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Managing artisanal and small-scale Mining

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The advice in this IGF Guidance for Governments is based on research and publications on artisanal and small-scale mining management good practice available at the time of writing, and has been reviewed by representatives of IGF member countries and other interested stakeholders. This Guidance shall be used at the risk of the user, and the IGF accepts no responsibility for consequences of following the advice or recommendations found in this document.
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The IGF is a member-driven organization aimed at providing national governments committed to leveraging mining for sustainable development the opportunity to work collectively to achieve their goals. It is devoted to optimizing the benefits of mining to achieve poverty reduction, inclusive growth, social development and environmental stewardship.

The IGF serves as a unique global venue for dialogue between its 56 member country governments, mining companies, industry associations and civil society.

RCS Global produced this Guidance document under contract from the IGF. RCS Global is one of the world’s leading responsible raw materials supply chain audit and advisory groups. Our advisory work continues to shape and implement industry and regulatory good practice while our audit practice ensures companies can prove compliance. This project was delivered under project direction of RCS Director Dr. Nicholas Garrett. Dan Paget is the Lead Author, with Dr. Nicholas Garrett as additional author. Nicolas Eslava provided project management support.
Preamble

The IGF Guidance for Governments: Managing artisanal and small-scale mining was commissioned by the Intergovernmental Forum for Mining, Minerals, Metals and Sustainable Development (IGF) under its signature ‘Mining Policy Framework’ (IGF, 2013). The objectives of the IGF are to improve and promote the contribution of the mining, minerals and metals sector to sustainable development and poverty reduction.

This document is the supplement to the IGF Guidance for Governments: Managing artisanal and small-scale mining. The guidance offers concise advice and includes only the most important points. This supplement offers a filled-out version of the guidance. It includes the same information that can be found in the guidance, in the same order, but it elaborates on it. It offers further references and details that users may find useful. For many issues raised in the guidance that a reader may want to know more about, further information can be found in the supplement.

The members of the IGF developed the comprehensive Mining Policy Framework (MPF) (IGF, 2013). The MPF is a compendium that IGF members have identified as leading practices for exercising good governance of the mining sector and promoting the generation and effective management of benefits in a manner that will contribute to sustainable development.

The MPF contains six key themes, which are as follows: legal and policy environment, financial benefit optimization, socioeconomic benefit optimization, environmental management, post-mining transition, and artisanal and small-scale mining (ASM). The MPF has universal application and represents the commitment of the IGF members to ensuring that mining activities within their jurisdictions are compatible with the objectives of sustainable development and poverty reduction.

On ASM itself, the MPF provides some high-level guidance on (1) integrating informal ASM activities into the legal system, (2) integrating informal ASM activities into the formal economic system, and (3) reducing the social and environmental impacts of ASM. The guidance and this supplement build on these three areas by providing a comprehensive menu of options and considerations for addressing the challenges of the sector according to the range of types of ASM activity a government is managing.

The advice in the guidance and this supplement alike is based on research and publications on ASM management good practice available at the time of writing, and has been reviewed by representatives of IGF member countries and other interested stakeholders. Both the guidance and the supplement were approved first by the IGF Executive Committee and subsequently by the IGF membership. The guidance and supplement shall be used at the risk of the user, and the IGF accepts no responsibility for consequences of following the advice or recommendations found in this document.
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<td>Communities and Small-Scale Mining</td>
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<td>IGF</td>
<td>Intergovernmental Forum for Mining, Minerals, Metals and Sustainable Development</td>
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<td>IIED</td>
<td>International Institute for Environment and Development</td>
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<td>ILO</td>
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<td>LSM</td>
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<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
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<td>SECO</td>
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Executive Summary

Artisanal and small-scale mining (ASM) has great economic potential. It can help to sustain livelihoods, reduce poverty and generate state revenue in developing countries. Equally, ASM can have detrimental effects on the environment, human rights, labour standards, occupational health and safety, gender and a range of other issues. Governments have responsibilities to regulate the ASM sector to avert or mitigate those negative consequences, just as they have obligations to harness that economic potential for sustainable development. However, managing the ASM sector effectively is profoundly challenging. Governments often lack the capacity to enforce regulations, formalize ASM operations (through licensing and permits), or run assistance programs. ASM operations can lack the means and capacities to adhere to regulations or effectively participate in assistance programs. Equally, they can elude state agents or ignore laws and regulations that they do not wish to follow.

This document provides practical guidance for governments to use in managing ASM more effectively. It is divided into three parts, which correspond to the three phases of ASM management (Figure ES1):

**Part 1—Preparing for an ASM Management Strategy** outlines the steps that a government should take before it begins to develop an ASM Management Strategy in Phase 1 of ASM management. It advises on why and how responsibilities and leadership for the development and implementation of the strategy should be allocated. It recommends how stakeholders should be allowed to participate in ASM management, and it describes what research a government should undertake before ASM management begins.

**Part 2—Developing an ASM Management Strategy** outlines the steps that a government should take in developing or reviewing an ASM Management Strategy in Phase 2 of ASM management. Here a government decides what its goals are and which instruments and initiatives it will employ to reach those goals, and it adds the details to its ASM Management Strategy.

**Part 3—Implementing the ASM Management Strategy** outlines the steps that a government should take in implementing its ASM Management Strategy and, in particular, how it should execute the instruments and initiatives that it chose in Phase 2 of ASM management.

This supplement has been designed so that users can choose to dip in and out of it as a reference manual, or follow each part in sequence from beginning to end.
Figure ESI. Organization of this supplement into parts and sections. The sequence of sections follows the process of managing ASM.
Part 1: Preparing for an ASM Management Strategy

The first step a government should take to manage artisanal and small-scale mining is to put together a government ASM task force made up of representatives from government departments relevant to ASM management. It may be hosted or led by a single or several departments, or set up as a separate government organ. No matter how it is designed, the responsibility of this body will be to lead the government’s ASM management. In particular, it should be tasked with:

- Coordinating the actions of government departments
- Distributing responsibilities between them
- Facilitating communication between them
- Leading the development of an ASM Management Strategy
- Supervising the implementation of said strategy

A government should also convene a forum of ASM stakeholders (a Stakeholder Forum) that it will consult periodically. Good consultation is transparent, in the sense that the process and the outcomes are publicly accessible; meaningful, in the sense that it can influence government action; and inclusive, in the sense that it is open to participation by any interested parties, and that ASM operation owners, managers and workers are all represented.

In order to be able to develop an effective ASM Management Strategy, a government should commission research on ASM. ASM sectors (even on the subnational level) are different from one another, and they change over time. Research helps governments to make better-informed decisions by providing it with a view of the realities on the ground. There is an important sequencing to research:

1. **Scoping Study**—provides an overview of the ASM sector and informs how further research should be designed.

2. **Government Capacity Assessment**—asses the government’s capacity to manage ASM.

3. **ASM Industry Assessment**—collects information about the techniques that ASM operations use and the economic characteristics of ASM.

4. **ASM Impact Assessment**—determines the impacts of ASM and what types of operations produce them.

5. Further background research should include both **Supply Chain Mapping and Geological and Land-Use Mapping**

While the depth and breadth of research will depend upon a government’s needs and means, the government should at a minimum gather information about the characteristics of the industry and the impacts it has, and it should review its own capacity and resources in relevant departments and organs. This research should be repeated periodically to ensure that information remains up-to-date.
Part 2: Developing an ASM Management Strategy

Developing a Vision
The first part of developing an ASM Management Strategy is forming a Vision for Responsible ASM and the Sustainable Development of ASM. A vision imagines an ASM sector that a government wishes to see in the future, and it is also a way to articulate the goals that should be pursued in the ASM Management Strategy. Several ASM issues involve particular practices: techniques, habits or routine actions of ASM operations that either should be encouraged or prohibited. The most important outcome of the vision is that it be expressed as a ranked list of ASM practices from worst to best that is divided into three categories:

- **Unacceptable practices**, which the government will not tolerate under any circumstances.
- **Poor practices**, which the government will try to eliminate, dependent upon circumstances. These are separated from unacceptable practices by the Unacceptable Level of Practices (see also Section 4).
- **Good practices**, which the government will encourage ASM operations to employ instead. These are separated from poor by the Minimum Approved Standards of Practice (Minimum Standards).

A vision should cover a wide range of issues. This supplement groups them under the following headings:

- Socioeconomic impact mitigation and benefit maximization of ASM.
- Environmental impact mitigation
- Protection of, respect for and remedy for violations of human rights.
- Labour rights.
- Health and safety.
- Improving gender standards.

Dividing the ASM into Subtypes
After a government decides what goals it will pursue to manage ASM, it should decide what it will do to achieve those goals. The first thing to do is to decide how to divide ASM into subtypes and to ensure that the strategy caters to these subtypes. This is a strategic exercise, not an academic one. There are countless ways in which ASM can be divided into smaller categories.

For its strategy, a government must decide whether there are some subtypes of ASM that it needs to treat differently from others. For example, it might decide that shaft-mining operations have greater economic potential than others and that technical assistance should therefore be targeted to them. It might discover that its artisanal miners cannot meet the same regulatory standards as larger operations, or that small-scale miners are typically tied by debts to particular buyers, which prevents them from joining supply chain initiatives.
It might decide that mining of some particular mineral or metal needs special attention. Alternatively, it might decide that ASM operations in one region need different sorts of attention to ASM in another region.

For each subtype of ASM that a government divides ASM into, it should develop a separate sub-strategy. This means that an ASM Management Strategy is in fact formed of several sub-strategies, one for each subtype of ASM that the government chooses to recognize. This process is shown in Figure ES2.

Figure ES2. Process of developing an ASM Management Strategy: Distinguishing between subtypes of ASM
As a government develops each sub-strategy, it should think about two separate sets of issues: one about economics and one about regulations. The sub-strategy for each subtype of ASM should consist of two parts: (1) an ASM industry approach and (2) an approach to improving ASM practices. The purpose of an ASM industry approach is to help realize the economic potential of ASM. It should be developed as part of the government’s economic and poverty-reduction plans. It should involve help that goes to individual operations, but also include support that is industry-wide in scope. The purpose of an approach to improving ASM practices is to make ASM operations stop using unacceptable practices and poor practices, and to use good practices instead.

The key steps for an ASM industry approach include:

1. **Deciding which subtypes of ASM on balance have net positive impact and should be encouraged, and which should not.** For those that the government decides to encourage, it should then decide whether additional land can and should be made available for ASM. The potential size of an ASM subsector is limited by the size of deposits that ASM operations can feasibly work, but it is further limited by the number of those deposits that are already allocated to other purposes. This includes land distributed to control by customary authorities, national parks, and land licensed to others for mining and for a range of other purposes.

2. **Considering whether to facilitate the introduction of a supply chain initiative.** Supply chain initiatives specify rules for participants about how and under what conditions minerals and metals can enter and be passed along the supply chain. Minerals and metals procured with the application of supply chain initiatives can be bought at better prices, under two circumstances: first, if there is an official premium, as with Fairmined Gold; second, if there is strong demand and/or low supply for a mineral or metal that meets the conditions specified by that supply chain initiative. There are numerous other incentives over and above price that may make the introduction of a supply chain initiative a good idea. A government should consider whether any supply chain initiatives’ goals are compatible with its own, and whether and how the government could best facilitate the introduction of a supply chain initiative.

3. **Considering whether there are market failures in the ASM sector that the government can redress by assisting ASM operations.** This assistance might include providing geological data to ASM operators that is too expensive for any ASM operation to obtain individually, but not too expensive for ASM operations to obtain collectively. It might consist of solving credit problems by helping ASM operations gain access to credit, or providing access to electricity infrastructure, water and sanitation infrastructure, transport infrastructure or equipment that is not available to operations. Whichever of these instruments and initiatives a government chooses to employ, it should then combine these with the instruments and initiatives it chooses to generate as part of its approach to improving ASM standards. Put together, this portfolio of instruments and initiatives will form an ASM management sub-strategy, as shown in Figure ES3.
Figure ES.3. Process of developing an ASM Management Strategy: Developing an ASM industry approach and an approach to improving ASM practices

**Approaches to Improving ASM Practices**

When developing an approach to improving ASM practices, a government must realistically evaluate its capacities. The key decision hinges upon whether a government judges that it can feasibly administer a system of licensing and regulation. If it can, it should adopt what the guidance and this supplement call a license and regulate approach.

If a government decides that it cannot feasibly administer a system of licensing and regulation, it should pursue either a segmented approach or a promote good practices approach instead. Trying but failing to make ASM operations comply with regulations can end in conflicts between law enforcement and ASM. These erode trust, waste resources and do not result in responsible ASM. Choosing not to employ a license and regulate approach when it is not feasible is about choosing the battles that can be won, and not the ones that cannot.

**The License and Regulate Approach**

In the license and regulate approach, a government should make it illegal to mine without licences and should create a system of sanctions for those who do mine without them. It should prohibit both unacceptable practices and poor practices specified in the law and regulation. In other words, all practices below the minimum standards should be prohibited. It should then create a further system of sanctions for those that violate those regulations, including revoking operating licences. This system should be supported through monitoring and enforcement. In this way, the government legalizes and formalizes ASM operations to make them meet required minimum standards.
A government should design its system of licensing and regulation so that a majority of ASM operations have incentives to comply with regulations. If regulations are so costly to comply with that ASM operations choose to disobey them, the government should loosen those regulations. If ASM operations fear being sanctioned for disobeying regulations, so that they would consider complying with even tighter regulations, then government should tighten regulations.

A government should complement this system with other instruments and initiatives. To get the most out of these extra efforts, a government should focus its further efforts on how it can make ASM operations employ good practices rather than just following regulations. This might involve services to ASM workers such as healthcare or education for their children, or technical assistance. Some of these types of assistance and services can serve multiple purposes. They can be used to improve ASM operations directly and be used as leverage. A government can offer these services and assistance upon the condition that ASM operations acquire licences and comply with regulations.

The Segmented Approach

In a segmented approach, some ASM operations that can feasibly be policed are separated from others that cannot and are treated differently. This can be done in one of two ways:

1. A government can establish ASM zones, which are areas allocated for ASM operations with separate administration. Operations in ASM zones are concentrated geographically, and so they are easier to administer. A government could license and regulate ASM operations inside zones and adopt another approach for ASM operations outside them.

2. A government could introduce a supply chain initiative, as described above, but only let ASM operations participate if they acquire licences and comply with regulations. In effect, this is a way of offering financial and technical incentives to comply with regulations. If a supply chain initiative cannot be used to this effect, a government-sponsored buying scheme could be set up to provide a similar incentive structure.

The Promote Good Practices Approach

If a government does not adopt either a license and regulate approach or a segmented approach, its remaining option is to adopt a promote good practices approach. This approach involves using tools to encourage ASM operations to abandon poor practices and turn to good practices instead, but without forcing them to. In this approach, education and training play a significant role. A government should teach ASM operators any practices that are in the government’s own interests to adopt, any practices that are in ASM workers’ interests, and practices that ASM stakeholders can influence ASM operations to adopt. Government should also invest in services to ASM operations, services to ASM workers and technical assistance. These can be used to encourage ASM operations to adopt some of the minimum standards that ASM otherwise cannot be persuaded to adopt. Incentive structures, such as providing to ASM operations superior equipment that they otherwise would not buy themselves, are a means to achieve this. Alternatively, it can be achieved by setting up clean processing plants that do the dirtiest parts of processing but use cleaner techniques.
Licensing for Operational [Non-regulatory] Purposes

If licences cannot be used as part of a system of regulation, it does not follow that there should be no licences at all. Although licences are useful tools as part of enforcement, they are also useful to ASM operations. Licences make ASM operations legal, reduce their risks, help them to access credit and insurance, and help government to collect information about ASM operations that will allow it to better manage and support the ASM sector.

If a government adopts a promote good practices approach, it should make it easy for ASM operations to acquire licences and make holding licences unconditional and unconnected to complying with regulations. By doing so, a government will install a system of licensing that can later be connected to regulatory compliance, once government’s capacity to effectively administer the system improves. This process of choosing a license and regulate approach, a segmented approach or a promote good practices approach is shown in Figure ES4.
Figure ES4. Process of developing an ASM Management Strategy: Decision tree for developing an approach to improving ASM practices
Part 3: Implementing the ASM Management Strategy

A government should translate the ASM Management Strategy developed in Phase 2 into an implementation plan. This plan should allocate responsibilities for program delivery between government departments and also highlight the role of external stakeholders who can help to implement the strategy effectively. The plan should build upon the Vision for Responsible ASM and the Sustainable Development of ASM (see Section 4) by setting not only further outcome targets, but also output targets.

Ensuring Government’s Capacity to Implement the ASM Management Strategy

The government must ensure that its departments have the capacity to implement the plan. If government departments do not have sufficient capacity, an ASM Management Strategy cannot be successfully implemented. Improving capacity is a key part of successful ASM management, and low capacity is among the most common causes of failure in ASM programs. If government departments lack capacity, then funding should be increased, and changes should be made to improve capacity. If, after all of this, a government stills lacks the capacity to administer its ASM Management Strategy, that strategy should be revised, or partners should step in to support ASM management, as long as the support is based on the premise of it creating the capacities within government to be able to manage ASM without dependence within a reasonable timeframe. Large-scale mining (LSM) can play a role as well. Government–LSM partnerships can be formed to address the shared interests of both parties related to ASM, as part of which LSM companies might fund or otherwise directly support some government and or joint programs.

Preparing to Implement the ASM Management Strategy

A government should then prepare to implement its ASM Management Strategy:

1. It should consider revising the legal framework for ASM to realize any changes in licensing and regulations proposed during the development of the ASM Management Strategy. Changes to the legal framework create uncertainty for ASM operations and may prove to be difficult to adjust to, so a government should make these changes only if they are necessary to help with the implementation of the strategy.

2. In a next step, a government should run pilots of its programs and associated implementation procedures to test their effectiveness.

3. Last, it should contact ASM operations to notify them about the implementation of its ASM Management Strategy and communicate anticipated changes in ASM operations before implementation commences.

The sequence of these actions is important. If some programs begin before the legal code is changed, for example, then they will not be supported by the intended forthcoming changes to laws and regulations. If monitoring and enforcement begin before outreach, then ASM operations might justly feel that they are being expected to comply with rules that they have no reasonable ways of knowing about.
Implementing and Monitoring the ASM Management Strategy

In ASM implementation, education and training should begin before other programs do, so as to prepare the ground for forthcoming programs. Licensing, regulation, monitoring and enforcement should be administered in a firm but measured way. Governments should take particular care when closing down ASM operations, and details about how to do so are provided in the guidance. Further details and tips about how to implement each instrument and initiative effectively can be found in the guidance. Last, a government should monitor its ASM management, evaluate it and continuously improve it over time.
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1 Introduction

Artisanal and small-scale mining (ASM) is a significant part of the global minerals and metals sector, encompassing trade from upstream (from mining) to downstream (secondary processing). Although ASM exists all over the world, it is concentrated in developing countries. This gives it great developmental potential. ASM is typically labour intensive and has the potential to reduce poverty, increase domestic capital accumulation, and generate foreign exchange. ASM can become a light industry that contributes to economic development.

However, ASM also has negative impacts. ASM techniques can lead to environmental degradation. Equally, they can create health and safety risks. Employment practices can infringe upon labour rights, just as they can reinforce inequality of income and gender. Connections to conflict financing and/or organized crime can lead to infringements of human rights, and children’s rights in particular. There are a host of potential issues that ASM can cause or perpetuate.

To realize the economic potential of ASM while minimizing its negative impacts, governments must manage ASM well. However, managing ASM is notoriously challenging. To begin with, ASM operations are difficult to regulate. ASM operations are commonly able to elude government officials. Commonly, their operations are mobile, their products are easy to smuggle, and they work in the periphery of state purview. Typically, they have little to gain and much to lose by obeying government rules. They receive little assistance from the state and often avoid following costly rules or taxes. Sometimes, entire operations are built upon practices that are forbidden in law. Others take place on land that others have the right to mine. Under these circumstances, talk of rules and sanctions falls on deaf ears.

At the same time, the ASM sector is often riddled with market failures. Small mining operations do not individually benefit from exploration or infrastructure to invest in it as large companies would. Their size inhibits them from benefiting from economies of scale. All the while, they often work in the informal economy, which inhibits their access to credit and insurance. The credit, exploration and other services that ASM operations can access normally come with conditions that only redouble their market failures. Therefore, the ASM sector seldom reaches its economic potential.

The governments that face all these challenges are commonly ill-equipped to address them. They typically suffer from issues of low and irregular funding. This in turn breeds problems of corruption. All these factors serve to worsen local presence, technical capacity and staff motivation. All the while, the scarce attention and resources that governments dedicate to ASM are often claimed by other equally demanding policy priorities.

This creates challenges of policy making. How can governments manage ASM well under these circumstances?

- Some of these challenges are about process and governance. They concern the sequence in which strategy should be developed and implemented, as well as the procedures that a government should follow while doing so.
• Other challenges are matters of ASM Management Strategy. They concern which instruments and initiatives governments should employ to reach their goals, or in other words, what policy tools and programs it should select. Equally, they concern what the ASM Management Strategy’s purposes should be, and how it should be designed.

• Last, some of the challenges are matters of implementation. They concern the practicalities of how a government’s strategy is implemented.

1.1 Purpose and Intended Audience for the Guidance and This Supplement

This supplement, like the guidance, offers guidance to governments about how to overcome the above challenges and manage ASM well. The intended audience for both documents is policy-makers who develop ASM policy as well as program managers who implement it. However, the documents are also intended for use by stakeholders in ASM who wish to understand how governments should manage ASM, and how they themselves could support the management process.

Like the guidance, this supplement is written for the governments of developing countries. It is relevant for governments at a variety of levels, including the national, subnational and local. However, it is only fully applicable to those bodies that have powers to control spending, write laws, issue licences, offer access to land, regulate land use and commission work programs.

The guidance and supplement are organized around a process by which governments should manage ASM. This supplement is divided into three parts, which correspond to the three phases of ASM management (Figure 1).

First phase/Part 1 In the first phase, a government should prepare to develop an ASM Management Strategy by appointing an ASM task force, convening a stakeholder forum, and conducting research about ASM. To see what a government should do before developing or implementing an ASM Management Strategy, go to Part 1 of this document.
Figure 1. Organization of this supplement into parts and sections. The sequence of sections follows the process of managing ASM.
Second phase/Part 2. In the second phase, a government should develop an ASM Management Strategy. This strategy will specify which instruments and initiatives a government will employ to manage ASM. The guidance and this supplement emphasize the importance of context-specific choices. Governments should design strategies that are tailored to their ASM sector and the circumstances in which it acts. The guidance and this supplement also stress feasibility. Throughout the second phase, the guidance/supplement asks users to consider seriously whether the choices being made are realistic. To see what ASM Management Strategy a government should develop, depending on its circumstances, go to Part 2 of this supplement.

Third phase/Part 3. In the third phase, a government should implement the ASM Management Strategy. Implementation concerns how a government should execute the chosen instruments and initiatives. To see how a government should implement its ASM Management Strategy and the particular instruments and initiatives within it, go to Part 3 of this supplement.

This supplement should be used to guide the development and implementation of an ASM Management Strategy from start to finish. The advice in each section of this document refers to actions and decisions discussed in previous sections, and affects what should be done in subsequent sections. A user can learn how to prepare to manage ASM, develop an ASM Management Strategy and implement the strategy, by following each of the steps in this supplement.

However, users can also use this supplement as a reference tool to see when particular instruments and initiatives should be used and how they should be implemented. To see when instruments and initiatives should be used, see Part 2, Sections 6 and 7. To see how instruments and initiatives should be implemented, see Part 3, Section 10. A list of the instruments and initiatives that governments can use can be found in Table 1.

This document is a supplement to the guidance. Both the guidance and the supplement present the same material and structure. However, the guidance presents the material in a succinct, digestible form that can be read quickly. The supplement presents it with extensive advice, with accompanying explanations, with further reference to context and in detail.
<table>
<thead>
<tr>
<th>Instrument or initiative</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allocate land for ASM</td>
<td>Select land with deposits that can feasibly be extracted by ASM operations, and give ASM operations priority in applications to use this land.</td>
</tr>
<tr>
<td>Facilitate or encourage ASM participation in supply chain initiatives</td>
<td>Voluntary initiatives for countries or companies and individuals that specify rules that participants must follow about the conditions under which, and the means by which, minerals and metals may enter and move through supply chains, such as the Fairmined Standard (Alliance, 2014) the Kimberley Process (n.d.) certification scheme, the ITSCI program (ITRI, n.d.), the Better Sourçage Program (n.d.), the Responsible Jewellery Council and others.</td>
</tr>
<tr>
<td>ASM zones</td>
<td>Areas set aside for ASM, with separate application procedures and separate administration bodies and rules.</td>
</tr>
<tr>
<td>State-sponsored buying scheme</td>
<td>State-owned, state-run or state-supported schemes that buy minerals or metals from ASM operations.</td>
</tr>
<tr>
<td>Licensing, regulation, monitoring and enforcement</td>
<td>A system of licensing and regulation in which sanctions are attached to mining that does not comply with regulations, and further sanctions are attached to mining without licences.</td>
</tr>
<tr>
<td>Education and training</td>
<td>Programs of education and training for ASM operations, ASM workers or influential ASM stakeholders about the consequences of poor mining practices and how good mining practices can be used.</td>
</tr>
<tr>
<td>Services and technical assistance to ASM operations and services to ASM workers</td>
<td>Types of services and technical assistance that can be offered to incentivize ASM operations to work towards good practices and achieve the development potential of the sector.</td>
</tr>
<tr>
<td>Healthcare or health or life insurance for workers</td>
<td>Programs to provide healthcare to ASM workers, or provide them with health insurance or life insurance, which reflect the health and safety risks that they are exposed to.</td>
</tr>
<tr>
<td>Education to workers and workers’ children</td>
<td>Providing or subsidizing comprehensive education, offered to adult ASM workers who missed school, the children of ASM workers or former child ASM workers.</td>
</tr>
<tr>
<td>Security provision</td>
<td>Providing security to ASM operations.</td>
</tr>
<tr>
<td>Transport infrastructure provision</td>
<td>Creating road and transport infrastructure that assists ASM operations by connecting them to transport networks and lowering the costs of transportation.</td>
</tr>
<tr>
<td>Electricity and electricity infrastructure provision</td>
<td>Connecting ASM operations to electricity grids or providing electricity generators that provide cheaper electricity.</td>
</tr>
<tr>
<td>Water and sanitation provision, and water and sanitation infrastructure provision</td>
<td>Connecting ASM operations to water and sanitation systems.</td>
</tr>
<tr>
<td>Instrument or initiative</td>
<td>Description</td>
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<tr>
<td>--------------------------------------------------------------</td>
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<tr>
<td>Assisted access to credit or insurance</td>
<td>Providing credit and insurance or subsidized access to credit and insurance, and facilitating access to credit and insurance by sponsoring local credit and banking groups and initiatives.</td>
</tr>
<tr>
<td>Provision of geological data, geological expertise and exploration services</td>
<td>Providing ASM operations with geological data, geological expertise or exploration services that can inform and improve exploration and mine development.</td>
</tr>
<tr>
<td>Provision of technical expertise</td>
<td>Providing ASM operations with technical expertise to enable them to improve the productivity of their operations or improve their practices.</td>
</tr>
<tr>
<td>Provision of or subsidy of the sale of equipment</td>
<td>Providing better equipment to ASM operations or subsidizing the sale of that equipment. Equipment may range from personal protective equipment to metal detectors or processing units.</td>
</tr>
<tr>
<td>Subsidy of inputs into the mining or processing operations</td>
<td>Providing or subsidizing inputs to mining and processing operations such as fuel, chemicals and gear.</td>
</tr>
<tr>
<td>Government-sponsored demonstration operations</td>
<td>Setting up operations that employ good practices to demonstrate to others the benefits of employing those practices.</td>
</tr>
<tr>
<td>Supporting clean processing and government-sponsored processing plants</td>
<td>Establishing state-owned, state-run or state-supported clean processing plants that use clean techniques to conduct processing at a stage in the mineral and metals value chain that is normally conducted using dirty techniques with negative impacts; providing this service to ASM operations to reduce the use of dirty techniques.</td>
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### 1.2 Scope of the ASM Sector

Before we offer guidance on how governments can manage ASM, we should clarify the meaning of “ASM.” There is disagreement about the best definition of ASM. This section does not offer a definition, but discusses the scope of the ASM sector. In other words, it discusses what activities ASM does not include. We note that a definition is also not the same as the criteria that ASM operations must meet to be granted ASM licences, or other legal definitions. Legal criteria are discussed in Section 8.2. Additionally, a definition of ASM is not the same as naming the subtypes of ASM that a government devises to distinguish between the sorts of ASM operations that it wishes to treat differently. Subtypes are discussed in Section 5.

*ASM is an umbrella category that comprises all mining operations (and associated activities) that are smaller in scale than medium-scale mining.* In other respects, ASM is used to refer to mining operations that vary extensively in character. For example, some operations are small in scale and involve single-person operations or small teams. Others involve large groups of hundreds of operations in open-pit mines, shaft mines and organized processing operations. Some are labour-intensive and involve only the simplest of tools, such as diggers on alluvial deposits, panners or processors that crush by hand and sluice ore using simple sluices. Others are capital-intensive and employ large amounts of expensive machinery, such as
explosives, pumps for hydraulic mining, small dredging ships, metal detectors, crushers and small processing plants, and sometimes mobile processing equipment. Some of the smallest and simplest operations employ technology that is advanced or even recently developed, such as particular chemical processing methods and metal detectors. Some of the largest and most mechanized operations use technologies that are centuries old.

While much ASM is done part time or seasonally, other mines work 24 hours per day and 365 days per year. Workers have been known to take to ASM as a last-chance coping strategy, or to help them subsist, but ASM can also be profitable and undertaken by well-financed entrepreneurs. In this way, the circumstances in which people enter the ASM sector differ. In many circumstances unskilled or semi-skilled labourers can earn more in the ASM sector than in other available alternative forms of work. ASM commonly also pays more than regular skilled jobs, which is why teachers, professors and otherwise professionally qualified individuals have been found to work in mines. ASM involves men and women and sometimes children. It can be licensed (legalized) or unlicensed, undertaken in accordance with laws and regulations (formalized) or not in accordance with them (informal), or conducted in contravention of criminal law (criminal). In short, ASM encompasses a whole spectrum of operations. As a category, it includes a wide range of activities undertaken by people in very different situations.

ASM refers only to the upstream segment of the value chain at which minerals and metals are mined, but the ASM sector includes the mineral or metal sector upstream (starting with mining) and downstream (to secondary processing), as shown in Error! Reference source not found.2. An operation performing these tasks is classed as an ASM operation if it is smaller than medium-scale mining.

**Figure 2. ASM sector value chain.**

ASM includes mining operations at each stage of the mining life cycle. The stages of this cycle are shown in Error! Reference source not found.3.

**Figure 3. ASM operation life cycle.**

Last, there is a secondary economy connected with ASM. Not only do ASM workers and owners have dependents whom they support, but also ASM operations engage the services of businesses in ancillary sectors. While all businesses do this to some degree, ASM workers typically have many dependents, and ASM operations typically source many services and inputs locally. In this sense, ASM is often a community activity and central to community development trajectories.
PART 1: PREPARING FOR AN ASM MANAGEMENT STRATEGY

Overview

There are several steps a government should take before developing or implementing an ASM Management Strategy. First, it should convene a government ASM task force that will lead the government’s efforts on ASM. Second, it should convene a stakeholder forum that it will refer to throughout the process of managing ASM. Guidance on how to do both of these things is offered in Section 2. Then, it should commission research about ASM so that the development and implementation of an ASM Management Strategy is well informed. Guidance on how to do this is offered in Section 3.

2 Administrative Organization and Stakeholder Inclusion

2.1 Convening an ASM Task Force

The first step a government has before developing or implementing an ASM Management Strategy is to bring together the relevant government departments into an ASM task force. “Departments” is used here as shorthand for major ministries, offices, agencies and other organs of government. The departments that are included in this task force will be the parts of the government that collectively lead the development and implementation of an ASM Management Strategy. Because various government departments each have jurisdiction over various aspects of ASM, it is crucial for the departments to coordinate with each other as they fulfill their responsibilities, so that they are not working at cross purposes with each other. An ASM task force comprising a well-coordinated, interdepartmental body that supports and guides the work of its members is essential to effective governmental management of ASM. This task force should be accompanied by a public statement and by a statement of purpose that sets out (1) the government’s broad responsibilities to manage ASM and (2) the mission of the ASM task force.

The ASM task force may be hosted in one department or set up as an individual body. This task force may be organized as the government sees appropriate, but it should include representatives from each department that has, or will in future have, specific responsibilities for ASM. While a government administration can organize itself into departments in a variety of ways, the departments with responsibility for ASM are typically as follows:

- The Ministry of Mines
- The Ministry of Land
- The Ministry of Finance
- The Ministry of Economic Planning
- The Ministry of Trade
• The Ministry of the Environment
• The Ministry of Labour
• The Ministry of Health
• The Ministry of the Interior
• The Ministry of Defence (if ASM is, or is at risk of, being connected to armed groups)

The ASM task force should be responsible for:
• Assigning and administering responsibilities between departments, and in particular the responsibilities for effectively delivering action in the form of instruments and initiatives.
• Leading ASM Management Strategy preparation and development.
• Coordinating the government’s actions on ASM.
• Leading communication between the government and ASM stakeholders.
• Supervising and monitoring the implementation of the overall ASM Management Strategy.

To do this, the ASM task force should have the capacity to develop an ASM Management Strategy and monitor its implementation. It should also be empowered to allocate responsibilities to each participating department. This should be undertaken in coordination with the relevant government hierarchy and ideally, the head of government, to ensure that the ASM task force has the authority to fulfil its responsibilities.

In the rest of this document, “the government” is used as a shorthand to refer to the ASM task force or the relevant ministry within it. Where possible, specific departments are named that would normally be responsible for particular tasks.

2.2 Consultation with ASM Stakeholders

Concurrently with the preparation, development and later implementation of the ASM Management Strategy, the ASM task force should convene an official forum of ASM stakeholders. Open consultation between government and ASM stakeholders legitimizes government policy by providing stakeholders with the opportunity to influence government decisions. It informs ASM management by letting other parties communicate directly with government; also, by engaging ASM stakeholders, it informs the stakeholders about government ASM management. Last, it shapes opinion and forms consensus by providing a stakeholder forum in which dialogue can take place between ASM stakeholders.

Consultation should be transparent, meaningful, regular and inclusive. Consultation is transparent when it is made public and widely known that a consultation is taking place, who is taking part, and the expected and actual outputs and outcomes of that consultation.

Consultation is meaningful when it affects government activity, though ultimately government should not be bound by views expressed during consultation. The ASM task force should ensure that consultation results in outputs (e.g., memos, reports) that are circulated to relevant government departments. This task force should consult the
stakeholder forum regularly, permit the forum to transform those consultations into publications and give the forum control over the contents and publication of those documents. The government should consider creating a small secretariat (housed within a department or outside it) to ensure that these criteria are met. At whatever stages consultations take place, the government should then review its actions in light of the consultation.

Consultation is regular when it takes place periodically throughout the process of preparing for, developing and implementing an ASM Management Strategy.

Consultation is inclusive when all ASM stakeholders are given equal opportunities to participate in it and face equally low barriers to participation, such as through an open invitation to participate in an accessible process for submissions. It should ensure that the stakeholder forum includes, at least:

- Representatives from each of the ASM mining subsectors. The representation of ASM workers and operations discussed in the accompanying textbox.
- Representatives from each of the connected mineral and metals sectors.
- The ancillary industries that support the ASM mining subsectors.
- The communities that surround ASM mining areas.
- Indigenous peoples affected by ASM.
- Representatives of children and young people.
- Civil society, in particular, civil society organizations that have deep roots in mining communities and good relationships with local ASM stakeholders.
- LSM operations (where present) that work the same minerals or metals as ASM operations or otherwise operate in close proximity to ASM.

For making particular efforts to include and empower the representatives of children, governments should consult UNICEF’s Engaging Stakeholders on Children’s Rights (United Nations Children’s Fund, 2014).

In other respects, consultation should be designed to meet the standards set out in AccountAbility’s AA1000 Stakeholder Engagement Standard (2011).
Representation of ASM Workers and Operations

ASM representation is a key part of consultation and strategy formulation. If the ASM subsectors are well and legitimately represented, then government should invite those representatives to join consultations. However, if they are not, the government should encourage the formation of legitimate bodies to represent ASM, and where appropriate, subsectors of ASM.

Each ASM subsector will be well and legitimately represented when there are organizations that ASM operation owners and managers can join, as well as bodies that represent ASM workers and those impacted by ASM that they, in turn, can join. The organizations should meet the following conditions:

- There will be no barrier to joining on the basis of race, religion, class, gender, sexuality, nationality or ethnicity.
- Leaders are regularly and democratically elected.
- Those leaders make decisions on behalf of members.
- Members have powers to make policy at plenary meetings.

2.3 Engagement with Potential Partners

Managing ASM is challenging, especially when government capacities and resources are scarce. It is one thing to consult stakeholders, who are interested in ASM policy and may offer advice or opinions. It is another for an outside party to offer assistance to government to manage ASM. If such a party is willing to make substantial contributions to ASM management by the government, then it becomes not only a stakeholder that a government should consult with; it becomes a partner to collaborate with.

At this stage (preparing for an ASM Management Strategy), governments should consider whether there are partnerships that they can form with ASM stakeholders. During this initial phase of ASM Management Strategy development, governments should identify with and approach potential partners. By engaging with potential partners early, the government can build partners’ capabilities into the strategy, as well as change the strategy to accommodate partners’ goals where acceptable. To help identify possible partners, governments should refer to the political economy analysis and ASM Industry Assessment that are produced as part of the research described in the previous section. At the very least, government should explore the possibility of working in partnership with donors, civil society organizations, large-scale mining (LSM) companies, downstream companies that buy minerals and metals produced in-country, and ASM representatives. Below, the general cases for partnering with downstream companies and LSM companies are presented in turn.

Partnerships should not be developed, finalized and agreed upon before a government completes the ASM Management Strategy. Instead, the government should develop them both in parallel. Only once the Management Strategy has been completed should a government finalize its partnerships. Following is advice about the process of developing partnerships.

When choosing whom potentially to partner with in managing ASM, governments should keep these aspects in mind:
• In any partnership, partners should have shared interests. While consultation of stakeholders is non-binding and informative, collaboration is cooperation between partners in some shared endeavour. For an endeavour to be shared, a government and its partners must share some goal. Alternatively, they must have separate goals that are not in conflict and which can be realized by cooperating in joint action. In short, in a partnership, partners share the burden of a mutually beneficial endeavour.

• In good partnerships, partners bring different resources to a joint endeavour, whether those resources are expertise, funding, know-how, influence or anything else. If each partner achieves more in it together than they would individually, it constitutes a win-win for the partners involved. Moreover, if each partner provides distinct resources that the others cannot provide, then each partner is better off together than individually. This provides the basis for a successful partnership.

As a government engages with potential partners, it should first focus on communication. It should begin with informal meetings with potential partners and establish a regular dialogue with them. That dialogue should be used to develop trust between the parties involved, and to let each get to know the other. If each partner has a shared understanding of the other’s interests, needs and abilities, the partnership is more likely to succeed.

Through dialogue and informal meetings, the government should explore whether the interests, understanding and complementary resources exist to form the basis of a partnership. If they do, then the parties should proceed to discuss a formal partnership which includes terms that are written in a draft memorandum. That memorandum should state the objectives of the partnership and the responsibilities of each party involved. It should also make clear on what terms the partnerships will begin and end. Last, it should state the way in which the shared endeavours of the partners will be managed. However, the primary purpose is not to bind the agreement in law but to make the terms of the agreement clear to all parties involved.

That draft memorandum should be the subject of further dialogue and negotiation. The outcomes of each draft should inform the development of the ASM Management Strategy. Once terms of the partnership are agreed upon, that memorandum should be finalized and signed. However, dialogue between partners should continue during the course of the partnership.

2.3.1 Partnerships with LSM

When ASM operations are close to LSM operations, LSM companies have interests in managing those ASM operations, which government may share. Typical interests include:

• Removing ASM from an LSM site, or containing and controlling their presence on the site, particularly to mitigate commercial, reputational, operational or health and safety risks for the LSM operation.

• Mitigating negative impacts of ASM that can be associated, correctly or not, with the LSM operation, and vice-versa, such as environmental impacts.

• Improving community relations.

• Reducing security risks.
A full account of LSM companies’ interests in ASM is given in the guidance document *Working Together* (Communities and Small-Scale Mining et al., 2008). These interests can complement a government’s interest in managing ASM operations. This creates an opportunity for governments and LSM companies to work as partners.

Government and LSM can each make available resources that the other partner cannot provide. LSM companies can provide the following resources to a partnership, among others:

- Geological, mining, processing and engineering expertise
- Operational presence near ASM operations
- Finance

A government can provide the following resources that LSM companies cannot, among others:

- Law- and regulation-setting powers
- Law enforcement capabilities
- Land-allocation powers
- A state system of licensing, regulation, monitoring and enforcement

If there are ASM operations near or on an LSM site, a government should approach LSM companies to see whether they can form a partnership to address their shared interests. Further information about how LSM companies address ASM issues can be found in *Working Together* (Communities and Small-Scale Mining et al., 2008).

### 2.3.2 Partnerships with Downstream Companies

Downstream companies have interests in ASM management if they buy minerals and metals that might be produced by ASM or if they buy products with minerals and metals in them that might be produced by ASM. They have interests in managing the risks emanating from ASM operations upstream in their supply chains. They also have interests in managing risks from ASM operations that are not in their supply chains, but that are associated with their supply chains or are in close proximity to them. Typically, those interests are about:

- ASM suppliers meeting the standards of downstream buyers’ ethical sourcing and quality control policies.
- ASM suppliers complying with buyers’ due diligence and supply chain initiatives’ standards, if any.
- Managing the levels of supply.

Downstream companies can offer resources that governments struggle to provide themselves, including:

- Finance
- Demand for minerals and metals
- Help setting up supply chain initiatives
On their side, governments have powers and abilities that downstream companies do not, including:

- Law- and regulation-setting powers
- Law enforcement capabilities
- Land-allocation powers
- A state system of licensing, regulation, monitoring and enforcement

### 2.4 Cooperation with Neighbouring States

Although government policy stays within national borders, ASM does not. ASM crosses national borders. Pollution from ASM in one country can have effects in neighbouring countries. Mineral and metal trade networks cross borders, thus circumventing taxes. ASM workers and operations themselves move in response to or despite incentives from government. To address those issues, neighbouring states between which there is ASM traffic should cooperate with each other. Two states may choose to cooperate bilaterally, or a group of neighbouring states might choose to cooperate multilaterally.

Any government with these issues should decide whether cooperation is necessary before it develops its ASM Management Strategy. That way, states can decide how to coordinate ASM management at the same time that they develop or revise their ASM Management Strategies. If states do not do that, a government may have to substantially change an ASM Management Strategy that it has already finished as part of inter-state cooperation. If this becomes the price of cooperation, states will be less inclined to cooperate at all. If governments do not happen to be reviewing ASM policy at the same time, they should be flexible and try to cooperate with neighbouring governments. They should do so even if this means amending an ASM Management Strategy at an inopportune time. Once the basis for coordination is agreed upon, coordination becomes a continuous enterprise, rather than a one-off or intermittent event.

#### 2.4.1 When Should Neighbouring States Cooperate?

States should cooperate on ASM issues when cross-border movement undermines ASM management in any of the following ways:

- Illegal importation of ASM inputs such as mercury, equipment or workers undermines any of the following:
  - Control over dangerous substances.
  - Prohibition of some ASM practices
  - Efforts to reduce criminal activity.

- Illegal exportation of minerals or metals produced by ASM has any of the following effects:
  - Undermines collection of applicable taxes.
  - Increases the expense of, or confounds the purpose of, a state-sponsored buying scheme in the country of destination.
- Undermines monitoring of ASM production at the point of export.
- Undermines efforts to reduce criminal activity.

- Movement of operations, investment or workers across borders undermines monitoring and enforcement.

- ASM in one country generates negative impacts that affect other countries, which include:
  - Passage of pollution across borders.
  - Contagion of negative socioeconomic impacts across borders.
  - Expansion of ASM with negative practices from one country into another, or exportation of negative practices in some other way across borders.
  - Strengthening of organized criminal groups.

In short, cooperation would be beneficial if ASM actually took place on or across some shared border. It would also be beneficial if goods, operations or workers moved across the border in ways that undermined ASM management. Last, cooperation would be necessary if the negative impacts of ASM travelled across borders.

### 2.4.2 Diplomatic Foundations for Cooperation Between States

Cooperation between one government and another regarding ASM management should ultimately be the work of the ASM task force. However, initial communication should be led by the Ministry of Foreign Affairs, in consultation with the ASM task force and relevant departments. In conversations with its counterpart, the Ministry of Foreign Affairs should concentrate on establishing a shared understanding of cross-border ASM issues. It should turn to exploring whether there is mutual interest in cooperating on ASM management. If those things can be agreed upon, then the Ministry of Foreign Affairs should negotiate the institutional framework for cooperation.

Like other partnerships discussed above, cooperation between neighbouring states works best when neighbouring states have shared objectives. When ASM activity is cross-border, there are normally many objectives that neighbouring governments will have in common. The substance of possible cooperation is set out in Sections 8.3 and 8.4. States can seek agreement about shared interests by looking to treaties that they have signed, or other initiatives to which they are affiliated. The United Nations’ Africa Mining Vision (United Nations Economic Commission for Africa, n.d.) is an example of an initiative that could be used for this purpose.

However, some issues may benefit one government but not another. For example, cross-border pollution from ASM may only move in one direction. Alternatively, cross-border traffic of workers or goods may benefit a group that has influence over one government, but not another. In those situations, governments’ interests about ASM management diverge. In such instances, governments should see whether quid pro quo exchanges can be agreed upon, whereby each government pursues some objective of the other.

The mandate of any Joint Working Party, ASM Coordination Secretariat or Border Area ASM Secretariat (described in the following subsections) should be clearly set out in the terms of
cooperation. The objectives that the coordination secretariat or working party should pursue, and the means that they should and should not use to pursue them, should be set out. The terms of cooperation should also set out the process by which the working party or secretariat may make decisions. The mandate of each group should also be geographically bounded if the area in question contains major bodies of water, the area may be expanded to include some bodies of water and the connected channels through which they flow.

2.4.3 Institutional Framework for Cooperation between States

An institutional framework for cooperation is an agreed-upon set of procedures through which cooperation is developed and agreed upon. It may also include an organizational structure that is developed and agreed upon. Substantive decision making about cooperation should be led not by representatives of the Ministry of Foreign Affairs, but by technical staff from the ASM task force and relevant departments. The precise institutional framework that will best suit the states’ needs depends upon their circumstances.

This supplement sets out below three institutional forms that cooperation might take, depending on how close cooperation will need to be. Whatever institutional framework is established, each side should dispatch technical staff led by a delegation from the ASM task force. It is important to get technocratic staff developing plans together to help participating states move beyond generalities. Mid-level staff from the Ministry of Foreign Affairs should continue to participate in decision making to ensure the smooth running of the operation.

2.4.3.1 Joint Working Party

A Joint Working Party is a temporary or recurrently convened group comprised of delegations of technical staff from participating governments.

The precise institutional framework that governments should adopt depends upon what level of cooperation is needed. If governments wish to exchange research of the sorts described in Section 3, then they should set up a Joint Working Party. Likewise, if they wish to make minor adjustments their ASM Management Strategies, they should form a Joint Working Party. A government’s delegation to the working party should be coordinated and led by representatives from the ASM task force. The delegations from those governments should decide what adjustments to ASM Management Strategy are necessary for inter-state cooperation to be successful. The proposals of this Joint Working Party should be submitted to the respective governments.

2.4.3.2 ASM Coordination Secretariat

ASM cross-border activity may be so frequent that states wish to harmonize their ASM management in some ways. If this is the case, the states in question should set up an ASM Coordination Secretariat. This body should be permanent, have long-term funding, and have full-time staff. The participating governments should fund this secretariat.

An ASM Coordination Secretariat’s functions should include developing and proposing revisions to ASM management that should be put before the respective governments. It might also include developing and proposing how to align ASM Management Strategies of the participating states in the long term. It may facilitate the production, storage and
exchange of information between relevant departments of participating states. Last, it may facilitate routine communication between mid- and low-level officials and their counterparts to coordinate ASM management.

The adjustments that an ASM Coordination Secretariat or a Joint Working Party might propose for participating states’ ASM Management Strategies are discussed in Section 8.3. In brief, they concern tightening border controls; harmonizing taxes, regulations and incentives; and jointly mitigating the environmental impacts of ASM.

**2.4.3.3 Border Area ASM Secretariat or Coordination Secretariat**

In some instances, an area of concentrated ASM activity extends across a border. This is common, because mineral and metal deposits are often clustered. This in turn means that any cluster of ASM across a border is also likely to be extracting the same metal or mineral from similar sorts of deposits using similar techniques. Insofar as ASM across a border is similar, it should be treated in the same way on both sides of the border. If it is not, the differences may undermine ASM management on at least one side of the border. Under these circumstances, unless states can effectively control the border, they should consider managing ASM jointly.

Joint management involves participating states developing a uniform way of managing ASM for the geographic area in question. This is in effect a completely harmonized ASM Management Strategy in the area in question. This is particularly effective if there is a clearly delineated cross-border area in which ASM takes place.

If instead ASM is evenly spread out across a wide area, then there may be no clear cut-off point. Instead of there being different ASM Management Strategies for similar operations across a national border, there would be different ASM Management Strategies for similar operations across an internal boundary. In this situation, a government should not develop a joint ASM Management Strategy. Instead, it should form an ASM Coordination Secretariat and seek to harmonize nationwide ASM Management Strategies between countries. Therefore, a government should only consider develop a joint ASM Management Strategy over a cross-border area if there are similar ASM operations that are clustered around a border and are distinguishable from other operations nearby that area.

If participating states decide to manage a cross-border area jointly, then they should develop a Border Area ASM Secretariat. A Border Area ASM Secretariat should be formed, staffed and funded much like an ASM Coordination Secretariat, and it should subsume the functions of an ASM Coordination Secretariat. However, it should also be given the task of developing a separate ASM Management Strategy for the cross-border area in question. Any prospect of coordinated policy-making raises issues of sovereignty as well as many practical and constitutional issues about states devolving power to a shared body.

To avoid those issues as much as possible, states should consider granting the Border Area ASM Secretariat the capacity to develop strategy, but not the powers to deliver it. Instead, those powers should remain with relevant subnational administrative units in each participating country. This makes the Border Area ASM Secretariat dependent upon the goodwill of the participating states to implement the ASM Management Strategy that it develops. However, it avoids the challenges of formally devolving authority to a supra-
national body. If participating states wish to preserve the joint ASM Management Strategy against changes in mind of any party in the future, they should consider endowing the Border Area ASM Secretariat with formal powers to develop and administer ASM Management Strategy in the area in question.
3 Research

A government should conduct research before it develops and implements an ASM Management Strategy. Research should not be confused with outreach or consultation. Consultation and outreach are both built into subsequent sections. The ASM task force should be responsible for commissioning and supervising research.

Research includes seven components:

- Scoping study
- Government capacity assessment
- Political economy analysis
- ASM industry assessment
- ASM impact assessment
- Supply chain mapping
- Geological and land-use mapping

A scoping study provides an overview of the sector. It is a preliminary mode of research in which a government forms an impression of the ASM sector, and which informs the content of subsequent research.

A government capacity assessment is essential to an ASM Management Strategy development and implementation because it informs what governments can feasibly achieve. Even if a government lacks the resources to do other research, it should conduct a government capacity assessment.

A political economy analysis is important for a successful ASM Management Strategy because it provides a picture of the interests of ASM stakeholders within and outside government. This enables an ASM task force to take those stakeholders into account, play to their interests, and anticipate their opposition where necessary.

The four remaining components of research compile different sorts of information on the ASM sector. An ASM industry assessment should gather information on ASM operations’ technical, organizational and economic characteristics.

An ASM industry assessment is complemented by an ASM impact assessment, which assesses socioeconomic impacts, environmental impacts, human rights impacts, labour standards, health and safety and gender impacts in ASM.

Through supply chain mapping, a government will develop a picture of the ASM sector up and down the supply chain. Supply chain mapping informs the decision to introduce a supply chain initiative, processing plants, or mineral or metal buying schemes. It can also help a government to analyse the efficacy of various options to promote the trade in ASM products.

By conducting geological and land-use mapping, a government compiles information on where there are mineral and metal deposits that ASM operations can feasibly work, what
land is available and unavailable for licensing, and where ASM operations currently take place.

A government should commission the very minimum in research or thorough and detailed research depending upon its resources and needs. However, if a government does not have the resources to conduct some types of research at all, then it should prioritize research in the following way:

1. Scoping study
2. Government capacity assessment
3. Political economy analysis
4. ASM industry assessment
5. ASM impact assessment
6. Geological and land-use mapping
7. Supply chain mapping

Ideally, a government should conduct each type of research outlined here periodically. Furthermore, as part of the ongoing monitoring and evaluation phase, governments should conduct ASM industry assessments and ASM impact assessments at least once every five years. Governments should also conduct geological and land-use mapping and a government capacity assessment at least once every 10 years. It should then publish these results, anonymizing the data in line with research ethics, to protect those from whom the data was collected.

### 3.1 Scoping Study

The subject and scope of research must be decided before the research is conducted. The purpose of a scoping study is to decide the subjects and scope of four items: the ASM industry assessment, the ASM impact assessment, the geological and land-use mapping, and the government capacity assessment. This preliminary research informs the more detailed research on the four elements.

A government might decide to forgo a scoping study if it has extensive and up-to-date prior knowledge of the ASM sector in its country.

A scoping study should include:

- A desk study of existing reports and data on ASM in-country.
- Interviews with ASM stakeholders and experts
- Select visits to ASM operations. As explained in Section 1.2, this includes mining, processing and trading operations.

The possible contents of a scoping study are detailed in Appendix A, Section A1.2

### 3.2 Government Capacity Assessment

A government should review its own capacity prior to designing or implementing an ASM Management Strategy. The scope of this assessment should extend across the departments
responsible for ASM, and the results of the assessment should be reported to the ASM task force. This review is best commissioned to an independent third party that works with relevant departments and agencies to assess, at the very least, the government’s capacity to:

- Administer a system of licensing, regulation and enforcement.
- Provide education and training programs.
- Provide:
  - Services to ASM workers, as defined in Section 10.5.1
  - Assistance to ASM operations, as defined in Sections 10.5.2 and 10.5.3.
- Run ASM zones.
- Run a mineral or metal buying scheme.
- Improve ASM operations to make an ASM subsector compliant with a supply chain initiative.

When doing so, government departments and agencies should consider the adequacy of their:

- Budgets
- Presence across geographical areas
- Technical expertise
- Human resources
- Access to necessary information and data
- Relationships with ASM operations and other relevant stakeholders

Departments and agencies should specify whether their capacity to do each of those things varies:

- Across subnational areas, such as regions, provinces, districts, states or counties
- Between each mineral and metal
- Between seasons
- Between subtypes of ASM.

### 3.3 Political Economy Analysis

A political economy analysis should identify stakeholders in ASM that have influence over ASM policy making, directly or indirectly. This should extend both to private bodies and to individuals and groups within government. It should then characterize their sources of power. In particular, it should make clear how they could impede or support an ASM Management Strategy. Then it should detail the interests of those stakeholders, and highlight any parts of ASM policy that they might favour or oppose. Lastly, the report should map stakeholders’
power and interests and make clear what the landscape for policy making is like when all
those interests and powers are considered together.

Selecting who should conduct a political economy analysis is in itself political. The
investigators should report to the ASM task force, but some participants in an ASM task
force might in turn be the subjects of the report. The procedure by which the investigators
are commissioned should ensure their independence, thoroughness, and impartiality between
stakeholders, including those in the ASM task force. Any reports produced during the political
economy analysis should be kept confidential.

3.4 ASM Industry Assessment

The government, normally the Ministry of Mines, should conduct an assessment of ASM
operations to gather empirical information about their organizational, technical and
economic characteristics. For the purposes of this ASM industry assessment, ASM should be
defined to include both mining and processing operations. See Section 1.2 for a description
of the scope of the ASM sector. At a minimum, the government should visit a range of sites and
collect data from each. If further funding is available, the government should commission an
industry survey. This survey should be conducted in accordance with industry good practice
described in Section A1.1 to make the survey representative of the sector as a whole.

A census of ASM operations in which every single operation is visited is better and will aid
the implementation of ASM management, but it is more expensive and more time consuming.
The impact assessment (discussed below) is also based on site visits, so a government
conducting an industry survey to gather data about firms’ economic performance could
easily add an impact assessment as well. Monitoring, evaluation and improvement, as
discussed in Section 11, includes recording data at the site level. Therefore, if a government
is conducting research but has implemented an ASM Management Strategy in the past, it
could also gather the information needed for monitoring, evaluation and improvement at the
same time.

A draft list of the possible contents that an ASM industry assessment should include is
provided in Section A1.3 in Appendix A.

3.5 ASM Impact Assessment

The government, normally the Ministry of Mines or the Ministry of the Environment in
collaboration with the ministries of economic planning and labour, should conduct an impact
assessment. This assessment should collect data to estimate the magnitude and
consequences of positive and negative repercussions of ASM. While it is well known that
ASM may have negative and positive impacts, the precise consequences of ASM vary from
place to place and operation to operation. The assessment should range in scope to cover
the socioeconomic, environmental, human rights, labour, health and safety, and gender
impacts of ASM. This assessment should distinguish which impacts are generated by each
subtype of ASM operations and each location.

This assessment could be divided by subject area into a socioeconomic impact assessment,
an environmental impact assessment, a human rights impact assessment, a labour
standards assessment, a health and safety standards assessment, and a gender
assessment. Alternatively, these assessments could be integrated and conducted as a general impact assessment.

Whether assessments of each area are conducted as one or separately, for each subject area, an impact assessment should include both (1) visits to ASM sites to collect data, and (2) visits to locations around ASM sites to assess impacts that can only be observed off-site, such as environmental damage and changes to local communities.

A thorough and detailed ASM impact assessment will collect data in a randomized survey. In a survey of randomly selected ASM sites, a government should collect data both at sites and around sites. For the purposes of this survey, ASM sites should be defined as sites at which mining and/or processing takes place. Guidance on what to include in an impact assessment at and around ASM sites can be found in the Section A1.3 of Appendix A.

3.6 Supply Chain Mapping

Supply chain mapping should build a picture of ASM sector supply chains. It should gather information on:

- How the supply chain is divided into stages, and what the stages are.
- The prices at which products are sold at each stage in the chain and the degree to which value is added at each stage.\(^1\)
- The size of the sector at each stage.
- At each stage, the degrees of concentration or dispersion of the sector into many operations.
- The geographical paths that supply chains follow.
- The export process and its efficacy.

A government should map supply chains by selecting a wide distribution of ASM operations upstream and following their production downstream as well as upstream. The Ministry of Mines, in collaboration with the ministries of economic planning, trade and the interior should normally conduct the supply chain mapping exercise.

3.7 Geological and Land-Use Mapping

The government, normally the Ministry of Mines and land, should conduct geological and land-use mapping. Geological and land-use mapping should compile and analyze data about both where mineral and metal deposits are and what land is currently used for, including information on where land and thus deposits are under an active title. This will inform ASM and land-use policy.

As a bare minimum, a government should compile and analyse existing information held by its departments. Thorough and detailed geological and land-use mapping will help the integration of ASM activities and interests into government geological databases and land-use databases. Good practice in geological and land-use mapping will involve detailed

\(^1\) The government must be careful that any commercially sensitive information that they collect remain confidential.
geological surveys to supplement existing geological information, surveys to revise land-use information where necessary, and aerial surveys to identify unreported ASM operations.

The outcome of geological and land-use mapping should be separate maps, including written interpretation of:

- Known, probable and possible mineral and metals deposits. Separate by those that ASM operations could feasibly work and those that they could not, by mineral and metal, and by alluvial and hard rock deposits, and note their other geological characteristics.
- Estimated locations of ASM operations. This should form a map of ASM, separated by mineral and metal.
- Land use, including land set aside for national parks, land set aside for residential areas, land licensed to ASM operations, land licensed to medium-scale and LSM and other uses.
- Areas that are particularly vulnerable to negative impacts of ASM, such as water bodies, large human populations, and animal habitats.

At a minimum, the government should map locations of mineral and metal deposits by:

- Compiling and analyzing past geological maps, surveys, data and analyses available to the government. These should be collected in a mining cadastre.
- If possible and beneficial, conducting further geological surveys, specifically in areas where there is thought to be a high probability of deposits.

Thorough and detailed geological and land-use mapping could include estimating the locations of ASM operations by doing the following:

- Conducting aerial surveys.
- Analyzing satellite images.
- Recording estimates and impressions by government officials based on their interactions with ASM operations.

Alternatively, thorough and detailed geological and land-use mapping could map land use by referring to existing government records of licences, deeds, estates, land allocation and other government resources. The responsibility for compiling this information normally lies with the Ministry of Mines, the Ministry of Land, the mining cadastre or other relevant government bodies.

The government should map areas that are particularly feasible for ASM by referring to the Ministry of Land, the Ministry of the Environment and other relevant government bodies.
PART 2: DEVELOPMENT OF AN ASM MANAGEMENT STRATEGY

Overview

ASM management presents many challenges. ASM operations are commonly informal, adept at avoiding government control and committed to practices that have negative impacts. Governments, for their part, are often under-resourced, and are tasked with employing several instruments or initiatives in parallel to assist ASM. To manage ASM well, a government must choose to deploy the appropriate instruments and initiatives that fit the country’s ASM context, and design them accordingly. For this reason, governments should develop an overall strategy to manage ASM.

Sections 4 to 7 advise governments how to develop an ASM Management Strategy. Developing an ASM Management Strategy is the responsibility of the ASM task force, but all of the departments partially responsible for ASM should be involved.

The first step in developing an ASM Management Strategy is to develop a vision. A government’s vision describes how it would like to see the country’s ASM sector perform in the future. However, a government can also use a visioning process to formulate and express its priorities, the standards it wishes ASM to reach, and its goals for the sector as a whole. Section 4 describes how a government should go about forming a Vision for Responsible ASM and the Sustainable Development of ASM.

By developing an ASM Management Strategy, a government decides upon a vision, but also what it should do to pursue the goals set out in that vision. More precisely, in an ASM Management Strategy, a government decides which instruments and initiatives it should select and how they should be designed.

The term ASM is used to refer to operations with different characteristics and different challenges. In Section 5, this supplement advises on how government should ensure that these differences between different sorts of ASM operations are reflected in government policy. It advises on how a government can divide ASM into subtypes, such as having one subtype for artisanal and small-scale coal mining and another for sand mining, or one for small-scale tin mining and another for micro-scale tin mining. Deciding how to do that is the first major strategic decision that governments are asked to make in the guidance and supplement. Governments should then develop separate sub-strategies for each of the subtypes of ASM that it creates by following the steps laid out in Sections 6 and 7. This processing of developing a strategy and then developing sub-strategies for each subtype of ASM is shown in Figure 4.
In Section 6, this supplement advises governments on how they can help each subtype of ASM reach its economic potential by forming an industry approach to ASM. It does so by recommending which instruments and initiatives a government should employ to do this and how they should be designed, depending on the government’s circumstances.

In Section 7, this supplement advises on how a government should make each subtype of ASM improve their practices by developing a license and regulate approach or a promote good practices approach or a Segmented Approach. Choosing which of these approaches to adopt is the second major strategic decision that governments are asked to make in the guidance and supplement.

The approach a government chooses for each subtype of ASM affects which instruments and initiatives it should select and how they should be designed. For each subtype of ASM, a government should then put together the instruments and initiatives that it selected as part of the industry approach with those it selected as part of an approach to improving ASM practices. This bundle of instruments and initiatives forms the ASM management sub-strategy for that subtype of ASM. In other words, a government should first decide what it should do to help a subtype of ASM reach its economic potential, and then decide what further things it should do to improve the practices of ASM. Then it should add those two sets of things together. Together, the management sub-strategies for each subtype of ASM make up the ASM Management Strategy.

This process is illustrated in Figure 5.
In a license and regulate approach, a government requires ASM operations to apply for and be granted licences, closes down unlicensed ASM operations, and only lets operations keep licences if they comply with regulations. Section 7.4 describes what instruments and initiatives a government should select as part of a license and regulate approach, depending on its circumstances, and specifies how they should be designed to suit that approach.

Under some circumstances, a government may determine that it cannot feasibly administer a license and regulate approach, either because its capacity is too low, or because the subtype of ASM is too elusive. If it cannot, it should try to administer a license and regulate approach to some of the operations in this subtype, by creating ASM zones and licensing and regulating operations inside them. Alternatively, it should introduce a supply chain initiative or buying scheme and make access to the scheme conditional upon voluntarily complying with a set of regulations. ASM operations within this subtype that cannot be included in either of these initiatives should be managed using a promote good practices approach, which is described below. By tailoring the approaches that it uses for a subtype of ASM, it segments its approach. Section 7.3 offers advice about how to do this, and the entire process is shown below in Figure 6.
Figure 6. Process of developing an ASM Management Strategy: Decision tree for developing an approach to improving ASM practices

If a government decides it does not have the means to employ either of the approaches suggested so far, it must adopt a promote good practices approach for all ASM. In doing so, it gives up on attempts to force ASM operations to meet high standards by using licensing and regulation. Instead, it relies on education and training and government assistance to
improve ASM practices. Meanwhile, it may be able to improve government capacity so that it can adopt a license and regulate approach in the future.

By following this process, a government decides what ASM Management Strategy to adopt, and these decisions frame the instruments and initiatives that it will choose to constitute the ASM Management Strategy. As it develops each approach, it chooses to select or not select some instruments and initiatives, and in some cases designs some of their content. Once it has developed both of its approaches (ASM industry approach or approach to improving ASM practices), it compiles the instruments and initiatives that it has selected. Together, this bundle of instruments and initiatives forms the contents of the ASM Management Strategy. This process is shown in Table 2.

This table also shows a complete list of the instruments and initiatives that a government might select and design as part of each of the approaches.

Table 2. Instruments and initiatives that are selected or designed as part of the ASM industry approach and the approaches to improving ASM practices

<table>
<thead>
<tr>
<th>Instrument or Initiative</th>
<th>Approach to Improving ASM Practices [a government selects either a license and regulate approach or a promote good practices approach]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>License and Regulate Approach</td>
</tr>
<tr>
<td>Allocate land for ASM</td>
<td>Select instrument Decide which land to earmark for ASM</td>
</tr>
<tr>
<td>Facilitate or encourage participation in supply chain initiatives</td>
<td>Select initiative Design to improve the prices and security of sale of ASM operations</td>
</tr>
<tr>
<td>Buying scheme</td>
<td>N/A</td>
</tr>
<tr>
<td>Licensing, regulation, monitoring and enforcement</td>
<td>N/A</td>
</tr>
<tr>
<td>Plan to improve government monitoring and enforcement capacity</td>
<td>N/A</td>
</tr>
<tr>
<td>Education and training</td>
<td>N/A</td>
</tr>
</tbody>
</table>
| Instrument or Initiative | ASM Industry Approach | Approach to Improving ASM Practices  
(a government selects either a license and regulate approach or a promote good practices approach) |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>License and Regulate Approach</td>
<td>Promote Good Practices Approach</td>
</tr>
<tr>
<td></td>
<td>• Are in their own interests, but are not commonly employed</td>
<td>• Are in their own interests, but are not commonly employed.</td>
</tr>
<tr>
<td></td>
<td>• Are in the Minimum Standards that are not commonly known and that they cannot find out for themselves</td>
<td>• Accompany provision of equipment by the government.</td>
</tr>
<tr>
<td></td>
<td>• Accompany provision of equipment by the government</td>
<td>Teach influential ASM stakeholders about harmful practices that ASM operations use, and the Good Practices that could be used instead</td>
</tr>
<tr>
<td>Services and technical assistance to ASM operations and services to ASM workers</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Healthcare or health or life insurance for workers</td>
<td>N/A</td>
<td>Select instrument</td>
</tr>
<tr>
<td>Education to workers and workers' children</td>
<td>N/A</td>
<td>Select instrument</td>
</tr>
<tr>
<td>Security provision</td>
<td>N/A</td>
<td>Select instrument</td>
</tr>
<tr>
<td>Rood and transport infrastructure provision</td>
<td>Select instrument</td>
<td>N/A</td>
</tr>
<tr>
<td>Instrument or Initiative</td>
<td>ASM Industry Approach</td>
<td>Approach to Improving ASM Practices [a government selects either a license and regulate approach or a promote good practices approach]</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------------------</td>
<td>-----------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Electricity and electricity infrastructure provision</td>
<td>Select instrument</td>
<td>License and Regulate Approach: Make provision conditional upon compliance of ASM operations with regulations.</td>
</tr>
<tr>
<td>Water and sanitation provision, and water and sanitation infrastructure provision</td>
<td>Select instrument</td>
<td>Promote Good Practices Approach: N/A.</td>
</tr>
<tr>
<td>Assisted access to credit or insurance</td>
<td>Select instrument</td>
<td>License and Regulate Approach: Select instrument. Make provision conditional upon compliance of ASM operations with regulations.</td>
</tr>
<tr>
<td>Provision of geological data, geological expertise and exploration services</td>
<td>Select instrument</td>
<td>Promote Good Practices Approach: Select instrument. Make provision conditional upon compliance of ASM operations with regulations.</td>
</tr>
<tr>
<td>Provision of technical expertise</td>
<td>Select instrument</td>
<td>License and Regulate Approach: Select instrument. Make provision conditional upon compliance of ASM operations with regulations, if provision of expertise is regular.</td>
</tr>
<tr>
<td>Provision of or subsidy of the sale of equipment</td>
<td>Select instrument</td>
<td>Promote Good Practices Approach: Select instrument.</td>
</tr>
<tr>
<td>Subsidy of inputs into the mining or processing process</td>
<td>N/A</td>
<td>License and Regulate Approach: Select instrument. Make provision conditional upon compliance of ASM operations with regulations.</td>
</tr>
<tr>
<td>Instrument or Initiative</td>
<td>ASM Industry Approach</td>
<td>Approach to Improving ASM Practices (a government selects either a license and regulate approach or a promote good practices approach)</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Supporting clean processing and government-sponsored processing plants</td>
<td>N/A</td>
<td>License and Regulate Approach: N/A</td>
</tr>
</tbody>
</table>
4 Developing a Vision for Responsible ASM and the Sustainable Development of ASM

4.1 What Is a Vision?

A Vision for Responsible ASM and the Sustainable Development of ASM is a public-facing document that sets out the government’s values. However, it also directs ASM policy. The vision expresses what is important to achieve. The rest of the ASM Management Strategy deals with how best to achieve it. Once a government has completed its vision, it should have two clear outputs that will guide the development of the rest of the ASM Management Strategy:

1. A list of ASM practices ranked from most to least desirable and divided into three categories: poor, better and good.
2. A set of long-term goals.

It is the responsibility of the ASM task force to form a vision, in consultation with relevant government departments. However, a government should consult with ASM stakeholders through the ASM stakeholder forum as it does so, in order to obtain uptake by the ASM community.

This section does not offer a ready-made Vision for Responsible ASM and the Sustainable Development of ASM. Each government should develop a vision that reflects its own value judgements and priorities. However, this supplement helps governments to form their own visions. It explains what a vision should contain, arranging issues thematically, introducing each thematic group and providing relevant sources that governments may use to form their own vision.

The vision should contain guidance for responsible ASM practices.
4.2 How to Create a Vision

To create a vision, a government should complete the following three steps:

1. Express values

The preliminary part of the vision is about expressing values. The government should identify what it values. Then it should decide what it values the most, ideally by ranking issues. The more clearly it can express its priority issues, the easier it will be to categorize ASM practices and set goals. To help users to do this, Sections 4.4 to 4.8 set out the main issues associated with ASM, organized into six types.

2. List, rank and categorize ASM practices

It is important for governments to set out their goals in terms of ASM practices. Practices include techniques or methods such as hard rock or hydraulic mining, and methods of processing ore and concentrating minerals such as crushing, sluicing, panning, mercury amalgamation and direct smelting. Practices also include other routine actions and sorts of behaviour that have negative or positive impacts, including sourcing inputs such as machinery, equipment and building materials locally and paying workers in wages or piece-rate. Much of this supplement concerns regulations and initiatives to encourage the ASM operations to cease using Poor Practices and to begin using good practices. A government should begin by listing as many ASM practices as possible and then ranking them from those with the best net impacts to those with the worst net impacts. It can draw upon the Impact Assessment to inform this list. Then it should categorize ASM practices into three groups:

- **Unacceptable practices** that have severe negative impacts and which the government should stop.
- **Poor practices** that have negative impacts, which the government aims to transition ASM operations away from.
- **Good practices** that the government wishes ASM operations to adopt and scale up, which have fewer negative impacts and more beneficial positive impacts.

These practices in turn should be separated by two sets of standards or levels, which serve as dividing lines between the categories:

- The Unacceptable Level of Practices, which separates unacceptable practices from poor.
- The Minimum Approved Standards of Practice (Minimum Standards), which separate poor from good practices.

This process and the categories that it creates are shown in Figure 7.7.
<table>
<thead>
<tr>
<th>Rank</th>
<th>Practice</th>
<th>Rank</th>
<th>Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Operating close to water sources</td>
<td>4</td>
<td>More education for workers’ children</td>
</tr>
<tr>
<td>2</td>
<td>Shaft mining with PPE</td>
<td>6</td>
<td>More workers’ health insurance</td>
</tr>
<tr>
<td>3</td>
<td>Freshwater panning</td>
<td>10</td>
<td>Open-pit mining without site clean-up</td>
</tr>
<tr>
<td>4</td>
<td>More education for workers’ children</td>
<td>13</td>
<td>Gravity concentration processing only</td>
</tr>
<tr>
<td>5</td>
<td>Shaft mining without PPE</td>
<td>2</td>
<td>Shaft mining with PPE</td>
</tr>
<tr>
<td>6</td>
<td>More workers’ health insurance</td>
<td>8</td>
<td>Operating far from water sources</td>
</tr>
<tr>
<td>7</td>
<td>Mercury amalgamation</td>
<td>3</td>
<td>Freshwater panning</td>
</tr>
<tr>
<td>8</td>
<td>Operating far from water sources</td>
<td>10</td>
<td>Shaft mining without PPE</td>
</tr>
<tr>
<td>9</td>
<td>Use of casual labour</td>
<td>5</td>
<td>Use of casual labour</td>
</tr>
<tr>
<td>10</td>
<td>Open-pit mining without site clean-up</td>
<td>9</td>
<td>Mining in a national park or reserve</td>
</tr>
<tr>
<td>11</td>
<td>Use of child labour</td>
<td>12</td>
<td>Use of child labour</td>
</tr>
<tr>
<td>12</td>
<td>Mining in a national park or reserve</td>
<td>11</td>
<td>Use of child labour</td>
</tr>
<tr>
<td>13</td>
<td>Gravity concentration processing only</td>
<td>1</td>
<td>Operating close to water sources</td>
</tr>
<tr>
<td>14</td>
<td>Water use minimisation</td>
<td>7</td>
<td>Mercury amalgamation</td>
</tr>
</tbody>
</table>

Figure 7. List, rank and categorize practices
By setting unacceptable practices, poor and good practices, a government sets three levels of behaviour around which it can organize ASM Management Strategy. A government should seek to prevent the employment of unacceptable practices as a first priority. Further, it should aim to make ASM operations stop using poor and meet the Minimum Standards, circumstances permitting. After making most ASM operations meet the Minimum Standards, it should concentrate on promoting the Good Practices in their place.

A government should treat these standards as a template, which should be adjusted and filled out for ASM of each mineral and metal mined in the country, to reflect the different techniques used and the different circumstances surrounding each. The Minimum Standards drafted for each should indeed be treated as drafts, because they may be adjusted during the development of an ASM Management Strategy.

To form these sets of practices, a government should draw upon internationally recognized good practice, which can be found in Sections 4.4 to 4.9 below. Some of the international standards that governments should be aware of and may wish to consult are the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (OECD, 2013) (the OECD Due Diligence Guidance), The London Bullion Market Association’s Due Diligence Checklist for Mined Gold (n.d.), the Minamata Convention on Mercury (UNEP, 2013), and the standards of the Responsible Jewellery Council, the Alliance for Responsible Mining and the Fairtrade Foundation, among others. The United Nations Environment Programme’s A Practical Guide: Reducing Mercury Use in Artisanal and Small-Scale Gold Mining (UNEP, 2012) contains a description and table elaborating poor, better, and best practices for the main stages of mineral production: (1) mining and concentration, (2) processing, and (3) refining, which governments may draw upon.

3. Set goals

The Vision for Responsible ASM and the Sustainable Development of ASM should set goals for the future. These goals should be expressed in two ways:

1. As negative and positive changes in the impacts produced by the sector or parts of the sector, for example, the number of people employed or the tonnes of mercury released into water sources.

2. As proportions of ASM operations that meet the Minimum Standards and employ good practices after two-, five-, and 10-year intervals, or other appropriate time intervals.

These goals will serve as expressions of the main objectives that government wishes to meet through the development of its ASM Management Strategy. These goals should be treated as drafts, which may need to be adjusted during the development of an ASM Management Strategy.
4.3 Aligning a Vision with International Standards

To aid the construction of such a vision, the issues connected with ASM are grouped into six types below and are introduced in turn. While some minerals and metals produced by ASM are consumed domestically, often the majority are sold internationally. Of those minerals and metals that are exported, a large portion is sold to markets that require producers to meet international standards. If domestic ASM would benefit from meeting those international standards, a government should consider integrating them into its vision. As a government develops its vision and categorizes particular practices as good practices, poor practices or unacceptable practices, it should refer to those international standards. The government should ensure that the practices referred to in those international standards are reflected in the poor or unacceptable categories, as appropriate.

As this section introduces six types of ASM issues, it makes reference to key international standards where appropriate. However, the OECD Due Diligence Guidance (OECD, 2013) assumes a special role in international standards in the eyes of many. The OECD Due Diligence Guidance includes a series of standards that is more narrow and restrictive than the set of issues set out in this section. The OECD Due Diligence Guidance focuses primarily on conflict and human rights. However, it also sets out a series of procedures and conditions that participants must meet; earlier sections of this guidance discuss how a government can help ASM operations to meet these procedures and conditions.

4.4 Environment

ASM operations affect the environment, as in turn does any human migration that follows ASM operations. Environmental impacts include, but are not limited to:

- Changing the air composition
- Changing the soil composition
- Changing the water composition
- Causing noise
- Changing the topography
- Disposing of waste
- Depleting water resources
- Depleting forest and ecosystems
- Generating greenhouse gases

These effects cause detrimental environmental impacts, which may include\(^2\):

- Negative impacts upon human health, especially the health of children and unborn children, either directly by making soil and crops toxic, or by making water sources toxic or making the air toxic.

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\(^2\) Notably, these impacts are not limited to ASM and are also potential impacts for industrial mining. In some cases ASM has a greater impact, but in some cases the reverse is true—greenhouse gases, for example, are more strongly emitted per unit gold by the industrial gold mining sector than artisanal and small-scale gold mining.
• Erosion of soils, rivers and landscapes.
• Negative impacts on natural habitats, ecosystems and biodiversity.
• Climate change.

The environmental impacts of mining in general are profiled in Chapter 10 of Breaking New Ground: Mining, Minerals and Sustainable Development (International Institute for Environment and Development, 2002). The environmental impacts of ASM in particular are profiled in pages 36 to 38 of Global Report on Artisanal & Small-Scale Mining (Hentschel, Hruschka, & Priester, 2002).

Standards of practice for gold, platinum group metals and diamond mining companies that could be applied to mining in general are set out in Provisions 22 to 25 and 36 to 40 in the Responsible Jewellery Council’s Code of Practices (2013). Relevant procedures can also be found in the International Finance Corporation’s IFC Performance Standards on Environmental and Social Sustainability 3 and 6 (2012).

Standards of practice vary for each mineral or metal mined. Additional perspectives on standards of practice are available through the United Nations Industrial Development Organization’s and UNEP’s Global Mercury Partnership (2014) guidance, the Alliance for Responsible Mining, the Fairtrade Foundation and materials produced by the Swiss Economic Cooperation Organisation’s (SECO’s) Better Gold Initiative and the Swiss Agency for Development and Cooperation’s Sustainable Artisanal Mining Project in Mongolia, among others.

A detailed list of standards that could be translated into regulation for gold, silver and platinum mining can be found in pages 26 to 29 of the Fairmined Standard for Gold from Artisanal and Small-Scale Mining, including Associated Precious Metals (Alliance for Responsible Mining, 2014). Additionally, the OECD Due Diligence Guidance (OECD, 2013) discusses tin, tantalum and tungsten. This document also discusses suggested measures to create economic and development opportunities for artisanal and small-scale miners to avoid having standards create a greater barrier for entry into the formal economic sector.

Gold processing can involve mercury amalgamation. Signatories to the Minamata Convention on Mercury (UNEP, 2013) are obliged to develop a national action plan to reduce or, where feasible, eliminate the use of mercury in artisanal and small-scale gold mining, as set out in Article 7, Annex C (specific measures) and other articles of the convention. A comprehensive guide to techniques that can be used to process gold, and the mercury-related environmental impacts of each technique, can be found in UNEP’s A Practical Guide: Reducing Mercury Use in Artisanal and Small-Scale Gold Mining (2012). The Global Mercury Partnership guidance maintained by UNEP (Global Mercury Partnership, 2014) also houses and broadcasts a variety of other similar resources, including those on health and environment. This increasingly important knowledge hub is important for governments to consult in order to ensure that policies being developed are aligned with international norms and expectations.
4.5 Human Rights

Human rights are normally conceived to encompass civil, political, economic, social and cultural rights. Human rights are:

- Universal, meaning that they apply to all people.
- Inalienable, meaning that they cannot be taken away from people.
- Indivisible and interdependent, meaning that all rights must be recognized together.

The *Universal Declaration on Human Rights* (UN General Assembly, 1948) is among the most widely recognized conception of human rights. The *International Covenant on Civil and Political Rights* (Office of the High Commissioner for Human Rights, 1964) is an international treaty, which many states have signed, that offers a similar conception of human rights. Signatories agree that all people have human rights; states have duties to respect human rights, and to legislate to ensure that citizens’ rights are recognized and to provide effective remedy when any person’s rights are violated.

For more information about conceptualizing high-risk areas and documenting where they are, please see the Heidelberg Institute for International Conflict Research’s Conflict Barometer (n.d.) and the conflict database CONTRA, which they maintain. Please also see relevant work by the Geneva Academy of International Humanitarian Law and Human Rights.

All human rights set out in the *International Covenant on Civil and Political Rights* (Office of the High Commissioner for Human Rights, 1964) are potentially relevant to ASM, and governments should examine how ASM in their country might be connected to violations or potential violations of human rights. However, the following articles are particularly pertinent to ASM and ASM management:

- Article 6.1 Concerning the right to life
- Article 8 Concerning slavery and compulsory labour
- Article 9 Concerning arrest, detention, and charge
- Article 12, 1 Concerning freedom of movement and freedom of residence
- Article 14 Concerning the right to a fair trial
- Article 16 Concerning recognition as a person before the law
- Article 17, 1 and 2 Concerning the right to not have arbitrary or unlawful interference with privacy and the right to protection against such interference
- Article 22, 1 The right to freedom of association

Standards for dealing with the connections between mining, security and human rights (not specific to ASM) are dealt with in the *Voluntary Principles on Security and Human Rights* (Secretariat for the Voluntary Principles on Security and Human Rights, 2000). Under the United Nations Human Rights Office of the High Commissioner’s *Guiding Principles on Business and Human Rights* (2011), governments have a duty to protect against human rights abuses from third parties, businesses have a responsibility to respect human rights, and judicial and non-judicial remedy should be provided to victims of human rights abuses,
with all needing to pay particular attention to the rights of children. Human rights issues in the mining sector in general are reviewed in the ICCM’s Human Rights in the Mining and Metals Sector (2009).

Children have additional rights, which are outlined in UN Convention on the Rights of the Child (1990). Children’s rights are sometimes violated at ASM operations. A detailed list of risks that mining in general and ASM in particular can pose to children’s rights can be found in pages 32 to 34 of Children’s Rights and the Mining Sector (UNICEF, 2015).

### 4.6 Labour Standards

Regarding labour standards, there are four fundamental principles and rights at work, as defined by the International Labour Organization (ILO). Labour practices will vary from country to country, and national labour laws should be enforced. However, if a government seeks guidance on internationally recognized labour standards, they should refer to the four fundamental principles and rights, which are as follows:

1. Freedom of association and the effective recognition of the right to collective bargaining
2. Elimination of all forms of forced or compulsory labour
3. Effective abolition of the worst forms of child labour
4. Elimination of discrimination in respect of employment and occupation

These are set out in the ILO conventions, which are listed in Appendix A.

Further labour conditions are listed below. These should be the next priority after the four fundamental principles and rights:

- Health and safety (covered in the next subsection of this document).
- The terms of dismissal
- Disciplinary and grievance procedures
- Terms of the provision of work insurance and contributions of employers to:
  - Sick pay
  - Pensions
  - Funeral payments
  - Maternity and paternity leave conditions
- Salaries or rates of pay
- Holiday and public holidays with pay

Some of these are set out in further ILO conventions, which can be found in Appendix A.

A set of standards based upon many of these conventions can be found in Provisions 13 to 20 in the Responsible Jewellery Council’s Code of Practices 2013 (2013). Governments should compare these standards to typical labour standards that are found in ASM operations. Much labour is casual, and so some of these standards do not apply, but relevant
socioeconomic development criteria do apply, such as the precarity and income stability of workers. For further information about labour rights, see the ILO’s *Social and Labour Issues in Small-Scale Mines* (Jennings, 1999).

4.7 Health and Safety

In general, mining generates many occupational health and safety risks. ASM typically involves much less health and safety training, less protective equipment, and worse worker education than LSM, which makes ASM a significantly more dangerous occupation.

ILO Convention 155, *Occupational Safety and Health* (1981), sets out the role for governments in providing a national health and safety policy. Part III sets out that this national policy will include enforcing occupational health and safety laws and regulations with inspections and a system of penalties for violations of law and regulations. It includes provisions for data collection and publication, enquiries, and notification procedures. Part IV sets out the responsibilities of employers to ensure that:

- The work place, machinery, equipment and processes are safe and without risks to health.
- The chemical, physical and biological substances and agents are safe and without risks to health.
- Personal protective equipment (PPE) is provided.
- Measures exist to deal with emergencies and accidents.
- Workers cooperate; are informed, trained and engaged; and are able to notify superiors of imminent and serious health and safety hazards.

The most common occupational health and safety issues in ASM are summarized in pages 41 to 43 of *Global Report on Artisanal & Small-Scale Mining*. Signatories to ILO Convention 155, *Occupational Safety and Health* (1981), have obligations to formulate, implement and periodically review a coherent national policy on occupational safety, occupational health and the working environment. Equally, signatories to ILO Convention 176, *Safety and Health in Mines* (1998), have obligations to formulate, carry out and periodically review a coherent policy on safety and health in mines.

Standards of practice for gold, platinum group metals and diamond mining companies that could be applied to mining in general are set out in Provision 21 in the Responsible Jewellery Council’s *Code of Practices 2013* (2013). On ASM-specific advice, a list of standards applicable to some ASM operations of many minerals can be found in *Safety & Health in Small-Scale Surface Mines: A Handbook* (Walle & Jennings, 2001). General standards of occupational health and safety for mining that employers should meet can be found in ILO Convention 176, *Safety and Health in Mines*, Articles 6 to 12. Last, a detailed list of standards that could be translated into health and safety regulations for gold, silver and platinum mining can be found in pages 31 to 33 of the *Fairmined Standard for Gold from Artisanal and Small-Scale Mining, including Associated Precious Metals* (Alliance for Responsible Mining, 2014).
4.8 Gender

Gender issues involving ASM concern on-site and off-site issues.

On-site ASM issues include:

- Discrimination in access to work and payment for work, which is covered in Section 4.6, Labour Standards, above.
- Discrimination in freedom of association and freedom of collective bargaining, which are also covered in Section 4.6, Labour Standards, above.
- Provision of maternity leave, which is also covered in Section 4.6, Labour Standards, above.
- Occupational health and safety risks that women are exposed to more than men because work roles are partially or wholly gender segregated.
- Exclusion or marginalization of women in collective decision making.
- Disempowerment of women through any means, including suggesting that, or treating men and women as if, they have different abilities or different worth.

Off-site ASM issues include:

- Environmental effects that affect women more than men because women’s roles in the household or workplace differ from men’s. For example, water pollution may affect women more than men if women collect water or wash clothes in it. This may include:
  - Exposure of women to health risks
  - Erosion of women’s livelihoods due to topographical change; water source depletion and pollution; damage to biodiversity that support’s women’s traditional livelihoods; and air, water or noise pollution that negatively impact’s women’s working conditions.
- Negative social effects that follow from men working more or earning more than women in ASM operations, or conversely, women increasing their earnings compared to men. This may include changes in household relations and subsequent conflict, but more broadly, changes in social power.
- Discrimination in access to land, and credit in setting up ASM operations, that disadvantage women.
- Negative treatment of women service providers to ASM operations—more often women than men.
- Occupational health and safety risks exclusive to certain jobs or services that women provide to ASM operations more than men, such as in some cases amalgamating gold with mercury.

Gender issues related to ASM are discussed in detail in Gender Dimensions of Artisanal and Small-Scale Mining: A Rapid Assessment Toolkit (Etimie et al., 2012). This toolkit also provides guidance about how to assess gender considerations within ASM.
4.9 Socioeconomic Benefits and Sustainable Development

ASM can be socially and economically beneficial, and these benefits are also a core consideration for the sustainable development of ASM. These benefits are discussed briefly below. However, first this section discusses how a government could capitalize upon these benefits for sustainable development.

The integration of the benefits of the ASM sector into a sustainable development framework, such as that set out in the IGF’s Mining Policy Framework (IGF, 2013) and the World Bank Governance of Extractive Industries Program’s Extractive Industries Sourcebook (2016), is important to ensure that the benefits accrue beyond the immediate ASM operations. Sustainable development and mining can be compatible. In a number of countries and over time, mining in general has led to the creation of economic activity, economic diversity, and financial and social infrastructure; created skilled workforces; and contributed to sustainable wealth creation.

One element often overlooked in assessing the wealth that the ASM sector creates is the wealth included in the money that ASM workers send back home to non-mining communities for families and children. These transfers can be a huge source of rural wealth that greatly assists the rural poor in obtaining better living conditions and superior educational opportunities and ultimately improved livelihoods and economic diversification. The Vision for Responsible ASM and the Sustainable Development of ASM provides the basis for this process to take shape in the ASM context. ASM can contribute more and more formally to national economies once aligned with policies. The organizational tools and institutional capacities needed to achieve this—and to avoid lesser outcomes—are known and are realisable with the right support.

However, considering that resources are finite, a more responsibly functioning ASM sector will not in itself sustainably contribute to development. The wealth it generates needs to be directed towards economic diversification and captured in a sustainable development framework, so that these two elements can support sustainable development ends beyond mining. The way communities and their governments take advantage of the wealth generated by ASM and use it to drive sustainable economic development will depend on community and government priorities and on concepts and strategies for sustainable development. Those subjects lie beyond the scope of this document, and so they are not discussed further beyond this section. However, at the bare minimum a government and its stakeholders should consider the following:

- Skills development
- Capital investment
- Taxation, governance and development policy
- Economic diversification of ASM services

4.9.1 Skills Development

Although mining at a particular site might be a short-term activity, ASM sectors are commonly long lasting. Therefore, ASM should be regarded not as a short-term form of employment, but as a potentially career-long occupation. Socioeconomic benefits accrue
when ASM workers acquire skills for use within the sector, just as they do when they acquire skills in different sectors to which workers may move. A government should evaluate the benefits of providing ASM workers with (1) support to assist them to save and invest in training in the mining sector or (2) training to diversify their skills and allow them to take up other sorts of employment. This strategy may be most welcome in non-mining communities or parts of ASM communities that do not directly participate in mining yet receive wealth from the ASM sector, either in the form of remittances or as payment for services outside the realm of mining.

4.9.2 Capital Investment

Profits that are accumulated from ASM can be invested in other sectors. A government should ensure that it creates a regulatory and institutional framework within which ASM workers can save money and have access to loans to encourage investment in other sectors. However, the easiest place for miners to re-invest is in what they know best—mining. Access to capital for ASM operations is often limited, so attracting investment into the ASM sector is perhaps one of the most straightforward ways to generate more substantial capital output from the sector that can then subsequently be re-invested. Re-investment in improved and more efficient mining practices, which results in the development of a more diverse economy and diverse services and the development of more diverse value chains and even local manufacturing, can serve an important development role while respecting people’s existing experience and knowledge base.

4.9.3 Taxation, Governance and Development Policy

Once a system has been deployed that is able to effectively capture resource revenues generated by the sector for the state, governments should identify and implement policies to ensure that the revenues are spent in a manner that will have a positive and sustainable impact on growth and development. More than 70 countries have committed to improving the ASM sector (through the Minamata Convention on Mercury [UNEP, 2013] and the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas [OECD, 2013]). In practice, donor funds are more easily accessed when governments can provide co-financing. Diverting revenues collected from the ASM sector towards other state priorities will weaken donor and private sector interest in providing funding to it.

4.9.4 Economic Diversification of ASM Services

Once the ASM sector functions more responsibly and therefore also more efficiently, greater demands will be placed on the secondary economy around ASM, which provides the sector with needed services, to also become more professional and efficient. This can contribute to accelerated rural economic diversification and development if the secondary economy is supported through a well-designed regulatory framework, incentives and initiatives to support increasing professionalism.

When the ASM sector has been enabled to function more responsibly and more efficiently and more in compliance with the formal economy, the secondary economy that surrounds will simultaneously professionalize and expand, creating accelerated rural economic diversification and economic development. It is important that governments support this
growth through the development of a well-designed regulatory framework that includes adequate incentives and initiatives to ensure that the secondary economy transitions into the formal economy rather than remaining informal and out of reach.

For references on these broad purposes, please refer to the IGF’s Mining Policy Framework (IGF, 2013) and the World Bank Extractive Industries Sourcebook (2016).

ASM can provide socioeconomic benefits by providing:

- Capital and capital goods accumulation within ASM operations, ASM communities and the broader surrounding rural communities and in other sectors
- Tax revenue generation
- Employment
- Workers’ incomes and income stability, as well as poverty and precarity reduction
- Subcontractor revenues
- ASM operations revenues.
- Access to foreign currency.
- Funding for education, healthcare and other family needs and social services
- Significant transfers of money from ASM workers and owners of capital to those outside the mining sector

ASM can yield all or any combination of these positive socioeconomic benefits. Commonly, ASM offers economic opportunities to investors and workers alike that are better than other opportunities available to them. Despite the economic potential of ASM in general, under some specific circumstances, ASM can have negative consequences, including:

- Erosion of livelihoods or livelihoods resources through:
  - Creation of temporary, ill-maintained settlements
  - Depletion of water, land or other natural resources beneficial to sustainable livelihoods
- Worsening income security of workers
- Worsening income inequality among workers.
- Moving children and young people out from education and into mining work
- Moving economic activity from tax-paying activities to non-tax-paying activities
5 Dividing the ASM Sector into Subtypes and Prioritizing Them

5.1 Divide ASM into Subtypes That the Government Will Treat Differently

The first thing that a government should do to develop an ASM strategy is to divide ASM into subtypes. Just as mining in general can be broken down into ASM and LSM, ASM can itself be broken down into smaller groups. Dividing ASM is important for governments, because the term "ASM" includes a variety of mining and processing activities, each with different risks, different potential and different characteristics. These operations need to be treated differently to reflect these differences. If a government adopts a uniform approach to ASM, its strategy will be well designed to manage some ASM operations, but not others. It will be employing a one-size-fits-all approach. For this reason, a government should divide ASM into subtypes and adopt different strategies for each subtype. This section offers advice on the best way that a government can do this. The ASM task force should decide how to divide the ASM sector into subtypes in consultation with relevant government departments.

5.1.1 Criteria for Subcategorizing ASM

When subcategorizing ASM, the government should consider the following questions:

- How severe are the negative impacts from each subtype of ASM, in the terms defined by the?
- How great are the positive impacts from each subtype of ASM, in the terms defined by the?
- How manageable is each subtype of ASM? Key factors that affect the ease of managing each subtype of ASM can be found in the accompanying textbox.
Factors That Affect Managing Each Subtype of ASM

Mobility of the ASM operations of a subtype. The ease and speed at which ASM operations can move physically. If ASM operations are mobile, they are difficult to track, monitor and, if necessary, sanction. While some operations involve site development and permanent equipment that is difficult to move, others involve little machinery of a type that can be picked up and carried away. This means that mobility is sometimes a product of mechanization; however, some heavy machinery is installed on vehicles to render it mobile.

Accessibility to government agents of ASM sites of the subtype in question. Can government agents reach ASM sites safely and at little cost? Are the ASM locations known? Accessibility might be adversely affected by distance from government offices or by proximity of armed groups, for example. Equally, closeness to government offices and good security will increase the accessibility of ASM operations to governments. Other ASM operations are located in mountainous regions or forests, making them difficult to get to and hard to locate. If ASM operations are not accessible to government agents, and if the government could not feasibly make them accessible, they will be more difficult to visit for inspections, assistance or law enforcement, and therefore more difficult to manage.

Trust between government and the ASM operations of the subtype in question. When ASM operations do not trust the government or some part of the government, they will expect the worst from government. They will not expect assistance to be genuine, they will be unwilling to offer information to the government, and they may be hostile to visits from government agents.

Legitimacy of government authority. When government authority is not thought to be legitimate, attempts to impose rules or regulations may be resisted.

Adaptability of a subtype of ASM operation, or their ability and willingness to change their methods. Some ASM operations are entrepreneurial and flexible. If the operators or miners are shown better techniques, they will adopt them, and if their incentives to behave in certain ways change, they will respond accordingly. Others are reluctant to change. They may lack the resources, the credit or the spare time to change their techniques. They may be unwilling or unable to learn new skills. There may be vested interests or brokered deals that prevent them from changing their practices. For example, an artisanal and small-scale gold mining operation may have been given initial capital by a trader that provides inputs into mining such as petrol or mercury, in exchange for a deal to buy those inputs at an inflated price until the debt was paid. In this situation, the ASM operation would be reluctant to stop using mercury.

Dependency of a subtype of ASM operations on government for the provision of some assistance or services that they benefit from, or the abstention from counterproductive activities. For example, if a government provides credit to ASM operations and those operations have no other sources of credit, then the government can use that dependency on the government as leverage to make ASM operations comply with rules and regulations.

5.1.2 Useful Subtypes

A government should divide ASM into groups that tend to have significantly different characteristics. To achieve this, a government should draw upon the research discussed in Section 3 to make these distinctions. Below are examples of several ways to separate subtypes of ASM. All of these are well-recognized subtypes, but a government should assess whether these categories helpfully separate ASM operations with different characteristics in the country’s specific case. Key differences between them are also summarized in Table 3.
### Table 3. Ways to subcategorize ASM

<table>
<thead>
<tr>
<th>Subcategorize ASM by the following</th>
<th>Examples of subtypes</th>
<th>Typically, this will create ASM subtypes with different levels of the following</th>
<th>Typically, this will create ASM subtypes with these different impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical methods</td>
<td>Hand or machine crushing</td>
<td>Technological advancement, mechanization, mobility, adaptability, profitability</td>
<td>Health and safety, environmental</td>
</tr>
<tr>
<td></td>
<td>Gravity concentration of mercury processing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alluvial and hard rock deposits</td>
<td>N/A</td>
<td>Mobility, technological advancement, minerals and metals, location</td>
<td>Health and safety, environmental</td>
</tr>
<tr>
<td>Scale</td>
<td>Micro-scale operation, small-scale operation</td>
<td>Technological advancement, mobility, employer-employee relations, adaptability</td>
<td>Labour, gender, health and safety, environmental, socioeconomic benefits, sustainable development</td>
</tr>
<tr>
<td>Minerals and metals</td>
<td>Gold, coal, sand, diamonds</td>
<td>Profitability, location, mechanization, scale, connections to armed groups and smuggling</td>
<td>Health and safety, environmental, human rights</td>
</tr>
<tr>
<td>Stage in the value chain</td>
<td>Mining, primary processing, secondary processing</td>
<td>Technological advancement, mobility, employer-employee relations</td>
<td>Labour, gender, health and safety, environmental, benefits, sustainable development</td>
</tr>
</tbody>
</table>

### 5.1.2.1 Technical Methods

A government could distinguish between subtypes of ASM based upon the techniques that they employ, for example, shaft mining and open-pit mining, hand crushing or machine crushing ore, and a variety of processing methods. The technical processes that ASM operations use affect how much they are dependent on the government for various forms of assistance. For example, if an operation employs machine crushing, then it needs access to power, which a government might be able to supply more cheaply from the national grid than the operation can provide for itself.

The techniques that mining and processing operations use tend to indicate differences in the potential risks and benefits inherent in the operation. For example, in gold mining, mercury amalgamation and cyanide leaching bear specific characteristics that are associated with different environmental and health and safety risks.

Some technical processes are associated with the scale and mechanization of operations. For example, while one person can conduct gold panning, only teams can conduct shaft mining. Therefore, if a government distinguishes between ASM operations by technical methods, it may not also need to distinguish between operations by scale.
Technical methods can also be used as licence criteria, which are similar to but not the same as the distinguishing criteria between subtypes of ASM. Licence criteria are discussed at length in Section 8.2.

5.1.2.2 Alluvial and Hard Rock Deposits
Whichever mineral or metal an ASM operation is liberating, it will be from a deposit that is either alluvial or in hard rock. ASM operations that work hard rock deposits normally invest heavily in site development. At the very least, they must either dig shafts or remove topsoil and rock to conduct open-pit mining. In either scenario, ASM operations in hard rock deposits make so many up-front investments that they typically become long-term mines that are geographically immobile. In contrast, ASM operations that work alluvial deposits typically invest less in site development than hard rock ASM operations. Consequently, they have fewer commitments to mine sites. They can move to other sites that are thought to contain alluvial deposits. This makes them mobile.

Each type of mining (alluvial or hard rock) is also associated with different environmental impacts and different health and safety issues, which should be given different attention in attempts to improve ASM practices. ASM of hard rock deposits frequently comes with profound health and safety risks and is more likely to involve explosives. In contrast, ASM of alluvial deposits is more likely to cause widespread topographical damage.

5.1.2.3 Scale
As discussed in Section 1.2, ASM is an umbrella term that encapsulates mining that ranges from single miners through to small-scale operations, and separates them from medium-scale mining and LSM. Governments commonly divide ASM into three categories:

- Micro-scale mining
- Artisanal mining
- Small-scale mining

Small-scale mining has been associated with greater mechanization, better access to credit, better technical knowledge, higher economic potential, and greater immobility than micro-scale and artisanal mining. However, research on this is inconclusive.

Assuming that the above-noted associations are typical, governments will find that different scales of mining need different forms of assistance and consequently are responsive to different incentives. For example, micro-scale and artisanal mining operations will suffer from acute credit problems, while small-scale mining operations will need more (and benefit more from) provision of electricity infrastructure. If small-scale mining operations lack access to credit, larger interventions will be needed to resolve the issue.

5.1.2.4 Minerals and Metals
Last, a government should consider dividing ASM operations by mineral and metal. The different ways of extracting and processing each mineral and metal change the positive and negative impacts associated with each.

Equally, some minerals are almost always processed on- or near-site to reduce transportation costs, while others can be transported before processing. The former makes
primary and secondary processing operations more concentrated and larger-scale, while the latter makes processing more dispersed and smaller-scale. Naturally, this can affect the accessibility as well as the mobility of processing operations.

The ratio of value to volume of minerals and metals affects how easily they can be transported. This in turn changes how easily government can monitor the movement of minerals and metals, and especially whether government can monitor the movement of minerals and metals across borders.

### 5.1.2.5 Stage in the Value Chain

The different stages in the value chain were described in the Introduction in Section 1.2. ASM involves quite different activities at each of those points in the chain. Mining, processing and trading all involve different sorts of techniques. Those techniques come with different health and safety risks and different environmental impacts. Each stage presents different economic and social opportunities. Equally, the mobility of operations varies by their point in the supply chain. For example, although mining operations are made immobile by their deposits, processing operations can be made mobile. In contrast, trading operations are commonly either mobile or without permanent bases altogether.

### 5.2 Prioritize Subtypes of ASM for Government Attention and Resources

Before proceeding to develop an ASM industry approach and an approach to improving ASM practices for each subtype of ASM, the government should determine what level of priority each subtype of ASM should be assigned.

To do this, the government should estimate how much it can improve the net impacts of each ASM subsector. A methodology that explains how to do this is detailed in Section A3. A government should then allocate government resources and attention to those subsectors in proportion to how much it can improve each.
6 The ASM Industry Approach

This section focuses on the specific ways in which the economic potential of ASM can be realized.

Section 4.9 describes the potential socioeconomic impacts of ASM; a government should decide how it wishes to help realize the economic potential of ASM in order to maximize those positive socioeconomic impacts. As explained in Section 4.9, in some ways, the socioeconomic impacts of ASM and the economic impacts diverge. As a result, social justice might be served by one policy and economic growth by another.

6.1 Overview of the ASM Industry Approach

The industry approach to ASM involves analysing ASM operations not only individually but also collectively, as an industry. A government should analyse how the economic potential of individual operations can be realized, and whether the ASM sector as a whole has greater economic potential that can be realized too. ASM should be thought of as a component part of the government’s broader economic planning and poverty-reduction strategies and should be integrated into this planning, if possible. For this reason, the ASM industry approach should be developed in close collaboration with the ministries of economic planning and finance. It may also involve the participation of the ministries of mines, trade, land and energy, depending upon which instruments and initiatives the government decides to employ.

The process for developing an ASM industry approach is shown in Figure 8. This process includes three sets of instruments and initiatives that governments can employ to help ASM operations realize their potential. The three steps in the process are described following Figure 8.

| Step 1: Identify land to be used for ASM |
| Decide whether some land over deposits should be earmarked for this subtype of ASM operation, and choose which land. |

| Step 2: Promote supply chain initiatives |
| Decide whether the government should encourage supply chain initiatives to buy from this ASM subsector, and if so, promote these initiatives. |

| Step 3: Consider offering financial and other assistance |
| Design financial assistance to compensate for market failures or otherwise help this subtype of ASM operation to realize their economic potential. |

Figure 8. Process for developing an ASM industry approach
6.2 Step 1: Identify Land to Be Used for ASM

A government should integrate ASM management into land-use policy, and the Ministry of Land would normally play a large role in this. Land-use policy serves many purposes beyond the purview of this supplement. At the very least, land is allocated for the purposes of residence, commerce, conservation and agriculture. However, a government should determine whether they wish to make some land with known or probable mineral or metal deposits available for ASM, and if so, which subtypes of ASM they should make the land available for.

Providing enough land for ASM is connected to industry planning, because land-use policy decisions limit how large the ASM sector can become. The mineral and metal wealth contained in deposits is finite. The number of deposits that ASM operations can work is smaller than this finite amount for a variety of reasons:

- Some deposits are too deep for ASM operations to reach or cannot be accessed with the technology available to ASM operations.
- Some deposits are of grades that are too low to be economically viable to liberate.
- Some deposits are on land that is reserved for other uses, too close to urban areas, or too close to strategic water sources or national parks.
- Some might be used by LSM companies or for other purposes.

Therefore, while the number of available deposits limits the size of the ASM sector, the sector is normally limited much further by the other uses of land. In some cases no land may be available for licensed ASM operations.

If a government decides in its vision that a subtype of ASM could have a positive net impact, and if it includes in its vision a target of increasing the size of that sector, then it should try to make available land that contains deposits that ASM operations can feasibly work, so that ASM operations can apply for licences. If a government does not make enough land available for licence for existing operations, legal and illegal, then logically a government has only the following options:

- Make available land with suitable deposits for ASM operations.
- Make ASM operations leave land that they are not permitted to work on.
- Let ASM operations continue to work on land that they are not permitted to work on.

6.2.1 Process for Identifying Land to Be Used As ASM

To determine (1) whether a government should allocate land for ASM, (2) how much land and (3) which land, a government should follow the steps below for each mineral and metal:

1. Decide which subtypes of ASM for this mineral or metal have, on balance, net positive impacts. A government may employ the methodology described in Section A2 to do this.

2. Refer to the geological and land-use mapping described in Section 3.7and with other available research.
3. Use this information to identify known and probable deposits across the country on
unused land or land that it would be worth reallocating to ASM.

4. Earmark these deposits for use by ASM, but only if that land could feasibly be re-
allocated in accordance with the government’s broader land-use policy, its other
relevant laws and other legal obligations to current land users.

5. Encourage those subtypes of ASM that generate the greatest net benefits to apply
for licences to work these earmarked deposits.

6. Review the area of land with deposits that ASM operations could work, and compare
this to the area of land that ASM operations are already working. Decide, with this in
mind, whether more land needs to be made available for ASM. If a government
decides that more land must be made available for ASM, return to Step 2 and repeat
Steps 2 to 6.

7. Governments should encourage a subtype of ASM operations to take up land
earmarked for ASM by one of the following means:
   - Giving ASM operations preferential access in the mining license application
     process, or
   - Creating ASM zones on the land with the earmarked deposits that are
     managed directly by the government and allocated to ASM operations. These
     zones are described in Section 7.3.1.

Both land-use policy and mineral and metal land use in general fall outside the scope of this
document. However, licences to prospect and mine should be geographically bound, time
limited and mutually exclusive. Therefore, no more than one entity should have a licence to
prospect or mine a single area of land. Systems of land use and licensing should ensure that
different licence-allocating bodies do not grant licences that develop rival and/or
contradictory claims to the same land, and they should develop systems to reconcile those
contradictions, if they occur.

6.3 Step 2: Promote Supply Chain Initiatives

Industry- and third-party-led supply chain initiatives are common in the mining, minerals
and metals sectors. Supply chain initiatives set standards that participants must follow
regarding the conditions under which and the means by which minerals and metals are
produced, traded and sold into responsible global supply chains. These systems are typically
monitored, audited and reported upon to increase transparency in the ASM sector. They are
typically based on global market entry standards for responsibly sourced minerals and
metals, such as the OECD Due Diligence Guidance (OECD, 2013) with its five-step due
diligence framework and the Minamata Convention on Mercury (UNEP, 2013)(of relevance to
gold only). The OECD Due Diligence Guidance Supplement on Gold (OECD, 2012), the Better
Sourcing Program, the Conflict-Free Sourcing Initiative, iTSCi and the Responsible Jewellery
Council Chain-of-Custody Certification are examples of existing supply chain initiatives. An
extensive list can be found in Appendix A.

Minerals sold on the open market sometimes fetch a lower price than those certified by
supply chain initiatives. These prices may reflect price discrimination or the limited supply of
minerals and metals that are compliant with the standards implemented by the supply chain initiatives. For example, tin, tantalum, tungsten and gold sometimes sell at lower prices when they cannot be certified conflict free. Higher prices and a more stable customer base mean that the introduction of supply chain initiatives is one way for a government to increase the economic potential of the ASM sector.

Most supply chain initiatives are designed to ensure that minerals and metals entering the supply chains of participating companies are produced responsibly and are not connected with negative impacts or practices. The precise practices or impacts that they address differ. For example, conflict-free supply chain initiatives primarily concern the connections between mining and conflict, human rights abuses and corruption. These are backed by international legislation in the United States and the European Union (as well as other countries) that makes it mandatory for listed companies to report on the conflict-free nature of their supply chain. The Minamata Convention on Mercury (UNEP, 2013), on the other hand, concerns the use of mercury in the gold context.

Supply chain initiatives also specify strict requirements regarding the verification of origin of minerals and metals. Upstream, in the ASM sector, these conditions typically include traceability systems and active due diligence as per the OECD Due Diligence Guidance (OECD, 2013) to confirm the origin of minerals and metals. As part of due diligence implementation, supply chain initiatives typically include ongoing monitoring of the supply chain, incident and grievance management systems, and built-in reporting requirements to increase transparency. Many supply chain initiatives are externally audited. Implementing supply chain initiatives comes at a cost, but such initiatives are commonly the only way to ensure that good practices are consistently used in the ASM sector.

The additional potential benefits of supply chain initiatives for improving ASM practices are discussed in Section 7.3. If a government decides to facilitate or encourage participation in a supply chain initiative, then conventionally the Ministry of Mines or the Ministry of Trade or economic planning will lead that venture, in collaboration with the ministries of the Interior, Environment and Labour, at the very least.

Independent third parties implement certain supply chain initiatives, and government can facilitate the extension of third-party-operated supply chain initiatives into the country. Other schemes set standards but leave upstream and downstream companies alike to use them. In this case, government could help to make an ASM subsector compliant with the requirements set out in those standards. A practical first step is to initiate a pilot project to test and demonstrate how operations in the area can feasibly participate in the supply chain initiative.

Supply chain initiatives might also be used as part of the approach to improving ASM practices as described in Section 7.3.2. If a government wishes to introduce a supply chain initiative as part of the ASM industry approach, it should also consider using it to assist the approach to improving ASM practices.

**6.3.1 Deciding Whether to Introduce a Supply Chain Initiative**

A government wanting to decide whether it should support the introduction of a supply chain initiative should ask:
• What is the purpose of a particular supply chain initiative, and is that purpose compatible with the government’s objectives? What value does participating in a particular initiative bring?

• Are there relevant supply chain initiatives for the ASM subsector in question?

• Can the practices of the ASM subsector feasibly be improved to make the subsector or parts of it compliant with the standards in the supply chain initiative?

• Could the traceability and due diligence systems that often accompany such supply chain initiatives be feasibly implemented?

• Could the scheme be introduced on a sufficiently wide scale to make the benefits of compliance with the initiative outweigh the costs of setting up the scheme?

• Could the scheme be sustainably financed without external donor or government assistance to ensure its market-based sustainability?

6.4 Step 3: Consider Offering Financial and Other Assistance

To increase and to help realize the economic potential of an ASM subsector, a government should consider whether it should offer assistance to that subtype of ASM operations. Governments should offer assistance for many reasons other than reaching the economic potential of ASM which are described in Sections 4.9 and 7.4.4. That said, as part of industry planning, governments should offer assistance to ASM operations for two reasons:

• To provide services that cannot feasibly be provided by the private sector. This includes several kinds of infrastructure investment. Governments should draw upon the research conducted (see Section 3) to assess the feasibility of providing those services and the costs and benefits of doing so.

• To solve market failures. Namely, when uncertainty, imperfect information, coordination problems, or other market imperfections prevent the optimal allocation of resources, optimal price settings and the fulfillment of market potential. Governments should draw upon the research conducted (see Section 3) and its own assessment to decide which of the following interventions are necessary in order to address market failures and help an ASM subsector reach its economic potential.

The forms of assistance that a government could provide to help the ASM sector reach its economic potential are described in the accompanying textbox. Wherever possible, the textbox notes subtypes of ASM operations that some sort of assistance is particularly well or poorly suited to. The relevant ministries that could provide those forms of assistance are discussed in the Section 10 on implementation.

There is also the option for a government to subcontract service provision to specialist service providers. However, such an arrangement would have to lead to long-term and sustainable outcomes and be implemented professionally. Due care therefore has to be placed in selecting third-party services providers. In the case where a government facilitates the introduction of a supply chain initiative, the supply chain initiative’s presence on the ground in mining areas can be leveraged to provide extension services, whether through the government or through a third-party services provider.
Organizing ASM into Groups That Can Receive Assistance

In order for government to offer assistance to a subtype of ASM operations, those operations must be both registered and organized into groups. Registering and organizing into groups is not the same as licensing them, although a system of licences is sufficient for registering operations. For a government to offer assistance to ASM operations, the operations must be identifiable, so that the government can note to whom support is given and to whom it is not. If groups of ASM operations are not registered, some groups may be overlooked or may take assistance more than once.

For a government to identify ASM operations, the operations must be registered in some way. Licensing is discussed in Sections 8.2, 9.2.1, and 9.2.2. If there is a licensing system, this will suffice to monitor who receives assistance. However, if no widely used system of licences exists, but the government still wishes to provide assistance, it should consider other means by which ASM operations can be registered as recipients of assistance. This might include registering ASM operations as cooperatives or companies or similar legal entities. If neither option (licensing or otherwise registering) is available, the government might record who receives assistance based upon their location, if the operations are sufficiently immobile.

If ASM operations are too small in scale, it will be costly for government to monitor them, allocate assistance, and record who has received assistance. The scale of ASM should not be confused with the size of ASM. As Section 1.2 makes clear, scale refers to the size of operating units of ASM, not to the size of the total amount of ASM being conducted in one place in separate operations. If several micro-scale mining operations were grouped into one legal entity, but continued to work as three separate operations, the scale of the operations would not have changed, even though the size of legal entity would have. When operations are too small in scale for governments to cost-effectively offer assistance, governments should consider offering ASM operations incentives to organize into cooperatives with stipulated rules of governance and membership so as to avoid control of cooperatives by particular groups. Governments are discouraged from organizing groups of ASM operations into cooperatives on their behalf, because they may force together groups that are separate and are marked by antagonism between their members.

6.4.1 Provision of Geological Data, Geological Expertise and Exploration Services

Detailed geological information about a concession is essential for ASM operations to work efficiently. However, ASM operations commonly do not employ geologists or purchase their services to acquire such information. Instead, they often rely on trial and error, which increases costs and reduces yields. Purchasing at least some site-specific geological information is crucial for an ASM operation, but there are four common market failures that impede the provision of services by independent or freelance geologists.

- There are economies of scale to the provision of geological information that cannot be captured by individual firms. This creates coordination problems in the collection and provision of such information by ASM operations, or the provision of that service by a third party.

- Information is easily transferrable at no cost, and transfer is often easy to hide and deny, which makes geological information that a geologist provides easy for a buyer to pass on to others. Therefore, private-sector geologists may be unable to recoup the costs of generating and analysing geological information, even if ASM operations would hypothetically be willing to pay for it.
• There is uncertainty in the generation of and analysis of geological information. Both ASM operations and third-party providers cannot tell what the benefit of creating geological information will be, and if they are risk averse, they will invest less than the optimal amounts in geological research.

• Credit problems that limit availability to capital prevent ASM firms from borrowing to pay for geological services.

Governments should consider each of these potential market failures when considering the feasibility, the costs and the benefits of providing geological information. A government could draw upon the geological data produced during prior research as described in Section 3.7, but it might go further and conduct geological surveys of its own, on behalf of ASM. Conventionally, governments commission country-wide baseline studies that estimate the likelihood of there being deposits of minerals and metals based on general geological data. These studies do not normally provide information at the scale of individual concessions or small groups of concessions. Therefore, filling a market failure in provision of geological services is not like providing a nationwide baseline survey. Instead, it involves taking on geological work that a large-scale mining company would do itself, and providing it on behalf of ASM.

If a government is not able to provide meso- and micro-level geological services to ASM operations as described above, it should still provide large-scale baseline studies and make them publicly available. This will lower the costs to freelance geologists and private geological companies, lower the price, and increase uptake of private geological services by ASM.

6.4.2 Assisted Access to Credit or Insurance

Credit and insurance market failures are some of the best documented and most widely recognized. Credit market failures are often created by the informality of ASM operations, uncertain future financial returns or returns that are hard to demonstrate to banks, and ineffective enforcement regimes, which reduce the rates of repayment.

6.4.3 Transport Infrastructure Provision

Roads, rail and other transport infrastructure can only be provided by government or by the private sector in collaboration with state planning. Transport is important for ASM to carry inputs to mining processes, and to carry products to market. Good transport infrastructure is particularly important for minerals or metals with low value-to-volume or value-to-weight ratios, which are consequently difficult to move. As the benefits of transport infrastructure accrue over time, transport infrastructure should be targeted to long-term operations, such as small-scale and hard rock ASM operations.

6.4.4 Water and Sanitation Provision, and Water and Sanitation Infrastructure Provision

Water can be provided by the private sector under some conditions, but in many instances water use and water-carrying infrastructure are partially or wholly controlled by the state. Water is used in ASM for some techniques of mining, sluicing and processing. Some subtypes use water more than others, and governments should use the research conducted (see Section 3) to assess which subtypes of ASM would benefit from the provision of water.
infrastructure. As the benefits of water infrastructure accrue over time, water infrastructure should be targeted to long-term operations, such as small-scale and hard rock ASM operations.

6.4.5 Electricity and Electricity Infrastructure Provision

Electricity can be provided by the private sector under some conditions, or on site. However, on-site generation is expensive because operations produce small amounts, and there are economies of scale in the efficiency of electricity production. The government should assess whether there is private sector provision of electricity, or whether there could be. It should assess whether coordination problems prevent investment in medium- or large-scale power generation that would benefit from greater economies of scale. Such a coordination problem would represent a market failure.

Provision of electricity infrastructure would be more advantageous to more mechanized ASM operations. Viable solutions may be determined by the geography of the sites; for example, some ASM operation areas have potential for small- to medium-scale hydroelectric power generation, where grid supply is not feasible. However, providing electricity may change the cost structures of ASM operations enough to encourage them to buy more equipment and become more mechanized. Similarly, as the benefits of electricity infrastructure accrue over time, electricity infrastructure should be targeted to long-term operations, such as small-scale and hard rock ASM operations.

6.4.6 Provision of or Subsidy of the Sale of Equipment

One of the largest types of investment that ASM operations make is the purchase and installation of equipment. Governments might intervene in the provision of equipment by:

- Regulating the mining equipment market to stipulate conditions of pre-sale servicing, guarantees or rules for returns in order to prevent fraud and corresponding caution in the market.
- Provide mining equipment outright that would improve ASM operations but is unaffordable for ASM operators to buy directly.
- Subsidize the purchase of mining equipment by ASM operations.

Government should consider providing or subsidizing the sale of equipment to help ASM realize its economic potential only if there are serious impediments that prevent ASM operations from buying equipment themselves. If there is a market failure because ASM operations do not know about better, affordable equipment, government should provide education or training or technical assistance to inform ASM operations about available alternatives.
7 Approaches to Improving ASM Practices

Once an ASM task force has developed its ASM industry approach it should determine how it will try to improve the practices of each subtype of ASM. There are several approaches that a government can adopt to do this, and each approach involves choosing a bundle of instruments and initiatives that come as a package. The ASM task force can choose

- A license and regulate approach,
- A promote good practices approach, or
- A Segmented Approach.

7.1 Choosing an Approach

Choosing an approach to improving ASM practices is the responsibility of the ASM task force.

7.1.1 When to Choose a License and Regulate Approach

In a license and regulate approach, a government makes a system of licensing and regulation (supported by a system of monitoring and enforcement) the centre of its strategy. In other words, it creates a licensing system, and then sanctions ASM operations that do not acquire licences. In this way, if a government adopts a license and regulate approach it commits to legalizing ASM. It then sets regulations that ASM operations must comply with and sets sanctions for those that do not, which may end in revoking licences and closing ASM operations down. In this way, if a government adopts a license and regulate approach, it commits to formalizing ASM. Government can also deploy a series of instruments and initiatives to further improve ASM practices, such as education and training or assistance, but these are designed to build on the content of regulations.

7.1.2 When to Choose a Segmented Approach

Under some conditions, an ASM task force may decide that a subtype of ASM is too hard to control, or that its capacity to monitor and enforce is too weak, and so the government cannot adopt a uniform license and regulate approach.

- In this case, an ASM task force should see whether the government can employ a segmented approach in which it finds ways to apply a license and regulate approach to some ASM operations of this subtype. It can do this by creating ASM zones, which are smaller and easier to control.
- Alternatively, it can facilitate the introduction of a supply chain initiative or introduce a state-sponsored buying scheme, and let ASM operations sell to these initiatives only if they comply with regulations.

If a government does either of these things, it adopts a segmented approach. It adopts a license and regulate approach to operations within the initiatives (the ASM zones or the supply chain initiative or buying scheme) and a promote good practices approach for the others.
7.1.3 When to Choose a Promote Good Practices Approach

Once these options have been exhausted, an ASM task force's remaining option is to adopt a promote good practices approach. This involves employing a mixture of instruments and initiatives that encourage or incentivize ASM operations to adopt Good Practices, without forcing them to do so. In essence, it is a process of improvement over time. Although not compliant with the requirements of the *OECD Due Diligence Guidance* (OECD, 2013), for example, this approach can be seen as the entry point towards improving practices to allow for future compliance. In this approach, instruments and initiatives that are complementary and secondary in a license and regulate approach become central parts of a promote good practices approach.

7.1.4 Commonalities between License and Regulate and Promote Good Practices

When a government employs a promote good practices approach, this does not mean that it does not make ASM operations abide by any laws at all. It should, for example, still enforce criminal law, but it does not dedicate resources to constructing a system of monitoring and enforcement to improve ASM practices. These choices are illustrated graphically in Figure below. (Note: This figure is the same as Figure 6 in the Part 2 Overview section.)
Figure 5. Process of Developing an ASM Management Strategy: Decision tree for developing an approach to improving ASM practices.
An ASM task force should consider the following factors to decide whether or not a government is capable of effectively and successfully administering a system of regulation:

- **Licence administration.** Can the government administer a system of licences for this subtype of ASM? As Section 7.4 discusses, regulation need not be administered via a system of mining licences, but the most conventional way is to allow only licensed entities to mine, and as an ultimate sanction, to revoke their licences. For this reason, governments must be able to issue and administer a system of licences.

- **Monitoring.** Will the government be able to effectively monitor this subtype of ASM operations?

- **Enforcement.** Will the government be able to make this subtype of ASM operations follow regulations? To answer this question, users should in turn consider:
  - **Sanctions.** Will the government be able to apply effective sanctions to this subtype of ASM operations to prevent and punish non-compliance?
  - **Shut-down.** Will the government be able to close down ASM operations with sufficiently low negative side effects, as a sanction of last resort?

- **ASM operations’ incentives.** Once the regime of licensing, monitoring and enforcement is in place, will ASM operations of this subtype have sufficient incentives to acquire licences and comply with regulations?

There are a number of factors that may affect whether a government can successfully administer a system of licensing and regulation to some subtypes of ASM. However, governments should consider the following factors, among others, which may affect the answers that they give to each of the above questions.

- The levels of priority that the government has given to this subtype of ASM, as discussed in Section 5.2 above.

- The characteristics of this subtype of ASM operations:
  - The mobility of this subtype of ASM. If ASM operations are mobile, in the way described in Section 5, then they will be difficult to license or monitor, and they will be able to evade sanctions and law enforcement.
  - The accessibility of this subtype of ASM. If ASM operations are inaccessible to state agents, in the ways described in Section 5, then the state will struggle to monitor or regulate their activity.
  - The duration of this subtype of ASM. If operations quickly form and disband, then there will be little time for the process of licensing, monitoring and enforcement to come into effect before the operations disband. While it is unusual, ASM operations can be mobile but of long duration.
  - The connections between this subtype of ASM operations and organized crime. Organized crime can create alternative authority structures and/or commercial opportunities that impede compliance with government regulations.
Distrust or antagonism between the government and this subtype of ASM operations. Poor relationships between the state and subtypes of ASM operations can impede state contact with ASM operations at every stage, but especially when contact with the state is in a regulatory or enforcement capacity.

- State properties and capabilities:
  - The presence and capability of law enforcement across geographies.
  - The presence and capability of inspection and regulatory agencies responsible for mining, environmental, labour, taxation and other relevant areas across geographies.
  - The capacity of legal bodies:
    - The capabilities of state prosecution services to prosecute ASM operations in accordance with regulations and the law.
    - The capability and impartiality of the judiciary that must rule on cases of regulatory non-compliance.
  - The presence and capability of state agencies to offer assistance to ASM operators.

Whether an ASM task force adopts a license and regulate approach, a promote good practices approach, or a Segmented Approach, it then selects instruments and initiatives to improve ASM practices. Many of these instruments will be the same regardless of the approach. The instruments that are employed as part of a promote good practices approach, such as education and training or some types of assistance to ASM, can also be employed as part of a license and regulate approach. However, the way in which those instruments and initiatives will be designed will differ.

Section 7.2 explains how a government can design a promote good practices approach and how a government lays the foundations to upgrade to a Segmented Approach or a license and regulate approach while doing so. Section 7.3 explains the process of designing a Segmented Approach, and Section 7.4 explains the process of designing a license and regulate approach. Section 8 ties together the approaches for each subtype of ASM and offers advice on how to use licence criteria and if necessary, adjust sets of incentives to prevent ASM operations.

### 7.2 Promote Good Practices Approach

A government should choose a promote good practices approach if it judges that it cannot feasibly implement a license and regulate approach or a segmented approach. A promote good practices approach involves forbidding almost no ASM practices in law, concentrating law and enforcement on a small group of the most important issues only, and directing other efforts towards making ASM operations improve their practices voluntarily. This choice is about being realistic. If a government cannot feasibly monitor and enforce a license and regulate approach, it should not try to. A promote good practices approach offers a way for
a government to start small and upgrade the role of monitoring and enforcement later as the government capacity improves.

First of all, a government should reconsider whether it could adopt a license and regulate approach after all, but with the most modest of intentions. As discussed in Section 7.4, a license and regulate approach is designed to suit the circumstances in which it is deployed. A government could decide to add only a small selection of the most important poor and then enshrine them together with unacceptable practices in light regulations, attached to licences. If a government decides to develop a promote good practices approach, it should follow the steps shown in Figure 10.

Figure 10. Process for developing a promote good practices approach
7.2.1 Legalization, Law Enforcement and Closing Down Operations

If a government decides to adopt a promote good practices approach, this does not mean that no laws should apply to ASM at all. If a government decides that it cannot make ASM operations follow laws and regulations all of the time, then it should concentrate on making them obey the few most important laws just some of the time. The government should only prohibit unacceptable practices as defined in the vision (see Section 4); these should be forbidden in law. Typical reasons for which operations should be closed down include violations of human rights (particularly children’s rights), intolerably harmful environmental impacts, or operations inside no-go zones for mining, such as national parks where ASM is prohibited. However, there are many more conceivable circumstances under which a government might wish to prohibit ASM altogether.

The government should adjust what falls within the category of unacceptable practices by evaluating whether it could feasibly force operations employing them to shut down. If it cannot, the practice in question should be moved to the poor category and not forbidden in law. The foundation that this sets for improving practices is illustrated in Figure 11.

Figure 11. Example: What is prohibited by law in a promote good practices approach?

Once it has decided what practices should be prohibited, ASM operations using those practices should be made illegal as part of the revision of the legal framework described in Section 9.2. Law enforcement services should be instructed to initiate procedures to close down such operations after encountering them. Advice about how to close down ASM operations is described in Section 10.4. By outlawing unacceptable practices, the government concentrates scarce enforcement capacity on a small selection of the most important issues.
The government should also decouple licence-holding from compliance with the law. If government agents cannot consistently revoke licences for non-compliance with the law or close down operations without licences, it is counterproductive to tie licences to compliance. In effect, all ASM operations in this subtype that do not employ unacceptable practices should be made legal, and licences should be granted for a minimal fee and with no conditions attached. There are three reasons to make a subtype of ASM legal if there is to be no system of regulation to improve practices. First, illegality is harmful to ASM operations. Illegality impedes access to credit, insurance and other services, which makes ASM operations less profitable and more vulnerable. Second, if the government creates a system of ASM licences that are not conditional upon complying with regulations, it correspondingly will increase government capacity to adopt a regulatory approach in the future. The reason is that the government will already have a system of licence administration to build upon, and a sector of registered and licensed ASM operations.

### 7.2.2 Education and Training

In a promote good practices approach, education and training should include techniques that are beneficial to ASM operations, particularly those that operators do not yet know about and/or apply incorrectly. A government should educate influential ASM stakeholders about practices that are harmful to them, and it should teach ASM operations good practices that they should employ instead.

In the absence of the powers of licensing and regulation, education and training is more important and should be given further resources. In the absence of licensing and regulation, it falls on education and training to promote safe practices instead. The effect of introducing education and training programs is illustrated in Figure 12.

![Figure 12. Example: Adding education and training in a promote good practices approach](image-url)
7.2.3 Services and Technical Assistance to ASM Operations, and Services to ASM Workers

Governments should decide whether it is worth offering further assistance to ASM operations. This would be in addition to the assistance already offered to ASM operations in the ASM industry approach described in Section 6. Governments should determine whether further assistance should be added by weighing the costs of providing this assistance against the direct improvements that such assistance will make. Such further assistance should be designed to make ASM operations adopt the most important of the Minimum Approved Standards of Practice (i.e., poor), and if possible, exceed these and adopt good practices too. A full list of the types of assistance that might be offered can be found in Section 10.5. The effect is illustrated in Figure 13.

![Diagram showing the hierarchy of practices from new practices improved by unconditional assistance to unacceptable practices.

Figure 13. Example: Adding assistance in a promote good practices approach.

7.2.3.1 Sponsoring Clean Processing Plants

Government can improve the practices of a subtype of ASM by engaging in a special type of technical assistance, namely by supporting the introduction of better processing methods that are conducted by processing plants. These will have fewer negative impacts than normal processing methods.

Private companies will set up processing plants if they can process products more cheaply than smaller plants with greater negative impacts. If they cannot do it more cheaply, a government should decide whether it is worth absorbing the costs of processing plants to mitigate negative impacts. If it decides so, then it should:
• Remove market failures or other impediments that make processing plant’ costs higher than the costs of artisanal or small-scale processing, so as to encourage private companies to set up processing plants.
• Subsidize processing plants.
• Sponsor the setup of processing plants by running them directly at cost or putting management of a processing plant up for public tender.

The government should consider the following factors:
• If the materials that would be provided for processing have a low ratio of value to weight or volume, then transportation costs will be higher.
• If ASM operations are geographically dispersed, then either the costs of transportation will be higher, or more processing plants will have to be set up in order to reduce distances and associated transport costs between ASM sites and the plant.
• If the fees that the processing plants charge are higher than the price to ASM operations of processing the materials in-house, then there will be little business for the processing plants.

By sponsoring clean processing methods successfully, a government will reduce the business of private ASM processing operations, and potentially damage the livelihoods of employees and workers in supporting industries, if these industries are safely run and profitable. This could not only have negative economic and social impacts, but could become a potential source of conflict. A government should assess the negative impacts of depriving ASM operations of business, and the potential for conflict, and if the risk of conflict is sufficiently high, should not sponsor clean processing.

For this reason, it is better to sponsor clean processing plants when an ASM sector is young or growing. This way, a government can avoid the political consequences or conflict associated with displacing existing processors by supplying processing services to new operations without taking the business of existing processors.

7.2.4 Plan to Improve Government Monitoring and Enforcement Capacity

If a government cannot employ a regulatory approach now, it should plan to improve government capacity so that in the future, it can adopt a regulatory approach. The first step in doing that is to create a system of licences that can be held without meeting regulations, as described directly above in Section 7.2.1. This creates a culture of licensing, but also allows government to create a register of ASM operations.

The second step that government should take is to improve monitoring and enforcement capacity. Where relevant, staff who conduct other ASM activities such as assistance and education and training could be used to train government staff in monitoring and enforcement, to ensure that they are fully aware of the intricacies involved in monitoring and enforcement activities in the ASM sector. Dedicated monitoring and enforcement staff or agencies can be set up to monitor and enforce regulations in the ASM sector; however, these should in turn be monitored by government internal anti-corruption agencies and internal
affairs departments, considering the high levels of corruption prevalent in government agencies involved in monitoring and enforcing regulations in the ASM sectors of many countries.

Third, once government capacity is improved, a government should revise its strategy and adopt a regulatory approach. If necessary, the government should include unacceptable practices and the most important practices in the Minimum Standards in government regulations. It should consider adding to the regulations later, as described in Section Error! Reference source not found.

Further advice on improving monitoring and enforcement capacity is discussed in Section 10.4. Government capacity building in monitoring and enforcement can also be undertaken in conjunction with development agencies and non-governmental organizations that have direct experience in these areas of work.

7.3 Segmented Approach

If a government cannot administer a uniform regulatory regime applicable to all operations of the ASM subtype in question, it may be able to regulate some of those operations. Adopting a license and regulate approach for some operations but not others is better than not adopting one for any of them. If a government adopts a license and regulate approach for some ASM operations but not others, it segments its approach. This subsection describes how a government can do that.

There are two sorts of segmented approach that a government can adopt, namely ASM zones and supply chain initiatives:

- **ASM zones** are geographical areas in which ASM has been approved and in which it operates under a separate system of administration. If the government can do this, then operations in ASM zones should be treated as a separate subtype of ASM for all purposes, limited to a defined area. A government should then design a separate license and regulate approach for operations in the zones. In this way, a government segments its approach geographically. Advice on when a government should set up ASM zones is described in Section 7.3.1 below.

- The other way to segment an approach to improving ASM good practices is to use international supply chain initiatives. A government should consider whether it can use downstream demand pressures to persuade ASM operations to join systems of regulation, either by supporting the introduction of the appropriate industry or third-party supply chain traceability initiatives, or by sponsoring a mineral or metal buying scheme itself. If it can do either, the approach for these segments of this subtype of ASM operations should follow the subsequent process for designing a license and regulate approach as set out in Section 7.4 above.

7.3.1 ASM Zones

While the government may decide that it cannot successfully administer a uniform system of regulation, monitoring and enforcement to all the operations of a particular subtype of ASM, it may be able to administer this system in geographically bounded spaces, i.e., in ASM zones. An ASM zone is an area with known or probable mineral or metal deposits that has
been allocated for ASM, with separate rules and administration. Normally, a governing authority or manager is established and made responsible for managing ASM within each zone, normally under the supervision of the Ministry of Mines. There is ordinarily a separate process for attaining licences to mining or processing, and different standards that operations in the zone must meet, particularly if a supply chain initiative is introduced to help producers within the zone market their raw materials.

Geographically concentrating the area under consideration reduces the costs of monitoring and enforcement and augments its effectiveness. Indeed, it may have similar effects on education and training and assistance to ASM. In view of that, a government should decide whether it could administer a regulatory approach to improving ASM standards as per the process laid out above.

The government should treat ASM within zones and outside zones differently. Thereby, through creating a system of ASM zones, the government creates a new subtype of ASM, differentiated from others not by scale, mineral or the like, but by geography. The government should design an approach to improving ASM practices for this subtype of ASM within zones by following the steps laid out in Section 7. By doing this, the government will create islands of regulated ASM with good practices in a system that otherwise uses other methods to improve ASM practices.

However, a government should also seriously consider whether its geological information is good enough to put zones in the right places. To create zones that work, zones should cover areas in which there are already ASM operations or there are known to be mineral or metal deposits that can be feasibly worked by ASM operations.

If a government adopts a Segmented Approach by creating ASM zones, but establishes them in the wrong places where there are no deposits, no operations will come and develop mines there. Therefore, successful implementation of a policy of segmentation by creating ASM zones depends upon the quality of a government’s geological and land-use mapping, discussed in Section 3.7. A government should only choose to create ASM zones if the supporting geological and land-use mapping are sufficiently detailed.

By setting up ASM zones, a government should ensure that working in those zones does not become so desirable that it creates illicit inward migration of ASM operations that it cannot control. To avoid this, it should balance the benefits of working inside the zones and outside the zones so that the additional benefits of working inside the zones are too small to attract inward migrations that the government cannot manage.

However, if more ASM operations wish to enter the zone and meet the regulatory standards, the government should consider expanding the zones instead to include areas where such operations can be found. In this way, a government can incrementally advance the areas in which ASM is licensed and regulated. As it does so, it should remain cognizant of how the small size of the zones makes them manageable. It should consider whether it has capacity to expand the zones. At some point, expansion of ASM zones should be replaced with a country-wide license and regulate approach instead.
7.3.2 Voluntary Regulation Supported by a State-Sponsored Buying Scheme or a Supply Chain Initiative

If a government decides that it cannot universally administer a regulatory approach for a particular subtype of ASM, it might decide that it can still introduce a voluntary system of regulation that some operations choose to participate in. A voluntary system of regulation is best suited to situations in which a government has enough monitoring capacity to check whether ASM operations are complying with regulations, but not enough enforcement capacity to make ASM operations comply with them.

A government could give ASM operations incentives to obey rules, such as the opportunity to sell their products at higher prices. A government could arrange this in one of two ways. The first option is that it could sponsor and fund a buying scheme that buys minerals and metals from ASM at above prevalent market prices and/or provides additional incentives to miners that would persuade them to sell to the scheme. Alternatively, it could introduce a supply chain initiative that buys at a higher than prevalent prices. Both of these options are explained below.

7.3.2.1 State-Sponsored Buying Scheme

A state-sponsored buying scheme would buy minerals or metals, at market (or higher) prices, from ASM operations that a government has verified meet a set of regulations using a system of monitoring.

To verify that minerals or metals come from compliant operations that are members of the voluntary scheme, the buying scheme should implement active due diligence in line with the provisions in the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (OECD, 2013) and ensure a short trading chain so as to control the costs of implementing due diligence.

Short trading chains, such as a direct sale by ASM operations to the scheme’s buying stations, will be affected by:

- Whether ASM operations are concentrated in a geographical area.
- Whether buying stations are suitably accessible.
- Whether a government can employ a system of mobile money to pay ASM operations, which reduces the security costs of running buying stations that would otherwise need to handle significant cash transactions.

The feasibility of implementing active due diligence will be affected by:

- The legal status of the supply chain participants and their operations, as well as the freedom from conflict and human rights abuses of their productive activities.
- The organizational capacity of supply chain participants to comply with provisions in the OECD Due Diligence Guidance (OECD, 2013).
- The costs of implementing the traceability, monitoring and reporting requirements in the OECD Due Diligence Guidance.
- The productive capacity of the mining area in question.
If the mineral or metal is also produced in neighbouring countries, running a system that buys at a premium will create incentives for operators in neighbouring countries to smuggle their produce in and sell it to the buying scheme. Sections 2.4 and 8.3 offer advice on how to deal with cross-border ASM activity.

If a government decides to initiate a buying scheme, the scheme may also serve to support a subtype of ASM that produces positive side effects, as described in Section A4.

7.3.2.2 Supply Chain Initiative

Under some circumstances, rather than establishing a buying system, a government can facilitate the introduction of an independent supply chain initiative. Some such supply chain initiatives build in a mark-up over the normal price, or in effect offer one because minerals or metals that do not meet the standards set in that initiative will not be able to be sold into certified responsible supply chains that pay world market prices. This is the case with conflict minerals, for example. The use of supply chain initiatives to increase the economic potential of ASM subsectors was discussed in Section 6.2. A list of supply chain initiatives is shown in Appendix A, Section A5.

The standards specified by industry initiatives may not match the standards or practices that the government wishes to improve. In this case, the government should investigate whether it can add standards onto those that ASM operations must meet in order to take part in the initiative. Adding such standards will mean that the supply chain initiative creates financial incentives for the subtype of ASM operations to comply not only with their standards, but also with others that are stipulated by government.

In either case, to help this subtype of ASM operations sell their products into supply chain initiatives, the government should:

- Identify what standards of practice the subtype of ASM operations will have to meet in order to become compliant with the scheme.
- Include those standards of practice in education and training for this subtype of ASM operations.
- Revise the Minimum Standards for this subtype of ASM operations in order to include those standards of practice.
- If necessary, give further assistance to help this subtype of ASM operations meet those standards of practice.

Those ASM operations that participate in the supply chain initiative should therefore be treated as a different subsector that should be administered using a regulatory approach, in two ways. First, the Minimum Standard should include the standards specified by the supply chain initiative. Second, this treatment should apply only to those ASM operations that volunteer to participate in this system.

In deciding whether to facilitate the introduction of a supply chain initiative to support a voluntary regulatory system, a government should first refer to the decision made in the design of the ASM industry approach regarding whether or not to set up a supply chain initiative. Guidance is offered on the economic benefits of a supply chain initiative in Section
6.2 If supporting the introduction of a supply chain initiative is justifiable because of its economic benefits alone, then the government should establish one. If using that supply chain initiative to support a voluntary regulatory system is beneficial in other ways, then it should do this also. If, in contrast, the economic benefits alone are not enough to justify introducing a supply chain initiative, then the government should re-evaluate whether a supply chain initiative is justifiable in light of the advantages that it would bring if it also supported a voluntary regulatory system.

7.4 License and Regulate Approach

A license and regulate approach makes it illegal to mine without a licence, and it requires ASM operations to comply with regulations to keep their licences. It is supported by a system of monitoring and enforcement. This means that a license and regulate approach commits a government to legalizing and formalizing ASM operations in order to improve ASM practices. It also makes licences valuable to ASM operations because government enforcement makes it costly to mine or process without them. This makes revoking licences a powerful sanction that governments can apply to ASM operations. This sanction in turn makes the licence a tool of government in a system of regulation.

Figure 14 sets out the steps in developing a license and regulate approach.
Taxation

Decide whether ASM operations should be taxed, considering the effect on licensing and regulation.

Government capacity

Plan to improve government monitoring and enforcement capacity.

Unconditional assistance

Decide how unconditional assistance can be used to supplement training and education, and licensing and regulation, to further improve ASM practices.

Conditional assistance and incentives

Offer assistance or incentives to ASM operations in exchange for compliance with regulations.

Education and training

Determine what practices ASM operations can be persuaded (or shown how) to replace or give up.

Licensing, regulation, monitoring and enforcement

Set the Minimum Standards as regulations. Make compliance with regulations a requirement for keeping licenses. Make it illegal to operate without a license.

Figure 14. The process of forming a license and regulate approach
7.4.1 Licensing, Regulation, Monitoring and Enforcement

To design the content of regulations, a government should take as a baseline the Minimum Standards developed as part of the vision (see Section 4) and prohibit practices worse than the Minimum Standards in laws and regulations. This is shown in Figure 15.

![Figure 15 Practices prohibited by law and regulation in a license and regulate approach](image)

Laws and regulations are most effective when ASM operations have incentives to comply with them. A government should then adjust these regulations by making them more lax or more stringent until they reach the point at which ASM operations gain from complying with regulations by just slightly more than they gain by not complying with them. In other words, a government should set the most stringent regulations that still give ASM operations sufficient incentives to comply with them. If this means that laws and regulations should be much looser than the Minimum Standards, then that is what a government should do. This is illustrated in Figure 16.

A government can increase operations’ incentive to comply by introducing stronger sanctions for non-compliance and by increasing monitoring and enforcement. Then, a government should select other instruments and initiatives and design them to improve ASM practices further. To develop a license and regulate approach, a government should follow the steps shown in Figure 14. Each instrument should be designed to build on the practices achieved by the last, so it is important that these steps be followed in order.
7.4.2 Education and Training

Education and training can be employed to supplement the Minimum Standards set in regulations by finding additional good practices that would benefit various ASM actors. When designing the content of an education and training program, a government should include good practices that would benefit an ASM operation itself, by improving its productivity. It should further include good practices that do not benefit ASM operations but do benefit ASM workers by increasing their health and safety or making their work easier. On top of that, a government should teach influential ASM stakeholders about practices that will harm them, and the good practices, which they should pressure ASM operations to adopt.

ASM stakeholders might include the families of miners, the communities in which they work, the traders that buy or process their materials, their suppliers, or their neighbours, to name a few. The practices might include substitutes for inferior practices that harm those stakeholders by generating pollutants, depleting resources, or otherwise adversely affecting those stakeholders, for example. The effect of education and training on determining which practices ASM operators can be persuaded to adopt is shown in Figure 17.

In addition, a government should include in education and training programs any practices that this subtype of ASM operations must employ to comply with the minimum standards that are not commonly known. A government that does not offer such training requires ASM operators to meet standards that they may not know how to meet.
7.4.3 Conditional Assistance and Incentives

A government can provide various forms of assistance to ASM that will help them to improve their practices. A full list of the types of assistance that can be offered can be found in Section 10.5. Some types of assistance can be offered to ASM operations in exchange for them applying for licences and complying with regulations, on the understanding that the assistance will be withdrawn if an operation ceases to comply with regulations. These are conditional forms of assistance. A government can make assistance conditional to increase the benefits that ASM operations gain from both acquiring licences and complying with regulations. In this way government can make providing services and assistance to ASM do twice their work. Assistance and services can improve ASM practices, and they can be used as incentives to make ASM operations improve their own practices, too.

Only some sorts of assistance can be feasibly offered to operations on condition that those operations comply with the Minimum Standards. They must be forms of assistance that a government can withdraw if an operation stops complying with standards. That excludes assistance such as passing on technical information—once knowledge has been passed on, it cannot be taken back. It also possibly excludes provision of insurance, education or healthcare to ASM workers and their dependents; governments may withdraw this, but they would be unwilling to do so because of the consequences. The assistance must be given to individuals rather than groups, which excludes assistance such as the provision of security. Consequently, permanent installations or communal access, such as the provision of roads or electricity grid access, may also not be offered on condition of compliance.

The precise forms of assistance that governments can make conditional upon compliance with laws and regulations will vary from case to case, but from the types of assistance listed in Section 10.5, it includes at least:
- Security provision
- Electricity and electricity infrastructure provision
- Water and sanitation provision, and water and sanitation infrastructure provision
- Assisted access to credit or insurance
- Provision of technical expertise
- Subsidy of inputs into the mining or processing process

7.4.3.1 Conditional Assistance, Sanctions and Incentives to License and Comply

Once the government has identified conditional forms of assistance, it should integrate the provision and withdrawal of this assistance into the schedule of sanctions for this subtype of ASM described in Section 7.4.1.

![Diagram](image)

**Figure 18. Example: Adding conditional assistance to a license and regulate approach**

Having revised the complete schedule of sanctions, the government should determine whether this subtype of ASM operations now has further incentives to both acquire licences and comply with the corresponding regulations. If it does, the government should make regulations more stringent and so include more practices. The effect of this is shown in Figure 18.

The government should then evaluate whether it should provide additional conditional services to ASM, not in order to fulfil the ASM industry approach, but to further increase the incentives that ASM operations have to comply with regulations. Security services, regular provision of technical expertise, and subsidy of inputs are all good forms of conditional assistance. When evaluating whether and how much it is worth dedicating resources to provide additional conditional assistance to ASM, a government should consider not only the
direct improvements in practices and impacts that will follow by providing assistance. It should also take into account how the additional benefits can be leveraged to further incentivize this subtype of ASM operations to comply with regulations.

7.4.4 Unconditional Assistance
Once conditional assistance has been determined, governments should decide whether it is worth offering further, unconditional assistance to ASM operations, namely any of the forms of assistance listed in Section 10.5 other than access to credit or insurance, regular provision of technical support, or subsidy of inputs. These would be offered in addition to the unconditional assistance already offered to ASM operations in the ASM industry approach described in Section 6. Unlike for conditional assistance, governments should determine whether further unconditional assistance should be added by weighing the costs of providing this assistance against the direct improvements in good practices that will be made. A full list of the types of assistance that might be offered can be found in Section 10.5. The effect of adding unconditional assistance on top of all of these other instruments is shown in Figure 19.

![Diagram](image)

**Figure 19. Example: Adding unconditional assistance to a license and regulate approach**

7.4.5 Plan to Improve Government Monitoring and Enforcement Capacity
Last, a government should plan to improve its monitoring and enforcement capacity if doing so would let it feasibly include additional good practices in the Minimum Standards. Further advice on improving monitoring and enforcement capacity is discussed in Section 10.4.

7.4.6 Taxation
A government may wish to tax ASM, just as it taxes any other sort of economic activity. However, while taxation raises revenue, it also creates disincentives for ASM operations to
obtain licences and comply with regulations. Once regulations have been made the most stringent that will be obeyed, there is a trade-off between taxation and regulation. If taxes are raised but regulations are held at the same levels, on balance ASM operations will have incentives to cease complying with regulations. If taxes are raised, regulations should be diluted to keep the costs and benefits of compliance in balance. This is depicted in Figure 20.

**Figure 20. Example: Taxing ASM and adjusting regulations in a license and regulate approach**

Therefore, a government should develop a tax proposal. Then it should calculate how much the regulations would need to be diluted to keep the costs and benefits of regulatory compliance in balance. Then it should weigh up how important taxation of ASM is, and how important the marginal change in regulations would be. Based on that, it should decide whether to tax ASM operations or not.

If a government decides to proceed with taxing ASM, it should tax ASM at the points at which it is most difficult for ASM actors to avoid taxation. Avoiding taxation does not only take the form of evading tax collectors. ASM operators can also avoid taxation by misrepresenting whatever is to be taxed, be it revenue, profit, employees or anything else. Alternatively, ASM operators can truly change whatever unit is taxed. For example, if the number of processing machines is taxed, operators can minimize the number of processing machines in the operation. If systems of accounting are well instituted, then it may be feasible to tax profit or sales. If not, a government might consider basing the tax rate on aspects of the operation that are harder for ASM to change, such as the number of mining shafts, the number of machines, or the size of the licensed area. Alternatively, taxes may be raised on license application and renewal fees. However, those fees create some of the most direct disincentives to ASM operators’ complying with regulations, so they should be avoided if at all possible.
8 Finishing the ASM Management Strategy

The previous four sections describe how to develop an ASM Management Strategy. This section offers guidance about how to complete that strategy, adjusting for final considerations, as illustrated in Figure 21.

- **Combine sub-strategies**
  
  Put the instruments and initiatives of both approaches together in each sub-strategy, and put the sub-strategies together. This constitutes the ASM Management Strategy.

- **Make sure ASM operations obtain the right types of licenses**
  
  Introduce licence criteria to prevent ASM operations from taking the wrong sorts of licences and thereby confounding strategic objectives.

- **Adjust ASM management to address cross-border ASM issues**
  
  Control borders, harmonise strategy and mitigate the environmental impacts together to deal with cross-border ASM.

- **Consult with relevant stakeholders**
  
  Present an ASM Management Strategy to stakeholders before it is finalized, to solicit feedback.

Figure 21. Finishing the ASM Management Strategy.

8.1 Combining Sub-Strategies and Approaches

The introduction to Part 2 explains that an ASM Management Strategy should be composed of sub-strategies for each subtype of ASM. Those sub-strategies in turn should be composed of an industry approach to improving ASM practices. The previous sections have offered advice to governments about how to develop all of those components. To complete
the development of an ASM Management Strategy, an ASM task force should then combine them all. It should list the instruments and initiatives that will be employed. Then it should present those lists, broken down by both sub-strategy and by type of instrument and initiative to see how the ASM Management Strategy as a whole fits together. This should be shown alongside details of the practices that will be prohibited in law and regulation or discouraged using other instruments and initiatives, for each subtype. This information together makes up the ASM Management Strategy. This Management Strategy can be translated into an implementation plan as described in Section 9.1.

### 8.2 Making Sure ASM Operations Obtain the Correct Types of Licences

Developing separate strategies for each subtype of ASM means creating different rules and different support programs for each subtype. This makes some sorts of licences more attractive to hold than others. Operations that ought to take one type of licence may try to take another instead. Government should put in place rules to prevent that.

For example, imagine that small-scale gold miners wish to work under small-scale copper mining licences, for two reasons: (1) they wish to avoid the punitive regulations associated with small-scale gold mining licences, and (2) they wish to benefit from the water provision and geological services provision that small-scale copper mining operations benefit from. Because copper and gold can sometimes be found in the same deposits, it might be easy for a gold mining operation to pretend to be a copper mining operation. Further imagine that other small-scale gold miners wish to take artisanal gold mining licences, to avoid stringent regulations and to benefit from the healthcare artisanal miners receive. Artisanal gold processors wish to work under artisanal gold mining licences, for similar reasons.

A government can prevent ASM operations from taking the wrong sorts of licences on purpose by introducing licence criteria. Licence criteria are set as part of the mining laws or regulations. Licence criteria are not the same as the contents of regulations, which are referred to in this document at the conditions for holding licences. Nor are they the same as the conceptual definitions of ASM and subtypes of ASM. Instead, licence criteria are prerequisites to attaining licences that are designed to (1) distinguish between subtypes of ASM and (2) prevent ASM operations from misclassifying themselves in ways that undermine government objectives.

Governments must distinguish between subtypes of ASM in law if they are to issue different regulations for them and treat them differently. Licence criteria are the means by which a government makes those distinctions. Examples of licence criteria include:

- The minerals or metals mined or processed
- The type or amount of equipment used
- The number of employees
- The minimum or maximum turnover, volumes of ore extracted, or inputs used
- The maximum or minimum sizes of areas that can be held under a licence
- The time period of licences
- The renewability of licences
By treating each subtype of ASM differently, a government may create incentives for an operation of one ASM subtype to miscategorize itself as another one. For example, some small-scale mining operations might wish to apply for licences for micro-scale miners in order to avoid burdensome regulations. Alternatively, micro-scale miners might wish to take small-scale mining licences in order to receive extra government assistance. This is not the same as operations upgrading or downgrading in scale, which involves an ASM operation changing in character and subtype. Instead, it concerns government intending to treat ASM operations in one way, but those operations managing to be treated in another.

Governments should evaluate what such incentives have been created by their ASM Management Strategy, and what in direction miscategorizations are likely to occur. It can then design licence criteria to prevent miscategorizations of these kinds. Licence criteria can be chosen that prevent ASM operations of a certain subtype from acquiring licences intended for another type.

If a government cannot introduce licence criteria that prevent ASM operations from taking other licence types, it can change the incentives for ASM operations to do so instead. By reducing the tightness of regulations or the benefits that some subtype of ASM receives, a government makes changing licences unattractive. However, this involves adjusting programs or regulations. Therefore, a government should only adjust incentives to change licences if it cannot use licence criteria instead and if the consequences of ASM operations taking the wrong sorts of licences are severe.

8.3 Adjusting ASM Management to Address Cross-Border ASM

Section 2.4 above discusses how a government might cooperate in ASM management if ASM activity crosses borders. That cooperation may be negotiated by a Joint Working Party, an ASM Coordination Secretariat, or a Border Area ASM Secretariat, as best befits the situation. Section 2.4 emphasizes that if possible, governments that wish to cooperate in this way should develop or revise an ASM Management Strategy at the same time. Once a government has developed its ASM Management Strategy, it should adjust it at the direction of the working party or secretariat. This may involve adopting any of the following measures.

8.3.1 Tighten Border Controls

Many cross-border ASM issues stem from the passage of ASM workers, minerals and metals produced by ASM, or ASM inputs. If it is feasible, and will significantly reduce passage of any of the above, participating states should tighten border controls to address the problem.

Border controls can be tightened in any of the following ways:

- Policing of borders and prevention of passage of goods and people other than at recognized ports and border crossings
- Thoroughness of immigration control at ports and border crossings
- Thoroughness of customs at ports and border crossings
- Investigation into illegal smuggling and migration by law enforcement agencies

Cooperating countries that are part of regional trading blocs such as the Economic Community of West African States or the Mercado Común del Sur (Southern Common
Market) can further strengthen border controls. They can issue trade regulations on ASM inputs, and on minerals and metals, as united trading blocs. Through trade regulations, trading blocs can ban or tightly control the importation of key productive inputs, such as machinery or chemicals. Equally, trading blocs can set requirements for the purchase of mining products that necessitate traceability up to the mine site. Insofar as the border can be closed, this may be sufficient to address challenges of cross-border ASM activity. In this case, no further action is needed.

8.3.2 Harmonize ASM Management

Insofar as borders cannot be effectively controlled, workers, investors, inputs to ASM and minerals and metals produced by ASM can travel illegally across borders. Section 2.4 explains why this undermines many aspects of ASM management. Cooperating states should try to harmonize some aspects of their ASM Management Strategies, where harmonize means “minimize the difference between them.”

For a government to decide how much to harmonize its ASM Management Strategy with another state’s, it should weigh up the gains in cross-border movement reduction against the costs of deviating from the ASM Management Strategy. The areas of ASM management that cooperating states might wish to harmonize are as follows:

- Export taxes on minerals and metals.
- Import taxes and controls on machinery, chemicals and other inputs.
- Definitions of criminal activities linked to ASM (such as its definitions of money laundering and organized crime groups).
- Prices offered by state-sponsored buying schemes, especially if the schemes do not require participants to adopt due diligence practices and Good Practices supply chain traceability and certification.
- Overall incentives to mine using artisanal or small-scale methods in one country rather than another. This can be affected by any number of other aspects of ASM management, including:
  - The tightness of laws and regulations related to ASM practices.
  - The effectiveness of monitoring and enforcement of ASM laws and regulations.
  - The severity of sanctions for non-compliance with laws and regulations related to ASM practices.
  - The generosity of ASM assistance programs.
  - Taxes and fees on businesses.
  - Laws and rules governing the possession and renewal of mining rights to land.

8.3.3 Joint Environmental Impact Mitigation

When pollution from ASM in a cross-border area diffuses, the source becomes difficult to determine. It might originate from any ASM site, or from ASM on one side of a border or
another. In some instances, pollution from ASM has negative environmental impacts on two or more neighbouring states. For example, if dangerous materials enter a shared water body such as a border river or lake, or a water body that feeds into water bodies in each state, the pollution affects both states. Under these circumstances, cooperating states should share the burden of mitigating the environmental impact.

8.3.4 Information Sharing

If a government chooses to convene an ASM Coordination Secretariat or a Border Area ASM Secretariat, it may make information sharing one of its functions. Information sharing might include:

- Sharing of information relevant to the ASM Management Strategy.
- Sharing of information relevant for monitoring and enforcement that is gathered and used by government line-agencies.
- Sharing of good practice about ASM management in general.

8.3.4.1 Sharing Information for ASM Management Strategy

Section 3 discusses commissioning research to inform development of an ASM Management Strategy. For ASM management to be coordinated or for a joint strategy to be developed, information about ASM in all relevant countries should be available to the ASM Coordination Secretariat and, where appropriate, to the ASM task force of participating states. To achieve this, information needs not only to be exchanged. It must also be converted into comparable forms, which makes the data mutually compatible. Only then can data from multiple sources be integrated into single data sets. To this end, participating states should harmonize complex concepts that are employed during research. Research concepts affect data collection, classification and the applicability of potential policy instruments.

8.3.4.2 Sharing Information for Monitoring and Enforcement

Information for ASM Management Strategy development should be exchanged at regular intervals to ensure that all shared information is properly consolidated. In contrast, information related to monitoring and enforcement needs to be shared quickly. Ideally, it should be exchanged immediately and automatically. The ASM Coordination Secretariat or Border Area ASM Secretariat should develop an information system that permits the rapid dissemination of information related to:

- Crisis early warning and management (particularly regarding environmental and public health issues).
- Law enforcement information
- Imports and domestic sale of monitored productive inputs, such as machinery, chemicals, combustibles and explosives.
- Mineral and metal production and export statistics, in particular from the border area.

Similarly rapid response protocols should be put in place to respond to emergencies and law enforcement issues. In the latter case, existing bilateral agreements are typically drawn between the ministries of Defence and of the Interior of cooperating states. Border agencies
should also coordinate their customs work on imports and exports of mined material and of productive inputs.

8.3.4.3 Sharing Good Practice

Experiences and best practices can be shared either through a coordination authority or through ad hoc meetings convened to that effect. Sharing can take place at:

- A general level. For example, it might concern strategy design or cooperation between national entities.
- A technical level.

8.4 Consultation with Relevant Stakeholders

After developing an ASM Management Strategy, the government should conduct another round of consultation, following the same guidelines set out in Section 2.2.
PART 3: IMPLEMENTING THE ASM MANAGEMENT STRATEGY

Overview

After developing an ASM Management Strategy, a government should go about implementing it. This makes up Phase 3 of ASM management. Part 3 of the guidance and this supplement advise governments on how to implement an ASM Management Strategy. Section 9 describes how the ASM task force can develop an implementation plan, which involves allocating roles and responsibilities, building government capacity, and setting budgets. Section 10 describes how each instrument and initiative that a government might have chosen should be implemented. Whereas Part 2 advised governments on which instruments and initiatives a government should choose, Section 10 in Part 3 describes how those instruments should be implemented. Last, Section 11 describes how a government should monitor, evaluate and improve upon the ASM Management Strategy and its implementation.
9 Preparing to Implement the ASM Management Strategy

After completing an ASM Management Strategy, a government should prepare to implement it. If a government rolls out programs without preparing to do so first, it will suffer from problems during implementation. An ASM task force should be responsible for overseeing these preparations. The actions that a government should undertake to prepare to implement an ASM Management Strategy are shown in Figure 22.

- **Develop implementation plan**
  Develop an implementation plan that converts the ASM Management Strategy into programs and activities. The plan should allocate budgets and distribute responsibilities for managing the programs between departments.

- **Revise the legal framework**
  Revise the legal framework in line with the ASM Management Strategy.

- **Establish ASM zones**
  If a government selected a Segmented Approach to manage some subtypes of ASM by forming ASM zones, set up those zones.

- **Run pilot programs**
  Pilot the instruments and initiatives that a government has decided to employ before rolling them out on a national level.

- **Conduct outreach**
  Communicate with ASM operations and ASM stakeholders about the changes in ASM management that are about to come into effect.

- **Set up database management**
  Put in place the systems to collect and reconcile data about ASM operations.

*Figure 22. The process of preparing to implement the ASM Management Strategy*
9.1 Implementation Plan

After developing an ASM Management Strategy, a government should develop an implementation plan for it. The purpose of an implementation plan is to translate an ASM Management Strategy into assigned roles within practical, coordinated activities that are delegated to departments.

The ASM task force should develop the implementation plan, and the task force should be responsible for ensuring that it is followed.

An implementation plan should make clear which departments are responsible for implementing which parts of the plan, and under what timeframe they must complete them. To specify the outputs that departments must deliver, the ASM task force should set targets related to the outputs of government action for each ASM subsector so to measure the successful administration of the ASM Management Strategy. These might include the number of operations licensed, the number of staff members trained, or the number of ASM zones set up. Lists of possible measurements of outputs are listed in Section 11, Monitoring, Evaluation and Improvement.

The ASM task force should also set goals that reflect the changes that the ASM Management Strategy was designed to make in pursuit of the vision, or outcomes. Some goals should be expressed as impacts, such as the number of jobs created in the ASM sector or the tonnes of mercury produced. Others should be expressed as the number or proportion of ASM operations that stop using unacceptable practices, the number or proportion that meet the Minimum Standards, and the proportion that employ various good practices described in the vision (see Section 4).

9.1.1 Government Capacity Building

After allocating roles and responsibilities, a government should allocate resources among departments and develop capacities to ensure that they can fulfil them. While the Ministry of Finance is normally responsible for setting budgets, the ASM task force should play a role in ensuring that budgets for managing ASM reflect the roles and responsibilities set out in the ASM Management Strategy.

Government capacity is a large and recurrent challenge in managing ASM. Often, governments manage ASM unsuccessfully because they are under-resourced, because funding is unpredictable, or because available funding is mismanaged. Ensuring that government departments have sufficient funds and that these are managed well, and ensuring that government has the capacity to work on ASM, is crucial to the government’s ability to contribute its part to managing ASM well.

Budgeting should follow a normal process of costing actions for each department, comparing these to the money available, reconciling the two through several rounds of re-costing and then adjusting the final budget.

However, if the government has developed and agreed upon partnerships with other actors, and the partnerships involve partners providing resources in any form, these should be factored into the budget at this point.
If some departments lack the capacity to perform their roles, the government should investigate whether there are any ways that capacity can be improved within existing budgets. It should see in particular if capacity can be improved in the medium or long term without enlarging the budget. After this, if a government decides that capacity is still insufficient, it should allocate extra funds to build capacity.

Wherever possible, increases in funding to strengthen capacity should be made gradually. If funding needs to be increased quickly, government should assess whether outsourcing the activity can provide it more quickly or cheaply.

If a government cannot adequately fund departments to manage ASM, a government’s partners should consider ways in which they can support ASM management. In particular, donor organizations should consider directing funding to ASM management.

In some cases governments should increase capacity, not to meet present needs as set out in the ASM Management Strategy, but to meet future needs. Sections Error! Reference source not found. and 7.2.4 set out when government should decide to increase government monitoring and enforcement capacity in the future.

9.1.2 Consultation with Relevant Stakeholders

After designing the implementation plan, the government should conduct another round of consultation, following the same guidelines set out in Section 2.2.

9.2 Revision of the Legal Framework for ASM

Laws and regulations governing ASM should be revised in accordance with the ASM Management Strategy. The stability of the legal framework for ASM is important to minimize the disruption to government agents and ASM operations, so the legal frameworks should only be revised if there is considerable need. The ministries of Mines, Lands or the Interior would normally lead such revisions, depending upon the allocation of responsibilities between them.

9.2.1 Licences

Laws and regulations should be revised so that:

- There are different classes of licences for each subtype of ASM operation defined in the ASM Management Strategy. Alternatively, there should be one type of licence, but the operation's subtype should be marked on the licence as licence criteria, as described below.

- If the government chooses a license and regulate approach, regulations for each subtype of ASM are composed of the Minimum Standards as described in Section 7.4, and holding a licence is conditional upon complying with those regulations. If the government chooses a promote good practices approach, there should be no regulations for ASM operations, as described in Section 7.2.

- The laws and regulations authorize the sanctions and associated legal procedures that are part of the system of licensing, regulation, monitoring and enforcement described in Section 10.4.
- If necessary, the legal framework should provide the government with the powers to designate and manage ASM zones, as described in Section 7.3.
- Licences:
  - Are categorized as either prospecting, mining, processing or trading, regardless of the other ways in the ASM sector is subdivided into categories.
  - Include licence criteria, as described below.
  - Are specifically designed for ASM, and are not the same as licences for LSM.
  - Offer exclusive access to mine on land.
  - Can be transferred between owners, to encourage the development of a market for mining property and investment.
  - Are for a sufficiently long duration and can be renewed, so that they encourage investment of resources and the development of small- or medium-scale mines.
  - Are for sufficiently short duration that they discourage hoarding of licensed land, or include provisions that allow government authorities to revoke licences to land that is not fully exploited or is being held for speculative purposes.
  - Are not for areas that are so small that they discourage investment of resources and the development of small- or medium-scale mines.

The government does not necessarily need to use a system of licences to administer and enforce ASM regulations. The government could apply sanctions to other legal entities that conduct mining, if they exist. Additionally, if miners are not registered as legal entities, the government can even prohibit mining at particular sites, rather than preventing legal entities from mining. However, most mining codes permit only those with licences to mine. Consequently, the most common way to administer mining regulations is to instruct law enforcement agents to stop anyone from mining without a licence, and to revoke the mining licences of legal entities that do not follow regulations as a sanction of last resort.

### 9.2.2 Licence Applications

Licence application procedures should be designed so that:
- The process is transparent.
- The process of applying for licences is administratively simple.
- The process is short.
- There are dedicated application points for all licences and permissions.
- Licence application points are close to ASM operations.
- Applications are cheap enough to encourage applications, but expensive enough to deter inappropriate applications and contribute towards cost coverage.
9.3 Establishing ASM Zones

The government should allocate general responsibilities for the creation and administration of ASM zones to a single department or body, normally the Ministry of Mines. This department should identify where to establish ASM zones by referring to geological data collected during the research described in Section 3.7 and in recognition of the mining territorial licence regime, if in place. ASM zones should be set up in order to make regulation possible in areas where it would otherwise not be possible, or in order to give priority to some subtypes of ASM for land, as described in Section 6.2.

The responsible department or body should appoint a manager or director (the zone manager) responsible for the administration of each ASM zone or a group of ASM zones. Alternatively, the relevant subnational government office of the Ministry of Mines may simply assume the responsibilities of managing an ASM zone in addition to their existing responsibilities. The zone manager should coordinate the provision of government services within the zone. The government may decide to delegate responsibility for the implementation of government policies within each zone to the respective zone manager. In this sense, the ASM zones would become separately administered areas, even though they would still pursue the government’s ASM Management Strategy.

The zone manager should take advantage of the geographic concentration of ASM operations within the zone to:

- Encourage cooperation and coordination between ASM operations within the zone.
- Increase monitoring and regulation.
- Pool the costs of education and training by holding them for operations across the zone.
- Work with relevant government departments to administer additional collective assistance that will bring geographically concentrated effects, such as providing transport, electricity and water infrastructure.

9.4 Pilot Programs

The government should conduct pilots of the major instruments and initiatives that it intends to implement. Wherever possible, pilots should be conducted in diverse locations and should be evenly spread across the areas where the government expects its proposed programs/activities to be difficult to conduct and areas where they expect them to be easy to conduct.

9.5 Outreach

Before the government goes ahead with the implementation of its major programs and activities, it should conduct an outreach program. Unlike education and training programs, outreach programs are intended to give advance warning to ASM operations of the changes that are being planned in ASM management. If the government chooses a license and regulate approach as described in Section 7.4, then it should take special care to introduce regulatory standards. Outreach should inform ASM operations of what they must do to be able to qualify for assistance and access to government programs. This should include
whether they must be formal organizations that are registered as companies, cooperatives, customary organizations or otherwise; whether they must have licences; whether they must reach a certain size; and what other criteria they must meet. The outreach program should explain the purposes of these requirements, and how they will help both ASM operations and their fellow citizens.

The responsibility for outreach should be given to the department or departments that will have the most regular contact with ASM operations, so that ASM operations have repeat contacts from the same government agents. This will often be the Ministry of Mines, but it may also be the ministries of the Environment or Labour.

**Dissemination of the Minimum Standards**

Government should design an overview of the Minimum Standards for licence-holders that is available in a readily accessible format, such as a pamphlet or guidebook. It should ensure that this guidebook is available in many commonly used languages, uses simple terms and includes clear diagrams. It could also make a hotline available. Government should pass on this pamphlet and other information at the following points of contact between government and ASM operators:

- Government outreach
- Licence applications
- Visits and inspections by regulators
- Education and training

**9.6 Data Management**

The implementation plan will set out various ways in which different government agents and departments interact with the same ASM operations. Normally, all these government agents will make and store records of those interactions. Before implementation of the ASM Management Strategy begins, a government should build information technology systems that pool those records and present them in one integrated database. Section A6 in Appendix A details some items that might be combined in that database.

This data should be made available to relevant departments to assist in their work. It should be made available for the purposes of monitoring, evaluating and improvement. Last, it should be made available to improve recurrent research and data collection on ASM.

Addition of data to the shared database should be conducted in accordance with other laws and with the government’s responsibilities to protect the privacy of its citizens. Access to the database should be controlled to that end.
10 Implementation

In Part 2 of this document, governments are advised which instruments and initiatives they should adopt as part of their ASM Management Strategy, depending on their circumstances. In this section, governments are advised how they should implement those initiatives. It offers advice on how each should be implemented in turn. A complete list of all the instruments and initiatives that a government can introduce are listed in Error! Reference source not found.

10.1 State-Sponsored Buying Schemes

The Ministry of Mines, trade or finance would normally manage a state-sponsored buying scheme, especially if it buys gold. It should be designed so that:

- It is run either directly by the government or by a state-owned company; either way, it is responsible to an independent body and tasked with maximizing sales from regulation-compliant operations, subject to a sustainability-focused cost model.

- If possible, a mobile money system is used to pay ASM operations, to reduce the logistics- and security-related costs of running buying stations.

- Buying stations are located close to ASM operations.

- An active due diligence system aligned with the provisions of the OECD Due Diligence Guidance (OECD, 2013) is introduced where required by extraterritorial legislation or the circumstantial realities in the ASM sector.

The buying scheme should be accompanied by a corresponding voluntary system of regulation. That system of voluntary regulation should have the following features:

- ASM operations should apply to be registered as compliant with the voluntary system of regulation.

- In response to registration, ASM operations should be included in a system of regulation and monitoring. The scope of monitoring should be formed following the process described in Section 10.4 below. Monitoring should involve periodic inspections, sometimes initiated without prior notification.

- After successful completion of their first inspection, ASM operations should be included in a verified list of sellers.

- ASM operations that are part of the scheme should be obliged to show their licences or offer other verifiable proof that they are members of the scheme.

10.2 Facilitate or Encourage Participation in Supply Chain Initiatives

Under some conditions, supply chain initiatives let ASM operators sell their minerals or metals at prices higher than are otherwise available locally. Ideally these are the prevalent world market adjusted prices, where external circumstances, such as, for example, conflict and a related downturn in demand, may have previously forced ASM operations to sell at discounted prices into the grey market. The responsibility for facilitating or encouraging participation in supply chain initiatives would normally fall to the Ministry of Finance, trade,
economic planning or mines. As described in Section 6.3, a government might facilitate the introduction of supply chain initiatives in order to fulfil the economic potential of some subsector of ASM.

Equally, a government might facilitate the introduction of supply chain initiatives in order to harness those high prices to improve ASM practices. Those high prices give ASM operations incentives to comply with initiative standards. A government can develop a voluntary system of regulation that builds on that supply chain initiative, as described in Section 7.3.2.

In either case, supply chain initiatives normally require ASM operations not only to comply with standards of practice, but also to meet active due diligence and supply chain traceability requirements. Those initiatives’ due diligence requirements are often based on the OECD Due Diligence Guidance (OECD, 2013) but sometimes exceed it. Both the standards of practice and the due diligence requirements are onerous and often difficult for ASM operations to comply with.

In either case, governments should consider making it easier for the subtype of ASM operations to comply with the standards set out in the supply chain initiative by:

- Amending education and training to help the subtype of ASM operations meet these standards.
- Determining whether there are any requirements such as whistleblowing or grievance mechanisms that government could legislate for, or provide models of, to make the practice of implementing those requirements simpler for ASM operations.
- Identifying whether there are any procedures or system-inherent features that the government could provide at a cheaper collective cost than individual ASM operations, such as risk assessments and monitoring.

A government can also invite a third-party-run supply chain initiative to extend its operations into the country. This might involve:

- Directly contacting a third party that administers a supply chain initiative to invite them to extend their operations to the area in question.
- Using government data obtained in research as described in Section 3 to create or inform a feasibility study that could be passed to the third party.
- Negotiating how the government could assist the third party and make expansion into the country a feasible and attractive proposition.
- Act as a facilitator between supply chain initiatives, ASM operators and downstream traders and processors to broker a deal.

If the initiative is a standard that companies adhere to, the government could attract participating companies to buy their minerals and metals from compliant firms in-country by:

- Communicating to the supply chain initiative, on behalf of the ASM subsector, that the sector is compliant with required industry standards.
• Using government data obtained from research (see Section 3) to create market research that participating companies would otherwise be unable to obtain and that will give them reasons to enter the sector.

• Making the monitoring data from active due diligence implementation available to downstream customers to build trust and provide an extra level of assurance for the purchasers of raw materials from the country.

• Integrating ASM data provision into extractive industries’ reporting initiatives, such as the Extractive Industries Transparency Initiative.

10.3 Education and Training

Education and training can be used to inform ASM operations about good practices. It can also be used to inform ASM workers or local stakeholders about good practices that they might have more interest in pursuing than ASM operators do. Education and programs would normally be managed by the Ministry of Mines or the Environment, or both.

10.3.1 Content

The best content of education and training programs for each ASM subsector depends upon the approach that a government adopts to improve ASM practices. These differences are discussed in Sections 7.4.1 and 7.2.2, but to summarize:

• Education and training should always include techniques that are beneficial to ASM operations.

• If a government employs a regulatory approach, it should teach practices that ASM operations are obliged to meet as part of the Minimum Standards.

• A government should educate influential ASM stakeholders about practices that are harmful to them and should teach ASM operations good practices that they should employ instead. If a government employs a regulatory approach to improving ASM practices, these practices can only include good practices. If it employs a non-regulatory approach, any commonly used practices that are harmful and could be improved should be included in the education and training.

• ASM education and training should contain any information needed to use equipment or other inputs that are being provided as part of government assistance that they are unaware of.

10.3.2 Location and Points of Contact

Education and training can be delivered:

• In regional education and training centres
• By mobile or roaming staff
• By on-call experts who visits sites on request
• By government agents also doing other work, such as inspecting ASM operations or providing other assistance to ASM operations
• Through online platforms
• Through mass media advertisements
• Through interactive communication technology such as web, telephone and SMS (short message service) help lines

All of these methods of delivering training rely on ASM operations seeking out training. Training is best when ASM operators want to receive it, but training should be offered even when it is not asked for, in the following circumstances:

• When education and training is for workers rather than operation managers or owners.
• When education and training is for influential ASM stakeholders, rather than ASM operations themselves.
• When ASM operations do not want the education and training, but they would want it if they knew what they would learn. For example, training should be offered when ASM operations have heard false rumours about the content of the training.

Because government inspectors will monitor whether or not ASM operations employ these practices to meet regulations as per the guidance in Section 10.4, those inspectors could be tasked with conducting education and training at the same time to extend its availability and reach.

10.3.3 Timing and Schedule

Education and training should start before changes to regulations come into effect and before some forms of assistance are offered to ASM operations. If ASM operations will be required to meet new standards, education and training should come first so that ASM operations can reasonably know how to meet those standards. If assistance includes providing new equipment or inputs to ASM operations, the government should educate ASM operators about the risks and opportunities associated with the equipment/inputs and should train ASM operators to use them well when they provide them.

Because knowledge held by both individuals and groups can deteriorate with time, education and training should be provided periodically. Information that is imparted once in a round of training should be reinforced in subsequent rounds or continuous training. In subsequent rounds, those not present in earlier rounds can learn what was originally imparted, forgotten information can be re-learned, and misconceptions that have developed can be corrected. Roaming trainers, online platforms and phone or Internet help lines can be used to maintain knowledge continuously.

10.3.4 Staff

Teachers and trainers should be selected who:

• Will be welcomed and trusted by the audiences in question.
• Where appropriate, are currently or formerly artisanal or small-scale miners.
• Speak the relevant local languages or are assisted by translators.
• Are familiar with the types of mining and processing used by their target audiences, including their advantages and disadvantages—and can explain and demonstrate good practices.

**10.4 Licensing, Regulation, Monitoring and Enforcement**

Regulation, monitoring and enforcement for each ASM subsector should proceed in accordance with the license and regulate approach or the promote good practices approach, whichever the government has chosen, as described in Section 7 of this supplement. Licensing and regulating requires the participation of several ministries with responsibilities for different parts of mining activity. It should be led by the Ministry of Mines but should include collaboration with the ministries of Labour and Environment. Those departments should decide whether the Ministry of Mines will take responsibility for inspections and supervision of ASM operations regarding issues of labour and environmental standards, or whether all three departments will pool the responsibilities associated with such inspections, or whether they will all carry out separate and overlapping inspections.

The Ministry of the Interior will have a role to play in law enforcement and judicial process. In some circumstances, and only if strictly necessary, the Ministry of Defence may have a role to play in supporting the Ministry of the Interior.

**10.4.1 Promote Good Practices Approach**

If a government adopts a promote good practices approach, there will not be a system of licensing, regulation, monitoring and enforcement. If a government decides to administer a system of licences, those licences should not be issued on condition that ASM operations comply with regulations. Therefore, even if ASM operations are licensed and legalized, they will not comply with regulations or many other rules, and therefore they will be informal.

However, the government should still set a schedule of sanctions for ASM operations that employ the unacceptable practices, with the ultimate sanction being to close operations down. The details of how this process of enforcement should work are described in Section 10.4.3 below.

**10.4.2 License and Regulate Approach**

If a government adopts a license and regulate approach for an ASM subsector, then a government employs a system of licences and regulation, supported by a system of monitoring and enforcement. A government makes ASM operations either acquire licences or stop operating, and it prosecutes ASM operations that have licences but do not comply with regulations with a series of sanctions that include the ability to revoke licences. A government should set a schedule of sanctions for ASM operations that mine without licences or conduct the unacceptable practices, which ends in closing operations down. The details of this how this process of enforcement should work are described in Section 10.4.3 below.

The government should set a second schedule of sanctions that will be applied to operations that do not comply with the Minimum Standards. Different sanctions should correspond to different breaches of the Minimum Standards, depending on their severity. The schedule should include subsequent sanctions that the government can apply if an ASM operation of
this subtype persists in not complying with the Minimum Standards, or if it resists prior sanctions. It should specify the process by which both sets of sanctions can be applied and allocate powers to apply those sanctions between government agencies and the judiciary, in accordance with the legal and judicial systems in question.

Responsibilities to ensure that ASM operations of this subtype comply with the Minimum Standards, or with parts of the Minimum Standards, should be distributed between government agencies. These should include responsibilities to inspect ASM operations of this subtype or to otherwise monitor their activities to determine whether they are complying with the Minimum Standards, and responsibilities to apply sanctions that they are empowered to use in order to improve ASM practices.

Monitoring should include periodic inspections of ASM sites. Some inspections should be spot checks that are done without prior notification. A government might consider introducing other supplementary methods to verify whether ASM operations comply with regulations, such as examining levels of pollution around sites, creating whistle-blower schemes and running investigations.

In general, monitoring and inspections should be administered by the Ministry of Mines, the Ministry of Labour or the Ministry of the Environment. The ASM task force should decide which departments should be responsible for managing an inspection’s regime and which departments should contribute resources to administering them. Some sanctions, such as fines and withdrawal of assistance to operations, should be administered by those same departments. However, in general, site closure should be the responsibility of the prosecution services, judiciary and law enforcement agencies under the Ministry of the Interior. The Ministry of Mines and the Ministry of the Environment should oversee site closure to ensure that mines are closed in accordance with good practice.

If a system of active due diligence aligned with the requirements of the OECD Due Diligence Guidance (OECD, 2013) is implemented, the monitoring aspect of due diligence implementation should be undertaken by an independent third party, such as a credible local non-governmental organizations.

10.4.3 Closing Down ASM Operations

This subsection offers guidance on how a government should manage a process of closing down ASM operations and evicting miners from the site. If a government employs a non-regulatory approach, this procedure should only be activated if ASM operations employ unacceptable practices. If a government employs a regulatory approach, this procedure should be activated if ASM operations employ unacceptable practices, if an operation is unlicensed, or if sanctions for not complying with regulations are exhausted and the operation’s license is revoked. The closing down of ASM operations should be undertaken with due regard for the standards set out in the Voluntary Principles on Security and Human Rights (Secretariat for the Voluntary Principles on Security and Human Rights, 2000).

This procedure is shown in Figure and described in detail below.

1. Notify the ASM operation in question that they are in contravention of a law.
a. In some circumstances, depending of the nature of the contravention, the law in question, or government capacity to monitor adherence, they may be given a notice to comply with the law. If so, proceed to Step 2.

b. Otherwise, instruct the operation and its staff that they must cease to operate within a time frame and in a manner decided by the government.

c. If required, appropriate and feasible, arrange to economically resettle the operation Economic resettlement is described in the accompanying textbox. Then, proceed to Step 3.

2. Inspect the site to determine whether the operation has ceased to contravene the law.

a. If it has, proceed with other sanctions or prosecution if necessary, but do not close down the operation, and end the closing down procedure. The closing down procedure is now complete.

b. If it has not ceased to contravene the law, proceed to Step 3.

3. Inspect the site to determine whether the ASM operation has closed down.

a. If it has, check that the site meets standards for site closure and post-closure in accordance with socioeconomic, environmental and safety standards set out in the ASM vision.

b. If the site has not already closed down, communicate with the site owners, management and staff to negotiate the closure of the operation and their departure from the site. Close the site so that it meets the standards listed in (a) above. The closing down procedure is now complete.

4. As a final resort in the event of the ASM operation’s non-compliance with closure, instruct law enforcement to close down the site. Law enforcement should be carried out by agents who have been trained to limit the use of force and act with respect for human rights. If ASM is connected to armed groups, and only if truly necessary, armed forces should support law enforcement agents to close down sites. Human rights issues are described in Section 4.5 above. Then, check that the site meets standards for site closure and post-closure in accordance with socioeconomic, environmental and safety standards set out in the ASM, and if not, close the site so that it does. The closing down procedure is now complete.

The Ministry of the Interior or an independent body that another selects should ensure that law enforcement agencies and security services administer sanctions and close down sites in accordance with their responsibilities to protect and respect human rights and to remedy human rights abuses. They should do so by ensuring that law enforcement and security services:

- Use force only when necessary.

- Do not use force to deny peoples’ human right to assembly.

- Provide medical services to each and every person who experiences injuries during the use of force.
• Comply with the UN Basic Principles on the Use of Force and Firearms by Law Enforcement Officials (United Nations Human Rights Office of the High Commissioner, 1990)

• Are adequately equipped, trained and supervised.

• Create a system in which to anticipate, respond to and log human rights abuses, including grievance and whistleblowing mechanisms.

• In all other respects, adhere to the Voluntary Principles on Security and Human Rights (Secretariat for the Voluntary Principles on Security and Human Rights, 2000).

Economic Resettlement

Economic resettlement is the process by which ASM workers and owners are provided with new employment or business opportunities (see figure below). The process of deciding eligibility for economic resettlement depends upon the reasons for which the operation is being resettled.

First, the government should register workers and ASM operations in question and any persons who live at the sites, to prevent others who are not eligible for resettlement or compensation from claiming it.

Economic resettlement should be preceded by a period of consultation in which ASM operators, workers and other stakeholders are informed about the proposal to economically resettle them and are given meaningful input and control over the decision to go ahead with it or not.

This should be followed by outreach in which ASM operators, workers and other stakeholders are informed that they will be resettled.

Figure 23. The resettlement process

This should be followed by the formation of an ASM Resettlement Action Plan. This plan may encompass physical (residential) relocation, economic relocation, or both. This plan should include concrete time scales. To form this plan, a government should search for and then evaluate the economic activities that the workers and residents could be resettled with. Alternative economic activities should:

• Ideally, offer work for staff and the owners in the same professions that they are being made to leave.
• Offer equal or similar levels of pay and security for reasons of fairness, to convince ASM workers to leave in the first place, and to prevent ASM operators from returning to the operations that they were moved from.
• Be close to the site of the original ASM operation.
• Be appropriate for the skills and capacities of the ASM workers.
• Be offered as a set of choices.
• Be designed in consultation with ASM workers, operations and stakeholders through a formal stakeholder forum.

Government should refer to the following sources on resettlement:
• International Finance Corporation (2012)
• International Finance Corporation (2002)
• International Finance Corporation (2006)
Does an ASM operation contravene a law or regulation for which the penalty is closure?

By the law or regulation in question, can the ASM operation correct its actions to avoid being closed down?

Inspect the ASM site. Has it corrected its actions or closed down (as appropriate)?

Inspect the ASM site. Has the operation been closed down?

**Figure 24. Procedure for closing down an ASM site**
10.5 Services and Technical Assistance to ASM Operations and Services to ASM Workers

This section briefly describes each type of assistance that the government can offer, and in some cases, offers advice on how the assistance might be effectively implemented. Assistance might be offered to fulfil the economic potential of each ASM subsector, as described in Section 6. However, above and beyond assistance for economic purposes, further assistance might be provided to improve ASM practices, or as part of a set of incentives for ASM operations to comply with regulations.

A variety of government departments might best provide these forms of assistance, including departments outside the ASM task force, and they are mentioned where relevant. However, the ASM task force is responsible for overseeing these departments’ work on ASM as a whole. Some of these services might be provided through LSM companies in LSM-government partnerships, which are discussed in Section 2.3.1. The possible forms of assistance are listed here and described in the following sections.

- Services for ASM workers
  - Healthcare, or health or life insurance for workers
  - Education for workers and workers’ children

- Services to ASM operations
  - Security provision
  - Transport infrastructure provision
  - Electricity and electricity infrastructure provision
  - Water and sanitation provision, and water and sanitation infrastructure provision
  - Assisted access to credit or insurance

- Technical assistance to ASM operations
  - Provision of geological data, geological expertise and exploration services
  - Provision of technical expertise
  - Provision of or subsidy for equipment
  - Subsidy for inputs into the mining and processing process
  - Government-sponsored demonstration operations
  - Sponsoring of clean processing plants
10.5.1 Services for ASM Workers

10.5.1.1 Healthcare or Health or Life Insurance for Workers

ASM workers are often exposed to health and safety risks. In some situations, they are also vulnerable to health problems unrelated to work. By providing healthcare or health insurance, a government can reduce the negative health and safety impacts of ASM for workers. Provision of healthcare or health or life insurance for workers should be administered by the Ministry of Health in collaboration with the Ministry of Mines, under the supervision of the ASM task force.

Access to healthcare can be administered by providing health insurance for individuals. A system of health insurance relies upon a functional system of national identification, such as a system of identification cards. It is also hard to implement if a formalized system of employment is not in place. Without a way of knowing who is really employed at an operation, there is no way to control who can gain access to healthcare and who cannot.

If these systems are not in place, insurance cannot be provided for individuals. In this case, a system of vouchers for healthcare can be provided, but a disadvantage of such vouchers is that they are exchangeable and may be traded by ASM workers for other things. Alternatively, a government can provide routine healthcare by sending trained health workers to make periodic visits to ASM sites or communities. Health visits are effective ways to prevent and treat some conditions, but they are not a way to provide access to emergency healthcare.

Subtypes of ASM operations that are particularly prone to certain health and safety risks which require workers to seek healthcare, especially emergency healthcare, will find healthcare-related assistance particularly valuable. This means that this would mitigate some of the worst impacts of ASM. Governments should be willing to make healthcare a conditional form of assistance, because this would mean providing healthcare could form part of an incentives scheme, especially if workers’ healthcare were withdrawn to sanction the actions of ASM operations.

10.5.1.2 Education to Workers and Workers’ Children

In some situations, ASM workers are not well educated, and in others, their children do not attend school. In these situations, providing subsidized or free education to them has positive social impacts. It may create new opportunities for ASM workers to change professions in the future, and it acts as a conditional incentive that can be offered to ASM operations in exchange for compliance with regulations. However, governments should consider whether they would be willing to withdraw provision of education to children from workers at ASM operations that do not comply with regulations, on ethical and human rights grounds. Offering subsidized or free education to the children of ASM workers is a direct way to mitigate the negative impacts associated with child labour and ASM.

A service such as education is less valuable to irregular ASM workers, especially seasonal workers, who will only gain intermittent access to schooling. For this reason, education and training is less effective when administered to seasonal ASM sectors.
The provision of education to ASM workers and their children should be administered by the Ministry of Education in collaboration with the Ministry of Mines, under the supervision of the ASM task force.

10.5.2 Services to ASM Operations

10.5.2.1 Security Provision

ASM operations are exposed to security risks by the potential for theft of minerals and metals and equipment, or predation by armed groups, which are connected to human rights issues. Normally, ASM operations should be able to provide their own security, but this is one additional form of conditional assistance that governments could offer to ASM operations.

If a government provides security services to ASM operations, it should ensure that it provides security while fulfilling its duties to protect and respect human rights and remedy human rights abuses, as described in Section 10.4. In addition to those measures, it should make sure that if it employs private security firms to provide security to ASM, they:

- Conduct appropriate due diligence before employing private security service providers, so as to minimize the chances that they will conduct human rights abuses. The due diligence should include:
  - Determining whether they, their employees or their subcontractors have reputations for or records of human rights abuses.
  - Whether they are appropriately trained and equipped
- Do not perform the roles and duties of law enforcement agents. Instead they should only be employed to provide preventative and protective functions.

Provision of security to ASM operations could be administered by law enforcement agencies under the Ministry of the Interior, in consultation with the Ministry of Mines. Alternatively, private security could be managed by the Ministry of Mines, but if so, it should liaise with the Ministry of the Interior to allow for communication and cooperation with law enforcement agencies, and to make sure that security providers meet other standards required by the Ministry of the Interior. In exceptional circumstances, such as when ASM is connected to armed groups, the Ministry of Defence may be asked to work with the Ministry of the Interior to provide or supplement security. Whichever ministries are chosen, they should work under the supervision of the ASM task force.

10.5.2.2 Transport Infrastructure Provision

Governments are normally the sole providers of road and transport infrastructure, and in this regard, they alone can offer this sort of assistance to ASM operations. ASM operations depend on transport infrastructure like any other business to carry inputs to site and outputs to market. Governments could target the provision and maintenance of transport infrastructure to ASM operation zones, which would be economically beneficial to them. Because transport infrastructure can seldom be withdrawn from non-regulation-compliant ASM operations, it cannot be used as an incentive.

A government should analyse ASM trade routes using data generated during Supply Chain Mapping (see Section 3.6). Sometimes, transport infrastructure provision is about the design
of the transport system. At the macro level, the government should then decide how ASM supply routes can be improved by making adjustments and improvements to transport infrastructure. This may involve making changes in ASM supply routes possible by adding roads or building bridges that change the fastest and cheapest routes for ASM goods to travel on. If a government supports making such changes, it should consult with ASM stakeholders before it does so. Changes to macro infrastructure design should be integrated into the government’s overall infrastructure planning.

At the micro level, a government should decide how it can improve the access of individual operations or clusters of operations to transport networks. Sometimes, laying a short road can significantly reduce transport costs for a single operation that otherwise has to arrange two separate journeys, one to move goods from a site to the road, and another to move the goods from the road to the destination.

In other instances, transport infrastructure is about transport infrastructure maintenance. Keeping road surfaces smooth and free of obstacles, with clear signs, working lights, and clear drains, and otherwise in line with transport infrastructure good practice, can significantly reduce journey times and transport costs.

Transport infrastructure should be provided by the Ministry of Transport in consultation with the Ministry of Mines, under the supervision of the ASM task force.

10.5.2.3 Electricity and Electricity Infrastructure Provision

Governments are sometimes the only suppliers of electricity infrastructure. Electricity is also commonly generated privately on-site at ASM operations at punitive costs. Providing electricity is economically beneficial to ASM operations. Electricity infrastructure that connects ASM operations to the main grid cannot be withdrawn from non-regulation-compliant ASM operations. Even if a government disconnects an ASM operation from the grid, the operation may reconnect itself illicitly by laying cables to a neighbour’s connection or by connecting itself directly to the distribution cables or substation. A government could remove the local distribution cables, but by doing so, it would doubtlessly disconnect other users at the same time, which would make this option undesirable in most circumstances.

Alternatively, a government could install small- or medium-sized generators near clusters of ASM operations and could give ASM operations access to the power generated. Because this power source would be separate from the main grid, it could more easily be switched off if ASM operations ceased to comply. Under these circumstances, electricity could be provided to ASM operations upon the condition that they hold licences and comply with regulations.

ASM operations are commonly based near water bodies, because some ASM techniques involve large amounts of water. Governments should assess whether there are opportunities to install small or micro hydroelectric power plants near ASM operations.

Electricity and electricity infrastructure should be provided by the Ministry of Energy, in consultation with the Ministry of Mines and under the supervision of the ASM task force.

10.5.2.4 Water and Sanitation Provision, and Water and Sanitation Infrastructure Provision

ASM operations commonly use water not only for drinking and eating, but also for mining and processing, sometimes in very large amounts. Government can help by providing water for
ASM operations. It can monitor and control how much water is consumed by ASM operations, which can help to manage water consumption. Last, it can monitor and control release of toxins into the public water system.

Water can be supplied to an ASM operation on condition that it hold a licence or comply with regulations, or both, as long as a government installs and controls a valve or gate that it can use to turn the supply of water to individual operations on and off.

Water and sanitation services and infrastructure should be provided by the Ministry of Water or, if appropriate, in collaboration with the Ministry of Mines and under the supervision of the ASM task force.

**10.5.2.5 Assisted Access to Credit or Insurance**

ASM operations commonly cannot access credit, or cannot access it at affordable rates on reasonable conditions. Credit problems are well known and well documented, but the same is true of insurance, in many circumstances. Insurance is important for risk mitigation in ASM.

Government might improve access to credit or insurance by:

- Assisting the formation or spread of credit associations and rotating credit associations that solve the information asymmetries and monitoring problems that are the basis of some credit problems.
- Assisting the formation or spread of arrangements in which a lender offers money in exchange for the right to buy minerals or metals produced in the future at a discounted rate. Alternatively, governments can promote systems by which a borrower hires equipment or land, and can convert the hire payments into the price of purchase at a later date.
- Organizing ASM operations into larger groups that are large enough to receive credit or take out insurance, as described below in Section 6.4.
- Licensing ASM operations, so that they become registered bodies that can apply for credit or insurance from formal banks and insurers more easily.
- Providing credit for lower rates or on better terms. If governments do this, they should be cognizant of the distortions in the credit market that this may create, and they must employ realistic measures to make repayment rates sufficiently high.
- Building credit repayment into monitoring and enforcement regimes, which are discussed in Section 10.4.
- Encouraging and arranging the development of mineral and metal development markets.

If a government offers credit or insurance to ASM operations, it should offer it in the right amounts. Small-scale mines, for example, might need credit in amounts ranging from tens of thousands to thousands of millions of U.S. dollars. Micro-scale miners, in contrast, might need credit in the amount of hundreds of U.S. dollars. The value of items that are insured may vary in similar ways.
Credit, in turn, should be carefully designed so it targets the right sorts of operations. Any credit program sets criteria that applicants must meet before being granted loans, normally to ensure that loans can be repaid in the future. Credit programs often include criteria such as having licences, proving past income as an indicator of future income, proving mineral deposits, and owning assets. These are the sorts of criteria that ASM operations in need cannot meet, and applying these criteria may inadvertently weed out the very operations that can benefit the most from credit. Credit program criteria should be designed to ensure that credit reaches the intended target groups of operations.

The Ministry of Mines, under the supervision of the ASM task force, normally provides credit or insurance.

10.5.3 Technical Assistance to ASM Operations

10.5.3.1 Provision of Geological Data, Geological Expertise and Exploration Services

ASM operations commonly lack geological information, whereas having it increases productivity, can improve health and safety, and reduces uncertainty, therefore encouraging investment. Therefore, this information is economically advantageous to ASM operations. The provision of geological information about the shape and size and grade of a deposit is a continual and ongoing process throughout the life and operation of any mine, large or small. It is typically delivered by specialized private service providers such as drilling companies and geologists who log the core that is obtained. It is also provided in the ASM sector by ASM prospectors who may use experience and intuition to a much larger degree than professionally trained geoscientists.

Governments could help ASM miners obtain useful geological information throughout the life cycle of an ASM mine through providing experts and equipment. This would allow high land productivity and much greater safety to be obtained through improved planning of ore deposit extraction.

Geological data, geological expertise and exploration services are normally provided by private companies. However, government may intervene in the case of market failure by:

- Providing the services directly
- Subsidizing or contracting private companies on behalf of ASM operations
- Generating broad-scale geological surveys and making them publicly available
- Training geologists
- Regulating credentials and prospectors

Work of these sorts would normally be undertaken by the Ministry of Mines, possibly in coordination with the Ministry of Land.

When providing geological data or expertise or assisting in providing exploration services, a government needs to balance the procurement of local services against the need to procure high-quality services that are not available locally, when necessary. Ideally, locals and external experts can work together so that there is some transfer of knowledge.
10.5.3.2 Provision of Technical Expertise

Gaining technical expertise cannot only improve economic outcomes, but can also improve ASM practices. The Ministry of Mines, under the supervision of the ASM task force, should normally provide technical expertise or access to technical expertise of a quality that can make ASM operations significantly more efficient and well run and allow them to exploit a greater amount of the ore body being mined.

However, the technical expertise that ASM miners require differs from that typically available to large-scale mining companies. ASM miners often need robust systems that utilize more straightforward and intuitive processes, and equipment that has a much greater degree of redundancy and locally available spare parts. ASM-specific expertise of this type remains rare and presents a challenge for the ASM sector. Educational programs that are focused specifically on ASM are needed to fill this gap and should form part of an ASM Management Strategy and part of the implementation of the initiatives mapped out in the strategy as per Section 10.3.

When providing technical data or expertise or when assisting in providing exploration services, a government needs to balance the procurement of local services against the need to procure high-quality services that are not available locally when necessary. Ideally, locals and external experts can work together so that there is some transfer of knowledge.

10.5.3.3 Provision or Subsidy of Equipment

Equipment is often unavailable or only available at high prices. Improving equipment can improve both ASM economic outcomes and ASM practices. Equipment cannot be easily withdrawn once installed, but commissioning it, maintaining it, and training operators on its operation can be effective incentives to get ASM operations to engage in improvements and comply with regulations. Equipment is normally provided or subsidized by the Ministry of Mines under the supervision of the ASM task force.

When providing or subsidizing equipment to miners, a government should consider sourcing some very high-quality equipment to start with. It should then try to procure equipment locally, using the high-quality equipment as a metric for the local providers to measure up to. In time, the government may choose to only subsidize equipment produced nationally, if feasible. It should balance this against the need to procure high-quality equipment, where necessary.

10.5.3.4 Subsidy of Inputs to Mining or Processing

ASM operations use many inputs other than equipment, such as electricity, fuel, water and chemicals. Subsidizing inputs is distorting but may be desired for reasons set out in Sections 7.3.2 and A4. If a government wishes to subsidize inputs, it should choose inputs that cannot easily be sold to others or passed on for other uses, either because they are costly to transport, because there is little demand for them for other uses, or because the passage of those goods is controlled. Inputs are normally provided or subsidized by the Ministry of Mines under the supervision of the ASM task force.

When providing or subsidizing inputs to miners, a government should try to procure those inputs locally to support the local economy. It may choose to only subsidize inputs that have
been produced nationally, if feasible. It should balance this against the need to procure high-quality inputs, where necessary.

10.5.3.5 Government-Sponsored Demonstration Operations

Under some conditions, better techniques are not employed because ASM operations do not know about their advantages to the operations, to workers, or to ASM stakeholders, or because they have not seen them first-hand and are too risk averse to experiment with their precious capital. A demonstration operation should meet good practices that are in the interests of ASM operations, ASM workers or influential ASM stakeholders to employ. It should act as living example of the benefits of employing those techniques and meeting those standards. Demonstration operations have the advantage of not only showing others how some processes work, but also training workers in how they are done on the job.

A government might finance and run a demonstration system directly; sponsor a mine by providing technical assistance, equipment or finance; or encourage others to sponsor such an operation. Demonstration operations are small projects, which potentially make them attractive to LSM operations and medium-sized donors to sponsor. A government should also consider whether it could facilitate the integration of a demonstration mine into another supply chain initiative.

10.5.3.6 Sponsoring Clean Processing Plants

A government should consider sponsoring processing plants when the negative impacts of processing techniques employed in an ASM subsector are too great. Section 7.2.3.1 of this supplement offers advice on whether or not governments should provide these services.

The Ministry of Mines, under the supervision of the ASM task force, may sponsor clean processing by removing market failures that raise the costs of operating clean processing plants, subsidizing processing plants, or running processing plants directly.

Processing plants should employ techniques that are efficient, environmentally clean and comply with other good practices.

If a government encourages for-profit companies to set up processing plants by removing market failures, it should ensure that processing plants do not become local monopolies that function inefficiently.

10.5.3.7 Government-Sponsored Processing Plants

The Ministry of Mines, under the supervision of the ASM task force, may sponsor processing plants. It should decide how many plants to commission and where to place them with ASM operations’ travel costs in mind. ASM operations will only send product to be processed at plants if the costs are reasonably low. For this reason, plants should be as close to ASM operations as possible.

A government should set the fees for processing at cost, so that the processing plant does not lose money but does not deter ASM operations from using it by charging high prices.

Process plant management is appropriate for outsourcing. If a government lacks the capacity to set up processing plants, it can put up public tender for contractors to set up and run processing plants.
11 Monitoring, Evaluation and Improvement

Monitoring the ASM Management Strategy’s implementation, evaluating its success, and improving it are components of good practice for any project. Government should monitor how successfully they manage ASM. This information should be used to evaluate government ASM management, and governments should use this evaluation to improve their ASM Management Strategy and implementation.

Monitoring and evaluation should begin with the agencies or departments that run programs that are part of the ASM Management Strategy. Those departments and agencies should collect and collate data about their performance on a rolling basis, weekly, monthly, quarterly or annually as appropriate. This compilation should include data about what actions program staff have taken, for example, how many inspections have been conducted, and data about their achievements, for example, how many ASM operations are licensed. Collection of this data should be built into program design and be routine or automatic wherever possible.

Monitoring should begin with the heads of those programs, who should use information available to them and the data that the program collects to oversee implementation of the programs in question.

A government should devise controls to measure the outputs of ASM management and the outcomes of ASM management. In other words, governments should monitor (1) what actions they take to manage ASM, such as the number of training sessions run or the proportion of operations inspected, and (2) the consequences of what they do, such as changes in annual impacts of ASM. These measurements should reflect the targets set in the implementation plan as described in Section 9.1.

Monitoring, evaluation and improvement should be led by the ASM task force, though the participating departments should collect and process most data.

- The ASM Taskforce should monitor performance of each program on a rolling basis and intervene to revise programs and make ad hoc amendments to ASM Management Strategy when programs perform badly or opportunities arise to improve them.
- Periodically, such as every year or every 3 or 5 years, each agency or department that manages such a program should compile a report for each program. This report should summarize data and evaluate performance against the targets set out in the program implementation plan. These should be submitted to the ASM Taskforce.
- The ASM task force should compile these reports into an ASM management review, which evaluates the design and performance of the ASM Management Strategy as a whole.
- Based on the findings of this review, the ASM task force should review and revise the ASM Management Strategy if necessary.

As part of ASM management evaluation and improvement, governments should undertake a new phase of consultation with relevant stakeholders. The participants of consultation should be selected as described in Section 2.2. The purpose of consultation should be to gather information about ASM management, solicit feedback, and provide an arena for ASM
stakeholders to voice opinions and to influence the implementation of the government’s ASM Management Strategy and its further evolution.

### 11.1 Measuring Outcomes

Outcomes should be related to the negative and positive impacts of ASM, as described in Section 4 (vision). Ways to measure these impacts are described in Sections 3.4 and 3.5. As described in those sections, all research should be conducted at least once every 10 years. However, to monitor the outcomes of ASM management, a government should conduct an industry survey and an impact assessment at least once every five years.

In instances where a system of active due diligence is implemented through a supply chain initiative, the supply chain initiative can also gather impact-related contextual data and make this available to the government and downstream supply chain participants to facilitate impact measurement.

### 11.2 Measuring Outputs

Wherever possible, government should make collecting output measurements a routine reporting activity so that governments receive regular updates.

Additionally, governments could survey ASM operations to determine whether they have been the recipients of government management actions or whether they have observed them. These questions could be added onto the ASM industry assessment or the impact assessment of ASM sites (see Section 4). A survey allows a government to measure the quality of services and to record service provision at the point of delivery. However, it will have the disadvantage of being prone to recall error and social desirability error in respondents’ answers.
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Appendix A—Details Regarding Some Aspects of Setting Up an ASM Management Strategy

A1. Research Resources

A1.1. Industry Survey Sampling Methodology

For more detailed information on industry survey methods, refer to *Industrial Statistics: Guideline and Methodology* (United Nations Industrial Development Organization 2010) or other existing good practice.

A sample should be generated randomly, in a way that means that each ASM operation has an equal chance of being selected for inclusion in the sample.

If prior data yields a near-complete list of ASM operations, this should be used to generate a sampling frame from which operations can be randomly selected for inclusion in the industry sample.

If not, a survey team should identify primary sampling units, and at those primary sampling units, adopt a survey-drive sampling method, similar to a survey-walk. To identify primary sampling units, the survey team will need accurate information about the areas in which ASM operations are located and how their locations are concentrated across space. This may be included in the geological and land-use mapping. The survey team should use this information to build a sampling frame and employ an equal probability selection method: they should randomly select locations within the sampling frame, weighting each location by the number of and proximity of ASM operations to it, so that each ASM operation still has an equal probability of being included within the sample. Surveyors selected and sent to these primary sampling units should drive from those points according to a pre-set procedure, such as “take first left, take second right” until they find ASM operations to visit.

If this is not possible, a representative non-random sample should be generated using the same information of known operations or the known locations of operations. If this is not possible, a sample of convenience should be created, but this is a sampling choice of last resort.

A1.2. Scoping Study Contents

A scoping study should, at a minimum, answer the following questions, but may also include additional aspects:

- Which minerals and metals are mined artisanally or on a small scale?
- Where does ASM of each mineral and metal take place? Where can each stage of the value chain be found, and what is the degree of value addition?
- In law, what permissions or licences must ASM operations acquire? What licences or permits do ASM operations typically hold in practice?
- What is the size of the ASM for each mineral and metal in terms of production, employment and equipment?
• What techniques are commonly used at each stage of the ASM value chain for each mineral and metal?

• What are the socioeconomic realities of the ASM mining operations and what are the key incentives for operators to pursue ASM?

• What are the common positive and negative impacts of ASM of each mineral and metal and at each stage of the value chain? Which are the most numerous and the most severe?

• What are the main causes of these positive and negative impacts for each mineral and metal and at each stage of the value chain?

• What are the effects of existing government policies? What are the effects of particular regulations and laws?

• What government resources are currently assigned to ASM and to what effect?

**A1.3. ASM Industry Assessment Contents**

At a minimum, the ASM Industry Assessment should record the following items at each site. Governments should amend this list based upon the scoping study.

1. The technical features of the operation:
   a. The type of operation at the site, such as mining, primary processing or secondary processing
   b. The mineral or metal worked
   c. The type of deposits worked, if any
   d. The techniques used
   e. The equipment used

2. The organizational features of the operation:
   a. The size of the land area used
   b. Organizational form of the operation, such as a cooperative, a registered company or similar
   c. The relationships between land owner, company owner, licence-holder and manager (or as appropriate)
   d. The licenses held by the operation

3. The economic structure of the operation:
   a. The costs and volumes of inputs per week, month or year, including inputs that are not paid for
   b. The number of employees, the hours worked, the wages paid and the terms of their employment
   c. The prices and volumes of subcontracted services
   d. The prices, volumes and grades of outputs
   e. Profit, revenue and turnover
   f. Credit granted
g. Insurance held  
h. Taxes and fees paid  
i. The age of the operation

A1.4. Scope of ASM Impact Assessment

Scope of Impact Assessment at ASM Sites

An Impact Assessment at a site might record:

1. Environment:
   a. Chemicals used  
   b. Methods of disposing of or storing chemical  
   c. Proximity of the nearest water sources to the site  
   d. Methods of disposing of or storing waste rock  
   e. Methods of disposing of or storing solid waste and garbage  
   f. Methods of disposing of or storing tailings  
   g. Area of forested land destroyed  
   h. Topographical changes to the site  
   i. Proximity of operation to protected or otherwise vulnerable environmental sites  
   j. Explosives used in mining  
   k. Volume and source of water used  
   l. Carbon generated by the operation  
   m. Current land uses  
   n. Population data  
   o. Biodiversity, including any endangered species and geophysical context

2. Labour standards:
   a. Recognition of and respect for labour rights:  
      i. Recognition of and respect for freedom of association and the right to organize:  
         1. Number of trade unions and workers’ associations  
         2. Proportion of workers that are members of workers’ associations  
      ii. Recognition of and respect for the right to collective wage bargaining  
   iii. Absence of compulsory labour  
   iv. Equal pay for equal work regardless of gender, sexuality, race, religion, ethnicity or class  
   v. Child labour:
1. Number of child workers, and children as a proportion of workers
2. Number of children on site
   b. Provision of work-related benefits:
      i. Sick pay
      ii. Pensions
      iii. Funeral payments
      iv. Maternity and paternity leave conditions
3. Health and safety:
   a. Traces of chemicals in workers
   b. Incidence of mine-related medication conditions in workers
   c. Accident and incident reports
   d. Number and types of potentially dangerous incidents in the last year
   e. Use of personal protective equipment
   f. Cordoned-off and signposted dangerous areas
   g. Health and safety training provided
   h. Gradients of slopes in open-pit mines
   i. A first-aid program
   j. System of routine medical checks
   k. Secure storage of explosives and shot-firing equipment
   l. Routine safety checks of equipment
   m. Provision of safe drinking water
   n. Sanitary and safe eating and drinking facilities
   o. Washing and sanitary facilities
   p. Emergency exits with emergency lighting, which are kept clear
   q. Adequate use of wet-drilling or water spray to prevent dust
   r. Risk assessment
4. Gender:
   a. Division of roles or activities at site by gender, or partial division of roles at site by gender. Draw upon the scoping study (see Section 4) to specify the relevant roles and processes that might or might not be gender segregated.
   b. Water and sanitary facilities by gender
   c. Differences in pay by gender
5. Human rights:
   a. Proximity of nearest armed group
   b. Time since last contact with armed group
6. Socioeconomic development:
   a. Workers’ demographics:
      i. Age
      ii. Gender
      iii. Religion
      iv. Nationality
      v. Ethnicity or language spoken in the home
      vi. Race
      vii. Level of education
   b. Workers’ socioeconomic situations:
      i. Role at the ASM operation
      ii. Length of time performing this role, across ASM operations
      iii. Length of tenure at ASM operation
      iv. Non-ASM sources of income
      v. Non-ASM income per week or month
      vi. Number of dependents
      vii. Main earner in household or not
      viii. Distance of ASM operation from home
      ix. Alternative measures of income or precarity:
         1. Frequency with which the worker has gone without food in the last year
         2. Frequency with which the worker has gone without water in the last year
         3. Frequency with which the worker has gone without shelter in the last year
         4. Frequency with which the worker has gone without fuel for the home in the last year
         5. Frequency with which the worker has gone without electricity in the last year
         6. Frequency with which the worker has gone without a cash income in the last year
         7. Frequency with which the worker has gone without medical treatment in the last year

**Scope of Impact Assessment around ASM Sites**

An impact assessment around an ASM site might provide data on:

1. Environment:
   a. Levels of noise pollution
b. Levels of toxins and pollutants in the air

c. Water and soil:
   i. Levels of chemicals in the water and soil
   ii. Siltation in freshwater and seawater bodies
   iii. Changes in the composition of water and soil
   iv. Water reserve depletion

d. Levels of biodiversity

e. Solid waste, tailings, and waste-rock dumps

f. Traces of chemicals in local residence

g. Incidence of mine-related medication conditions in local residence

2. Housing:
   a. Number and proportion of homes that are temporary buildings
   b. Number and proportion of homes without water and sanitation
   c. Number and proportion of homes without dirt roads or paved roads
   d. Number and proportion of homes unfit for human habitation
   e. Number and proportion of homes with high risks of fire

3. Socioeconomic:
   a. Household incomes
   b. Distribution of incomes within the household
   c. Security of income generation, measured by variation in income over the past 12 or 24 months
   d. Changes in livelihood or profession over the last 24 months
A2. Vision for Responsible ASM and the Sustainable Development of ASM—Resources

A2.1. International Labour Organization Conventions

The four fundamental principles and rights at work, as defined by the International Labour Organization (ILO), are based upon the following International Labour Organization conventions:

C087 Freedom of Association and Protection of the Right to Organise Convention, 1948
C098 Right to Organise and Collective Bargaining Convention, 1949
C029 Forced Labour Convention, 1930
C105 Abolition of Forced Labour Convention, 1957
C138 Minimum Age Convention, 1973
C182 Worst Forms of Child Labour Convention, 1999
C100 Equal Remuneration Convention, 1951
C111 Discrimination (Employment and Occupation) Convention, 1958

Further principles, laid out in the section on labour issues, are set out in the following conventions:

C001 Hours of Work (Industry) Convention, 1919
C132 Holidays with Pay Convention (Revised), 1970

A3. Methodology for Prioritizing ASM Subtypes for Government Attention and Resources

Section 5.2 stated that a government should prioritize ASM operations by first estimating how much it can improve the net impacts of each ASM subsector and then prioritizing subsectors accordingly.

A government should estimate how much it can improve the net impacts of each ASM subsector and prioritize ASM subsectors as follows:

1. Calculate the mean negative and positive impacts of each subtype of ASM operation based on research results (see Section 3), per unit of minerals and metal produced. Subdivide the impacts by each issue and by how costly or beneficial each impact is.

2. Calculate the current size of each ASM subsector by the units of mineral and metals produced.

3. Estimate the probable size that each subsector could reach within the timeframe of the ASM industry approach, such as five or ten years. To do so, use the information compiled through research as specified in Section 3. Draw upon the ASM industry survey, the geological information, and land-use information.
4. Estimate how much the negative and positive impacts of each subtype of ASM could be feasibly be mitigated and magnified respectively, if government resources were optimally distributed.

5. Use the estimate to calculate whether each subtype of ASM would have net positive or net negative impacts, after government’s efforts. This conclusion should be used to identify land to be used for ASM (see Section 6.2).

6. Putting these together, calculate the total improvement in the impacts of this subtype of ASM that government could achieve. Weight these evaluations by how costly or beneficial the government determines each type of impact to be (in its vision).

7. Prioritize each subsector in proportion to the total improvement in net impacts that government estimates it can make in each. Correspondingly, allocate government resources, including budgets earmarked for ASM interventions, as well as government officials’ time, to each of these ASM subsectors in proportion to the total improvement in net impacts that government estimates that it can generate. These are the resources that government will expend on ASM management. If a government does this, it will allocate its resources to maximize the improvement in impacts for each unit of resources spent.

A4. Externalities and Subsidies

Calculate the externalities of a subsector of ASM, as follows: As when prioritizing sectors, calculate the average negative and positive impacts of the subtype of ASM operations that are anticipated after government intervention, per unit of minerals and metal produced. This time, leave out the economic costs and benefits of ASM, which will be realized and met by the market, unless the government values some of them beyond their market value. The remaining impact (positive or negative, excluding economic costs and benefits) is the net externality of this subtype of ASM, per unit of minerals or metal produced.

Use this estimation of externalities to determine whether the ASM operations in the subsector should be subsidized to reflect their net positive impacts, or whether the sector should be discouraged to reflect the net negative impacts after government efforts to mitigate them.

Positive subsidies might be added in one of several ways:

- If the government runs a state-sponsored buying scheme, as described in Section 7.3.2, then the state may raise the price that it pays for minerals above the market rate. This is the most efficient subsidy that a state might offer, as it is directly in proportion to the output in question—the production of minerals and metals from ASM operations.

- Alternatively, the government might subsidize the sale of inputs to ASM operations. However, if it does so, it will face problems of those inputs being sold to others. To prevent this, it should select subsidies that cannot be transferred from ASM operations to others, such as physical infrastructure, or goods for which there is no
demand except among ASM operations, such as mining- and processing-specific equipment.

If, after government efforts to improve ASM practices, some ASM sectors produce negative net impacts, then those sectors should be prevented from reaching their full market potential. While the conventional way to do this would be to tax them, this may not be possible. If it is not, governments can prevent ASM operations from reaching their full potential by not solving the market failures and impediments to growth that are dealt with in the following steps in this sector. In effect, it can hope that by not intervening, existing market failures will act as the impediments to growth that the government desires.

**A5. Supply Chain Initiatives**

Table A1.1 lists several examples of prominent supply chain initiatives.


**A6. Government Database Data Fields**

If a government develops a database that is shared across relevant departments, as recommended in Section 9.6, it should include many of this non-exhaustive list of data fields:

- Operation’s mining, processing, trading or export licence number or code, as appropriate.
- Publicly available information about the geological features of the operation, as applicable.
- Operation’s physical address, contact details and location coordinates, if any.
- Relevant information detailed in the licence.
- Operation’s formal status as a company: freelance worker, cooperative or other.
- Owners or shareholders, as applicable, of the operation’s parent company.
- Operation’s register of employees.
• Operation’s company number and tax registration number, if applicable.
• Summary of tax return, if any.
• Operation’s recorded imports and imports, if any.
• Operation’s receipt of any government assistance, if any.
• Operation’s connection to the electricity grid, as applicable.
• Records of government agents’ past interactions with the operation, if any.

**A7. Monitoring, Evaluation and Improvement Indicators**

Measurements of outputs of government activity should be generated and used as part of the monitoring, evaluation and improvement process as described in Section 11. Outputs should be related to the activities that governments undertake. Below are some examples of outputs that could be measured:

1. Provide education and training programs:
   a. The number and proportion of ASM operations trained in each technique or practice.
   b. The number and proportion of ASM workers trained in each technique or practice.
   c. The estimated number and proportion of ASM operations that learn about a technique or practice.
   d. The estimated number and proportion of ASM workers who learn about a technique or practice.
   e. The total coverage or airtime of advertisements, and the estimated number and proportion of ASM workers who hear or see them.

2. Administer a system of licensing, regulation and enforcement:
   a. The number and proportion of ASM operations that apply for licences.
   b. The number and proportion of ASM operations that are licensed.
   c. The number and proportion of ASM operations that are inspected.
   d. The number and proportion of ASM operations that are found not to comply with each regulation, when inspected.
   e. The number and proportion of ASM operations to which sanctions are applied.
   f. The number and proportion of ASM operations that pass subsequent inspections.
   g. The number and proportion of ASM operations that are economically resettled.
   h. The number and proportion of ASM operations that are closed down.

3. Provide services to ASM workers and assistance to ASM operations:
a. Services to ASM workers:
   i. Healthcare, or health or life insurance for ASM workers:
      1. Number and proportion of ASM workers who receive access to healthcare, or are administered health or life insurance, broken down by key demographics.
      2. The number of people to whom healthcare is administered, broken down by key demographics.
      3. The number of people who make claims on health or life insurance as an estimated proportion of those who could.
   ii. Education to workers and workers’ children:
      1. Number and proportion of ASM workers and workers’ children who receive education as part of ASM assistance, measured by:
         a. Enrolment
         b. Attendance rate
         c. Drop-out rate
         d. Courses completed
      2. The attainment of ASM workers and workers’ children through education that is part of ASM assistance, measured by:
         a. Scores in externally administered exams
         b. Scores in internally administered exams
      3. Quality of courses or institutions in which ASM workers and workers’ children are enrolled:
         a. Standards that the courses and institutions meet
         b. Rankings of institutions in league tables.
         c. Education attainment of courses’ and institutions’ students.
         d. The added value that courses and institutions provide based upon the difference between students’ expected attainment and their actual attainment.

b. Assistance to ASM operations:
   i. Security provision:
      1. Number and proportion of ASM operations that receive on-site security services or that are in areas receiving additional security resources.
2. Number and proportion of security-related crimes at ASM sites that law enforcement or security agents intervene in.

3. Number of people arrested for committing crimes at ASM sites.

4. Number of people prosecuted for committing crimes at ASM sites.

ii. Road and transport infrastructure:

1. Number and proportion of ASM operations that are connected to roads of each type, sorted by these criteria: dirt and paved roads; single-lane, two-lane and three or more -lane roads; and local, distributor, arterial and freeway roads, or equivalent system as applicable.

2. Distance by road from ASM operations to roads of each category as defined above.

3. Distance by road from ASM operations to railway stations or stations of other forms of transportation.

4. Estimated travel time from:
   a. Mining sites to primary processing sites.
   b. Primary processing sites to secondary processing sites.
   c. Secondary processing sites to major seaports and airports.

iii. Electricity infrastructure provision:

1. Number and proportion of ASM operations that are connected to grids owned by the government.

2. Estimated number of hours of electricity that ASM operations receive per day from the grids.

3. Estimated kilowatt hours of power that ASM operations receive per day from grids.

iv. Water system provision:

1. Number and proportion of ASM operations that receive government-provided access to water supply.

2. Litres of water that ASM operations consume from government-provided water services.

3. Litres of wastewater and waste fluids that leave via government-provided water and sanitation systems.

v. Assisted access to credit or insurance:

1. Number of credit associations or rotating credit associations formed as a consequence of government encouragement.
2. Increase in the use of credit arrangements in which lenders offer money in exchange for the rights to buy future minerals or metals at discount prices, and in which borrowers hire equipment and convert rental payments into purchasing.

3. Number and proportion of ASM operations that take out credit directly from state-sponsored lenders and insurers.

4. Total amount of credit and insurance taken out from state-sponsored lenders and insurers.

5. Distribution of credit and insurance taken out from state-sponsored lenders and insurers across ASM operations.

c. Technical assistance to ASM operations:
   i. Provision of geological services:
      1. Number and proportion of ASM operations that are visited by geologists.
      2. Length of visits by geologists.
   ii. Provision of technical mining or processing expertise:
      1. Number and proportion of ASM operations that are visited by technical experts.
      2. Length of visits by technical experts.
   iii. Provision of or subsidy of ASM equipment:
      1. Number of pieces of equipment provided or bought, by type.
      2. Distribution of equipment provision across ASM operations.
      3. Conditions of delivery of equipment.
      4. Time between equipment request and delivery.
   iv. Subsidy of inputs into the mining or processing processes:
      1. Volume of inputs provided or bought, by type.
      2. Distribution of inputs across ASM operations.

4. Run ASM zones:
   a. Number of ASM operations in ASM zones.
   b. Number of ASM workers in ASM zones.
   c. Volume of operations’ outputs in ASM zones.

5. Run a mineral or metal buying scheme:
   a. Number of buying stations established.
   b. Number, proportion and distribution of ASM operations that sell to the buying scheme.
c. Volume of minerals or metals that are sold to the buying scheme.

6. Help to make an ASM subsector compliant with a supply chain initiative: none applicable.
Appendix B—Links to Additional Initiatives and Resources

The content of the guidance and this supplement has been made possible only by the existence of initiatives concerned, directly or indirectly, with ASM. This previous, thorough work on a range of subjects has made the writing of the guidance and this supplement possible.

This Appendix B introduces many additional key initiatives and resources related to ASM. In doing so, it offers the reader an overview of organizations and projects that are leaders in ASM management. Simultaneously, it directs users to key resources that they may aid them in ASM management. Space is limited, and so only a portion of all the relevant initiatives and resources on ASM are mentioned in Appendix B.

B1. Research and Policy

A series of resources broad in their view set out the role of ASM in good extractive sector governance in general. Users that are seeking to affirm the role and potential of ASM in mining or extractive industry policy in general should turn to these documents. They include the IGF’s Mining Policy Framework, the Natural Resource Governance Institute’s Natural Resource Charter and the United Nations’ Africa Mining Vision.

A set of key initiatives act as the hosts for ASM knowledge and programs. Chief among the other initiatives is Communities and Small-Scale Mining (CASM), which was supported by the World Bank. CASM worked as a knowledge centre and a networking hub. Although CASM has been discontinued, the International Institute for Environment and Development (IIED) has informally taken over some of its functions. It too is a source of further information, and prior to this new role, it ran the Mining, Minerals and Sustainable Development program, which published a global report on artisanal and small-scale mining. This report and the country-specific reports behind it, numbered reports 70 to 83, exhaustively document characteristics of ASM sectors, ASM issues and profiles of good practice. It is a go-to resource for ASM in general. In a similar vein, the Socio-Economic Impacts of Artisanal and Small-Scale Mining in Developing Countries is an edited volume that users can turn to for chapters on a long list of ASM topics from a range of experts. The Swiss Agency for Development and Cooperation’s Sustainable Artisanal Mining Project in Mongolia is the home of the International Knowledge Hub on ASM.

Users may also turn to a body of more focused policy-relevant research and toolkits. Some of best-developed materials concern the reduction or elimination of mercury use in artisanal and small-scale gold mining. The United Nations Environment Programme’s Minamata Convention on Mercury binds signatory states to a series of actions on artisanal and small-scale gold mining. Although mercury may seem to be a singular and focused issue not relevant to many sorts of ASM, Minamata Convention on Mercury Annex C concerns the development of national action plans and requires a broad-based approach to ASM.

The Global Mercury Project (2002–2007) and the initiative that succeeded it, UNEP’s Global Mercury Partnership (active since 2010 and ongoing at the time of writing) has developed a series of resources for policy makers and interested parties, which are available on the Global Mercury Project website. Among the resources available are one technical guide about mining and processing techniques that minimize or eliminate mercury use, another
technical guide about retorts in particular, and another technical guide about health issues related to mercury and ASM. Canadian International Resources and Development Institute is the home of further resources on ASM and mercury use in artisanal and small-scale gold mining. Among the resources available is Small Gold Mining Can Be Beautiful, which offers a holistic account of issues associated with mercury and ASM and possible solutions to them. The journal article “Review of Barriers to Reduce Mercury Use in Artisanal Gold Mining” emphasizes the importance of conducting training before and in tandem with government programs.

The UNEP Global Mercury Partnership’s resources also include a draft guidance document to help governments that are signatories to the Minamata Convention on Mercury (UNEP, 2013) to develop a national action plan to reduce and eliminate mercury use in ASM. This work is complemented by other contributions about ASM formalization. The Alliance for Responsible Mining developed a draft Legalization Guide for Artisanal and Small-Scale Mining. UNEP’s Analysis of Formalization Approaches in the Artisanal and Small-Scale Gold Mining Sector Based on Experiences in Ecuador, Mongolia, Peru, Tanzania and Uganda documents five governments’ efforts to formalize ASM. The Swiss Agency for Development and Cooperation has produced a research report on a similar topic entitled Artisanal and Small-Scale Gold Mining in Latin America and Asia (Mongolia). IIED has produced research about a similar subject in Colombia.

For resources about policy instruments and ASM more broadly, users should refer to United Nations Economic Commission for Africa’s Compendium on Best Practices in Small-Scale Mining in Africa. For research about ASM livelihoods, users should turn to research commissioned by the United Kingdom’s Department for International Development. For research and policy recommendations about buying programs, users should see RCS Global’s report entitled State Gold-Buying Programmes.

A spate of new publications concern workers’ rights and ASM. Human Rights Watch has produced a series of reports about child labour in ASM. IIED has published Artisanal and Small-Scale Mining: Protecting those “doing the dirty work.” The Alliance for Responsible Mining produced a toolkit called Addressing Forced Labor in Artisanal and Small-Scale Mining (ASM). The ILO deserves credit for a series of contributions: among its early work are the book Social and Labour Issues in Small-Scale Mines and the handbook Safety & Health in Small-Scale Surface Mines, and through the International Programme on the Elimination of Child Labour, it has launched the Minors Out of Mining partnership dedicated to child labour in ASM. The World Bank published a Rapid Assessment Toolkit regarding gender and ASM, which is the most detailed resource on gender and ASM of its kind. Last, the World Wildlife Fund supported a program entitled ASM-PACE, which concerns ASM in ecologically sensitive and protected areas. It includes research reports on four countries and a discussion on related policy.

**B2. Practitioners**

Beyond the resources and publications mentioned above, a number of international organizations and national development agencies have also been involved in the ASM sector for a long time and across the globe. Among the international organizations working on ASM are the World Bank, the United Nations Environment Programme (Secretariat of the

Among the donor organizations that work on ASM are the British Department for International Development, the German Society for International Cooperation, the Swiss Agency for Development and Cooperation (and its Sustainable Artisanal Mining project), The Swiss Economic Cooperation Organisation (SECO) and its Better Gold Initiative, Global Affairs Canada (bilateral development projects), the U.S. Department of State, the United States Agency for International Development and others. Recent entrants to the ASM sector are the United Nations Development Programme and the European Commission, which together have initiated a program that focuses on low-value minerals in African, Caribbean and Pacific countries.

B3. ASM and Large-Scale Mining Companies

Several resources are available to inform interactions between LSM companies and ASM. The World Bank’s Mining Together offers guidance about engagement between LSM companies and ASM operations. Working Together provides further guidance on that subject and offers a detailed list of tools that LSM companies can use in engagement with ASM operations. ILED hosts a number of further resources that users may refer to concerning cooperation between ASM operations and LSM companies. The U.S. Department of State (and the United States Agency for International Development) has launched a public-private partnership to bring the large-scale mining companies and other private sector stakeholders together with other agencies to try to stimulate lasting business developments that can contribute to the improvement of the ASM sector.

B4. Due Diligence and Supply Chain Initiatives

As the guidance and this supplement describe, due diligence initiatives play an important role in setting industry standards and shaping ASM policy, and this role is increasing. The leading standard of supply chain due diligence that is most relevant to ASM is the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas and its metal-specific supplements. This OECD Due Diligence Guidance sets out standards of supply chain traceability, due diligence and risk assessment. Equally, the Organisation for Economic Co-operation and Development (OECD) makes available further resources that offer advice and explanation about how to implement those standards in practice.

Several initiatives set out due diligence practices that meet the standards established by the OECD Due Diligence Guidance (OECD, 2013). These include the Fairmined Standard, the Conflict-Free Sourcing Initiative, ITSCI, the Responsible Jewellery Council Code of Practices and Chain-of-Custody Standard, the Better Sourcing Program and the World Gold Council’s Conflict-Free Gold Standard. Two further initiatives that seek to put some of those standards into practice in the gold sector are the SECO’s Better Gold Initiative, and Amichoco’s Oro Verde. ILED has produced resources about the scale-up of certification.
initiatives. Last, the Kimberley Process certification scheme and associated initiatives seek to ensure the exclusion of conflict from diamond supply chains, using a customs-based assurance mechanism.

B5. Mining Sector Initiatives

ASM is a part of mining in general, and so general initiatives about mining are also relevant to ASM management in particular. Chief among these is the Extractive Industry Transparency Initiative. Although most of their work to date has concerned large-scale mining and hydrocarbons, transparency and ASM will become increasingly relevant in the future. The Voluntary Principles on Security and Human Rights were designed for extractive sector companies, primarily large-scale companies. However, the principles that they espouse are relevant for governments in ASM management and are referred to several times in the guidance and this supplement. Finally, the International Council on Mining and Metals, in addition to co-producing Working Together have engaged ASM through workshops on ASM in Ghana, and through their mercury risk management position statement.