reasons, such as the fall of commodity prices, natural disasters or social unrest
- Authorities and the mining company should be prepared to communicate plans in a variety of ways and formats to make sure they are understandable and accessible.

## Box 77

### Case Study of Community Involvement in Closure Planning

One of the initial steps taken by the mining company in the preparation of the rehabilitation plan was to develop an overall closure philosophy together with an active community consultative group (CCG) comprised of local government, representatives of landowners and business and conservation groups. To assist the community's consideration of various rehabilitation concepts, the company prepared

visual impressions of preferred options. Following option selection, the CCG also assisted in identifying key issues to be dealt with in the implementation process and provided a communication channel for the government to obtain feedback on aspects of the plan. The CCG set up an independent audit of progress against the rehabilitation plan based on a protocol that it had developed.<sup>320</sup>

## C Carry Out Progressive Closure throughout Mine Operation

Monitor rehabilitation steps during operations to fine-tune closure and post-closure ap-

proaches. This is covered in more detail in [Step 8 – Post-Closure](#).

<sup>320</sup> This case study was adapted from: Australia, "Leading Practice Sustainable Development Program for the Mining Industry – Mine Closure Handbook," (2016), p. 83, <https://industry.gov.au/resource/Programs/LPSD/Pages/LPSDhandbooks.aspx>