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Guidance for Governments on Managing Artisanal and Small-scale Mining

Submitted to:
The Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development

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List of acronyms

ASM	Artisanal and small-scale mining
ASGM	Artisanal and small-scale gold mining
IGF	Intergovernmental Forum for Mining, Minerals, Metals and Sustainable Development
LSM	Large-scale mining
PPE	Personal protective equipment
SMS	Short message service
UNICEF	United Nations Children's Fund

This Guidance has been commissioned by the IGF under its signature Mining Policy Framework. The objectives of IGF are to improve and promote the contribution of the mining, minerals and metals sector to sustainable development and poverty reduction.

The Members of the IGF developed the comprehensive Mining Policy Framework (MPF) in 2010. The MPF is a compendium that Forum 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; socio-economic 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. This detailed Guidance for Governments on Managing ASM builds 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The advice in this draft Guidance is based on research and publications on ASM management good practice available at the time of writing, and has been reviewed by representatives of IGF member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. The eventual final Guidance will be approved by the IGF Executive Committee, and subsequently by the IGF membership. 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.

1 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 adverse effects on a range of issues, including the environment, human rights, labor standards, occupational health and safety and gender. 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 regulation or effectively participate in assistance programs. Equally, they can elude state agents, or ignore laws and regulations that they do not wish to follow.

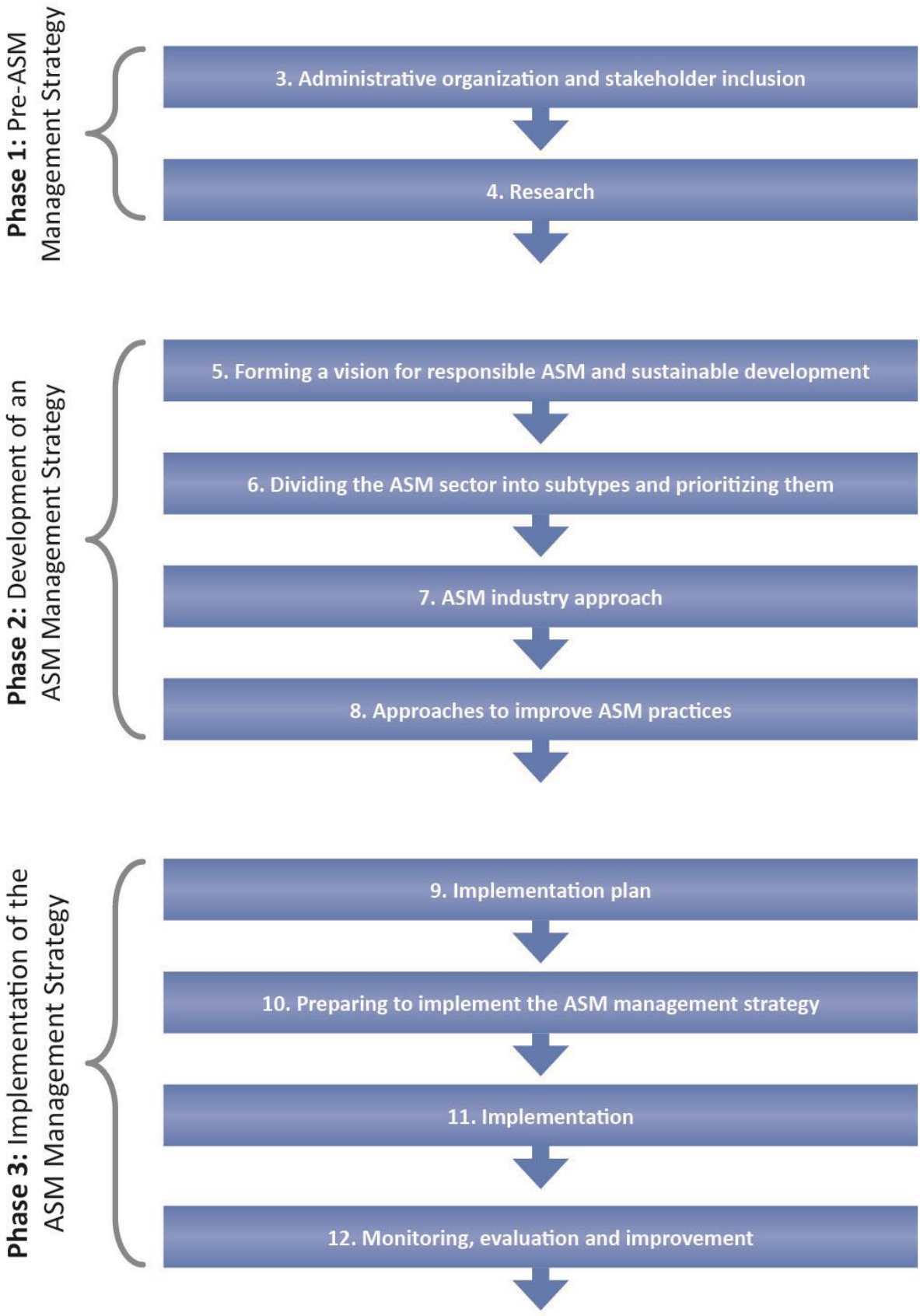
This document provides practical Guidance for Governments to manage ASM more effectively. It is split into three phases and users should refer to the phase of most relevance to them:

Phase 1 outlines the steps that a government should take *before* it begins to develop an ASM Management Strategy. It advises 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.

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

Phase 3 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.

The Guidance can also be used as an integrated process. A user can follow each phase in sequence from beginning to end. The details of this process are shown below.


Phase 1: Pre-ASM Management Strategy
3. Administrative organization and stakeholder inclusion
4. Research
Phase 2: Development of an ASM Management Strategy
5. Forming a vision for responsible ASM and sustainable development
6. Dividing the ASM sector into subtypes and prioritizing them
7. ASM industry approach
8. Approaches to improve ASM practices
Phase 3: Implementation of the ASM Management Strategy
9. Implementation plan
10. Preparing to implement the ASM management strategy
11. Implementation
12. Monitoring, evaluation and improvement

1.1 Phase 1: Pre-ASM management strategy

The first step a government should do to manage ASM is put together a Government ASM Taskforce 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; and
- Supervising the implementation of said strategy.

A government should also convene a forum of ASM stakeholders 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 – assesses the Government's capacity to manage ASM.
3. Industry Assessment - gathers information about the techniques that ASM operations use and the economic characteristics of ASM.
4. Impact Assessment of ASM – 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, it should at a minimum gather information about the characteristics of the

industry, the impacts it has and a review of its own capacity and resources in relevant departments and organs. Research should be repeated periodically to ensure that information remains up to date.

1.2 Phase 2: Development of an ASM management strategy

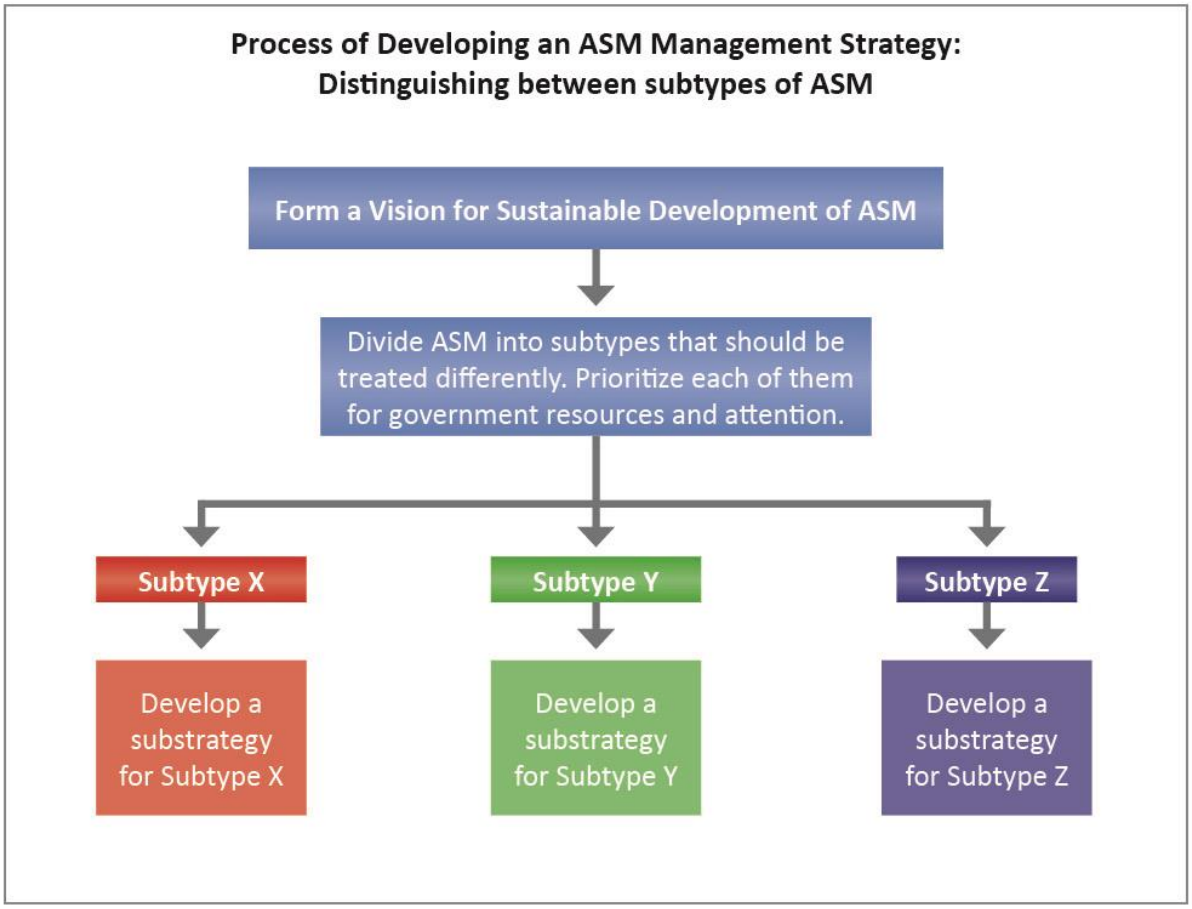
The first part of developing an ASM Management Strategy is forming a Vision for the Sustainable Development of ASM. A Vision states the characteristics of the ASM sector that a government wishes to see in the future, but it is also a way to express the priorities, standards and goals that will guide its actions now. A Vision should include:

- Socio-economic impact mitigation and benefit maximization of ASM;
- Environmental impact mitigation;
- Protection, respect for and remedy for violations of human rights;
- Labor rights;
- Health and safety; and
- Improving gender standards.

It should try to explain which of these positive and negative impacts are the most important for the government and why. This should include deciding what practices have such negative impacts that the government should try to eliminate them at all costs. These will be known as Unacceptable Practices. It should then decide what practices and techniques it intends for ASM operations to achieve. This will be known as the Minimum Approved Standards of Practice, or the Minimum Standards. It should also include Better Practices that ASM operations can adopt beyond the Minimum Standards. Lastly, a Vision should express goals for the ASM sector for various times in the future.

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 its Strategy caters to these subtypes. *This is a strategic exercise*. There is no end of ways in which ASM can be split up into smaller categories. For its strategy, a government must decide whether there are some subtypes of ASM that need to be treated differently from others. For example, it might decide that shaft-mining operations have greater economic potential than others and so technical assistance should be targeted to them. It might discover that its artisanal miners are poor and 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. Alternatively, it might decide that alluvial mining needs a different licensing system to hard-

rock mining, or that mining of some particular mineral or metal has negative impacts that need special attention. For each subtype of ASM that a government divides 'ASM' into, it should develop a separate sub-strategy. This process is shown below.



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 key steps for an ASM Industry Approach include:

1. Decide 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 should be earmarked 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, land licensed to others for mining and for a range of other purposes.

2. The Government should consider whether it could 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 bought as part of supply chain initiatives can be bought at better prices, under two circumstances: firstly, if there is an official premium, as with Fairmined Gold; secondly, if there is strong demand and/or low supply for a mineral or metal that meets the conditions specified by that supply chain initiative. A government should consider whether any supply chain initiatives' goals are compatible with its own, and whether it could facilitate the introduction of a supply chain initiative.
3. The Government should consider whether there are market failures in the ASM sector that it can fix by assisting ASM operations. This assistance might include providing geological data to ASM operators that it 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, 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 improve ASM standards. Put together, this portfolio of instruments and initiatives will form an ASM Management sub-Strategy, as shown below.

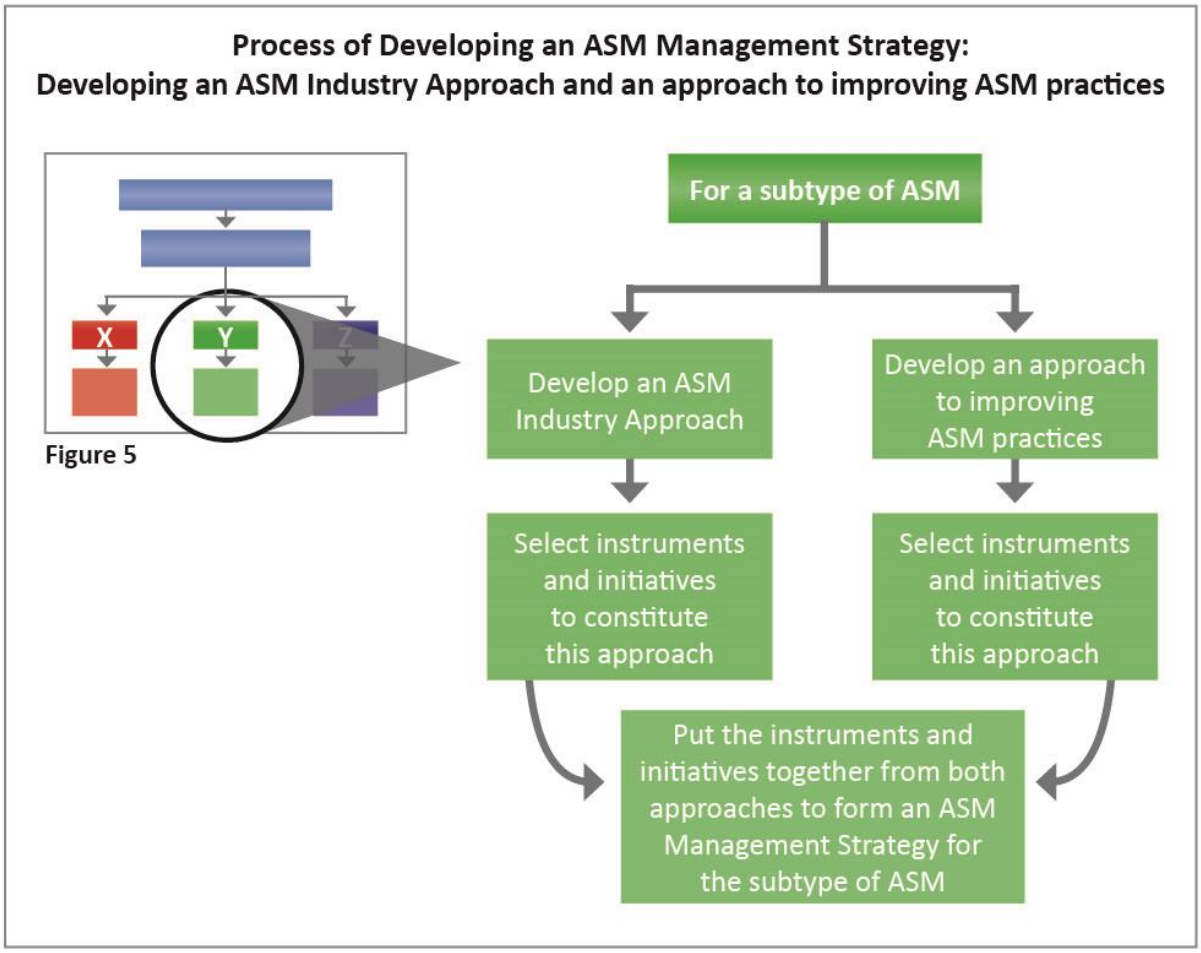


Figure 5

When developing an approach to improving ASM practices, *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 this Guidance calls a License and Regulate Approach. A government should make it illegal to mine without licenses, and create a system of sanctions for those that do mine without them. It should integrate the Minimum Standards developed in the Vision for Responsible ASM and Sustainable Development of ASM into regulations. It should then create a further system of sanctions for those that violate those regulations, including revoking operating licenses. This system should be supported through monitoring and enforcement. In this way, a government creates a reality in which it legalizes ASM, formalizes ASM and makes ASM operations meet required Minimum Standards. However, the Minimum Standards should be adjusted to take into account their costs and benefits if ASM operators acquire licenses and comply with regulations, and the costs and benefits if they do not. A government should design this system of licensing and regulation so that a majority of ASM operations have incentives to comply.

A government can add to this system with other instruments and initiatives. To get the most out of these extra efforts, a government should not focus on redoubling efforts to make ASM operations employ the Minimum Standards. It should rely on its regulation and enforcement system to realize those. Instead, it should focus its further efforts on how it can make ASM operations employ even better practices than those laid out in regulations.

In a License and Regulate Approach, education and training should focus on four things:

1. It should tell ASM operations about techniques from the identified Better Practices that benefit operators.
2. It should train ASM workers how to employ techniques that benefit them, such as occupational health and safety standards.
3. ASM stakeholders such as communities near mines should be educated about techniques that benefit them and pressure ASM operations to apply those techniques.
4. ASM operations should be taught about how to use new equipment and inputs that are provided as part of government assistance to ASM.

After designing education and training programs, a government can then decide what further improvements in ASM practices can be made by providing services to ASM operations, like those discussed as part of the Industry Approach. It can also offer 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 not only to improve ASM operations directly, but used as leverage. A government can offer these services and assistance upon the condition that ASM operations acquire licenses and comply with regulations. A range of options is laid out in detail in the Guidance.

If a government decides that for whatever reason it cannot feasibly administer a system of licensing and regulation it should pursue a Segmented Approach instead of a License and Regulate Approach. Trying but failing to make ASM operations acquire licenses and comply with regulations may result in clashes between law enforcement and ASM. It erodes trust between ASM operations and government, and wastes resources. Instead a Segmented Approach leaves scope to adopt different approaches for different types of ASM. A government can apply a segmented approach in 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 licenses and comply with regulations. In effect, this is a way of offering financial 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 financial incentive.

If a government cannot adopt a License and Regulate Approach, and has adopted a Segmented Approach, its remaining option to mange the remaining unmanaged ASM types is to adopt a 'Promote Good Practices Approach'. This approach involves using tools to encourage ASM operations to adopt Minimum Standards or even Better Practices, but without forcing them to. In this approach, education and training plays a significant role. A government should teach ASM operators any practices that are in their 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 get ASM operations to adopt some of the Minimum Standards that ASM otherwise cannot be persuaded to adopt. Sometimes this can be done by giving ASM operations the superior equipment that they would not buy themselves, or by setting up, for a fee, clean processing plants that do the dirtiest parts of processing but using cleaner techniques.

If licenses cannot be used as part of a system of regulation, it does not follow that there should be no licenses at all. While licenses are useful tools as part of enforcement, they are also useful to ASM operations. Licenses make ASM operations legal, reduce their risks, help them to access credit and insurance, and help government to collect information about ASM operations. If a government adopts a Promote Good Practices Approach, it should make it easy for ASM operations to acquire licenses and make holding licenses 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 governments' capacity to administer the system effectively improves. Lastly, a government should improve capacity to monitor and enforce so that in the future, it can introduce a License and Regulate Approach. This process of choosing a License and Regulate Approach, a Segmented Approach or a Promote Good Practices Approach is shown below.

Process of Developing an ASM Management Strategy:

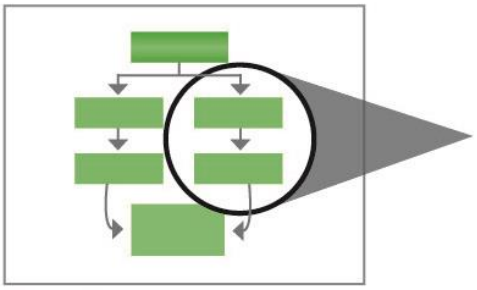


Figure 6

Can a government successfully administer a system of licensing and regulation to ASM?

Yes

No

Can the government successfully set up ASM zones in which a system of licensing and regulation could be administered?

Yes

Set up ASM zones and administer a license and regulate approach to item. Adopt a Promote Good Practices Approach to remaining operations

No

Can the government successfully run a voluntary licensing and regulation system supported by a buying scheme or a supply chain initiative?

Yes

Set up a system of licensing and regulation only applicable to ASM operations that volunteer to comply with regulations, by granting access to a buying scheme or entry to a supply chain initiative.

No

Develop a License and Regulate Approach

Select instruments and initiatives to constitute the approach

Develop a Good Practices Approach

Select instruments and initiatives to constitute the approach

1.3 Phase 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 government must ensure that its departments have the capacity to implement the plan. The plan should build upon the Vision for Responsible ASM and Sustainable Development of ASM by setting not just further outcome targets, but output targets too.

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 however possible. 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 help finance and support ASM management. Large-Scale Mining (LSM) can play a role as well. Government-LSM Partnerships can be formed to address shared interests of both parties related to ASM, as part of which LSM companies might fund or directly support some government programs.

A government should then prepare to implement its ASM Management Strategy. 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 only make these changes, if they are necessary to help with the implementation of the Strategy. In a next step, a government should run trials of its programs and associated implementation procedures to test their effectiveness. Lastly, 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 began before the legal code is changed, for example, then they would not be supported by the intended forthcoming changes to laws and regulations. If monitoring and enforcement began 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.

In ASM implementation, education and training should begin before other programs do, so 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 main body of the Guidance. Further details and tips about how to implement each instrument and initiative effectively can be found in the main body of the Guidance. Lastly, a government should monitor its ASM management, evaluate it and seek to improve it.

2 Introduction

ASM is a significant part of the global minerals and metals sector, encompassing trade upstream from mining and downstream to secondary processing. In 2002 it was estimated that the ASM sector employed 13 million around the world.[1] In 2014, it was estimated that the artisanal and small-scale gold mining (ASGM) sector alone employed 16 million people.[2] In some countries, ASM produces greater volumes of minerals and metals than large-scale mining (LSM).

While ASM exists all over the world, it is concentrated in developing countries, where its economic potential is most valuable. ASM is typically labor-intensive, capital-light and conducted by local rather than international entrepreneurs. Consequently, ASM can increase employment, reduce poverty, increase domestic capital accumulation and generate foreign exchange. ASM can become a light industry that contributes to economic development.

However, ASM can also have negative impacts. ASM techniques can lead to environmental degradation and create health and safety risks, for example. Employment practices can infringe upon labor rights, treat women and young people unequally, and create socio-economic issues. Meanwhile, security arrangements, connections to organized crime and conflicts over land and resources can lead to infringements of human rights, and children's rights in particular. There are many more examples.

To realize the economic potential of ASM while minimizing its negative impacts, governments must manage ASM well. However, to manage ASM well, they must confront many challenges. Some of these challenges concern licensing, regulation, monitoring and enforcement. What criteria should ASM operations have to meet to gain licenses? Should there be just one type of license for ASM operations? How can a government regulate ASM operations if they are informal and unlicensed? Even if they are licensed, how can it make them comply with regulations if it lacks monitoring and enforcement capacity? Should it close down informal ASM operations if there is no land with mineral or metal deposits for them to acquire licenses to, and when should a government create ASM zones?

[1] Hentschel, Thomas, Hruschka, Felix and Priester, Michael, 2002, Global Report on Artisanal and Small-scale Mining, 2002.
[2] Seccatorea, Jacopo, Veiga, Marcello, Origliassoa, Chiara, Marina, Tatiane, and Tomia De Giorgio, 'An estimation of the artisanal small-scale production of gold in the world', *Science of the Total Environment* **496**, 2014, 662-667.

Putting challenges of licensing and regulation to one side, a government must confront others challenges of ASM management. How can it target assistance like credit programs to artisanal miners if better-organized small-scale mining operations meet application standards better? How can education and training be used to improve practices if ASM operators will not want to use them? How can a government have one set of rules for ASM if ASM operations are different from one another?

These are all challenges of ASM management *strategy*. They all concern which instruments and initiatives governments should employ to reach their goals, what their purposes should be, and how they should be designed. The answers to each of these questions depend on the circumstances in which governments act. In this sense, to manage ASM well, a government must develop a strategy that fits its context.

Other challenges concern *implementation*. In what order should a government conduct education and training, monitor and enforce laws and regulations, revise the legal code and conduct outreach to ASM operations and stakeholders? Under what circumstances should a government close down an ASM operation? Where should government-sponsored processing plants be set up, and how should they be run? If a government decides to assist ASM operations to access credit, what methods should it use to do so? If a government passes laws and regulations, how should it go about enforcing these in practice?

This document offers guidance to governments about how to manage ASM well. This Guidance is intended for governments in developing countries at any level, including national, subnational and local. However, it is only fully applicable to those bodies that have powers to control spending, write laws, issue licenses, offer access to land, land-use and commission major programs. The Guidance is also intended for ASM stakeholders who wish to understand how governments manage ASM, and how they themselves could manage it.

This Guidance is organized around a process by which governments should manage ASM, which is divided into three phases. This process is shown in Figure 1. In the first phase, a government should *prepare to develop an ASM Management Strategy* by appointing an ASM Taskforce, 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 **Phase 1** of this Guidance.

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 emphasizes the importance of context-specific choices. Governments

should design different strategies that are tailored to their ASM sector the sector's specific circumstances. To see what ASM Management Strategy a government should develop, depending on its circumstances, go to **Phase 2** of this Guidance.

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 particular instruments and initiatives within it, go to **Phase 3** of this Guidance. The full process by which ASM can be managed is shown in Figure 1 below.

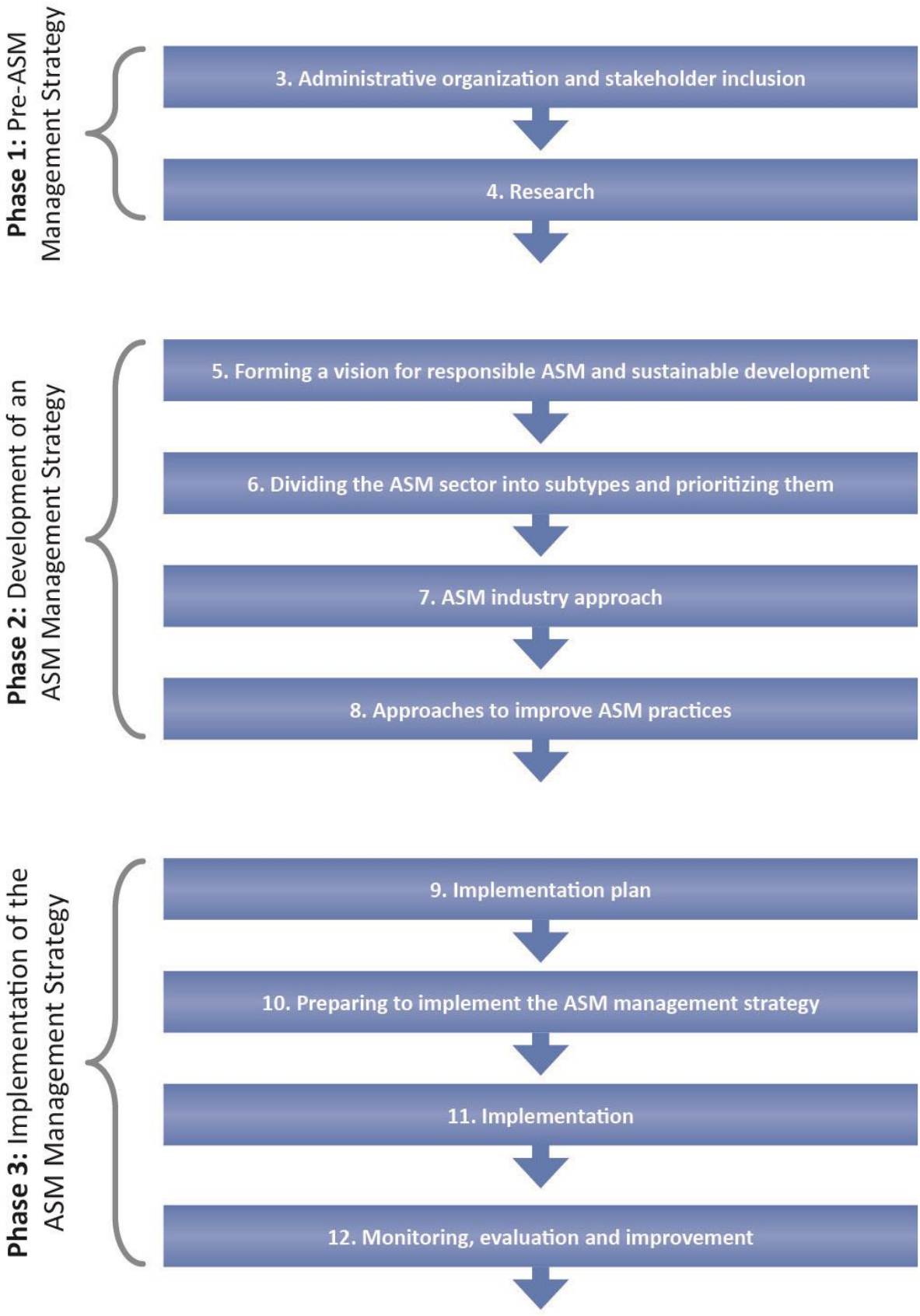


Figure 1: Process of managing ASM

This Guidance 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 makes reference 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 it by following each of the steps in this Guidance in turn.

However, users can also use the Guidance as a reference tool to see when particular instruments initiatives should be used, and how they should be implemented. To see when instruments and initiatives should be used, see Phase 2, Sections 7 and 8. To see how instruments and initiatives should be implemented, see Phase 3, Section 11. A list of the instruments and initiatives that governments can use can be found in **Figure 2** below.

Instrument or initiative	Description	Page references
Allocate land for ASM	Select land with deposits that can be feasibly extracted by ASM operations and give ASM operations priority in applications to use this land.	62.
Facilitate or encourage ASM participation in supply chain initiatives	Voluntary initiatives for countries or companies and individuals that specify rules which 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 Fairmined Gold Standard, the Kimberley Process Certification Scheme, the Conflict-Free Sourcing Initiative and others.	64, 82 and 103.
ASM zones	Areas set aside for ASM, with separate application procedures, and separate administering bodies and rules.	80, 97, and 99.
State-sponsored buying scheme	State-owned, state-run or state-supported schemes that buy minerals or metals from ASM operations.	81, 102 and 134.
Licensing, regulation, monitoring and enforcement	A system of licensing and regulation in which sanctions are attached to mining without complying with regulations, and further sanctions are attached to mining without licenses, supported by a system of mining and regulation.	75, 77, 79, 88, 96, 98, 106, 107, 107 and 109.
Education and training	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.	78, 86 and 104.
Services and technical assistance to ASM operations and services to ASM workers		86, and 113.
Healthcare or health or life insurance for	Programs to provide healthcare to ASM workers, or provide them with health insurance or life insurance, which reflect the	77 and 113.

workers	health and safety risks that they are exposed to.	
Education to workers and workers' children	Providing or subsidizing comprehensive education, offered to adult ASM workers who missed school, the children of ASM workers, or former child ASM workers.	114.
Security provision	Providing security to ASM operations.	77 and 115.
Transport infrastructure provision	Creating road and transport infrastructure that assists ASM operations by connecting them to transport networks and lowering the costs of transportation.	68 and 116.
Electricity and electricity infrastructure provision	Connecting ASM operations to electricity grids, or providing electricity generators that provide cheaper electricity.	69 and 116.
Water and sanitation provision, and water and sanitation infrastructure provision	Connecting ASM operations to water and sanitation systems.	68 and 117
Assisted access to credit or insurance	Providing credit and insurance, subsidized access to credit and insurance, and facilitating access to credit and insurance by sponsoring local credit and banking groups and initiatives.	68 and 118.
Provision of geological data, geological expertise and exploration services	Providing ASM operations with geological data, geological expertise or exploration services that can inform and improve exploration and mine development.	67 and 119.
Provision of technical expertise	Providing ASM operations with technical expertise to enable them to improve the productivity of their operations or improve their practices	119.
Provision of or subsidy of the sale of equipment	Providing better equipment to ASM operations or subsidizing the sale of that equipment. Equipment may range from PPE, to metal detectors or processing units.	69 and 120.
Subsidy of inputs into the mining or processing operations	Providing or subsidizing inputs that are used by mining and processing operations such as fuel, chemicals, and gear.	120.
Government sponsored demonstration operations	Operations that employ good practices that are set up to demonstrate the benefits of employing those practices to others	120.
Supporting clean processing and government-sponsored processing plants	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, and providing this service to ASM operations to reduce the use of dirty techniques.	120.

Figure 2: List of instruments and initiatives that governments can employ to manage ASM

2.1 Scope of the ASM sector

Before guidance is offered on how governments can manage ASM, the meaning of 'ASM' should be mentioned. There is disagreement about the best definition of ASM. This section does not offer a definition, but discusses the scope of ASM. A definition is also not the same as the criteria that ASM operations must meet to be granted ASM licenses, or other legal definitions. Legal criteria are discussed in Section 10.1.3. Additionally, a definition of ASM is not the same as the subcategories of ASM that a government devises to distinguish between the sorts of ASM operations it wishes to treat differently. Subcategories are discussed in Section 6.

Artisanal and small-scale mining 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 tiny 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 labor-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 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 laborers can earn more in the ASM sector than in other realistic alternative forms of work. Often ASM 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). In short,

ASM as a category includes a wide range of activities undertaken by people in very different situations.

ASM includes activities along several dimensions. '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 from mining and downstream to secondary processing, as shown in Figure 3, below. An operation performing these tasks is classed as an ASM operation if it is smaller than medium-scale mining.

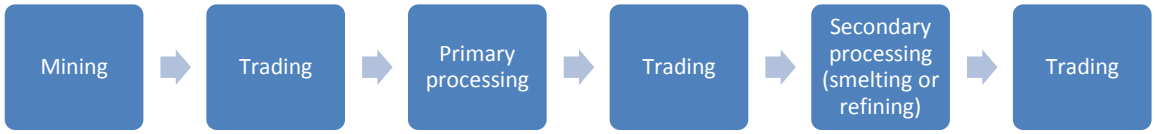


Figure 3: ASM Sector Value Chain

ASM includes mining operations at each stage of the mining life cycle. The breadth of this cycle is shown in Figure 4, below.

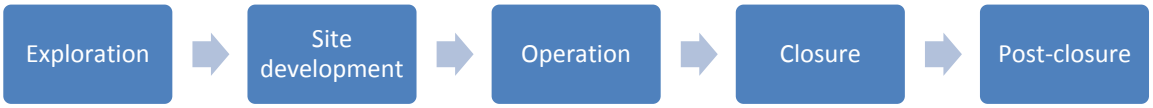


Figure 4: ASM Operation Life Cycle

Lastly, there is a secondary economy connected to ASM. Not only do ASM workers and owners have dependents that 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.

Phase 1: Pre-ASM Management Strategy

There are several steps a government should take before developing or implementing an ASM Management Strategy. First, it should convene a Government ASM Taskforce that will lead the government's efforts on ASM. Secondly, 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 3. 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 4.

3 Administrative organization and stakeholder inclusion

3.1 ASM taskforce

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 Taskforce. Departments are used here as shorthand for major ministries, offices, agencies and other organs of government. The departments that are included in this Taskforce will be the parts of the government that collectively lead the development and implementation of an ASM Management Strategy. As different government departments each have jurisdiction over various aspects of ASM, it is crucial for the departments to fulfill their responsibilities while coordinating with the other departments, so that they are not working at cross purposes with each other. A well-coordinated, inter-departmental body that supports and guides the work of its members is essential to effective governmental management of ASM. This Taskforce should be accompanied by a public statement and statement of purpose which sets out the governments broad responsibilities to manage ASM and the mission of the Taskforce.

The ASM Taskforce may be hosted in one department or set up as an individual body. The Taskforce 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 comprise different departments, this normally includes:

- 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 Labor
- The Ministry of Health
- The Ministry of the Interior
- The Ministry of Defense (if ASM is or is at risk of being connected to armed groups)

The Taskforce should be responsible for:

- Administering the initial distribution of 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 Taskforce should be capacitated 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 taskforce has the authority to fulfill its responsibilities.

In the rest of this document, 'the government' is used as a short hand to refer to 'the Taskforce' or the relevant ministry within it. Where possible, specific departments are named that would normally be responsible for particular tasks.

3.2 Consultation with ASM stakeholders

Before proceeding to implement the ASM Management Strategy, the ASM Taskforce should convene an official forum of ASM stakeholders. It should periodically consult this forum throughout the process of developing and implementing an ASM Management Strategy. 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,

and by engaging ASM stakeholders, it also informs them about government ASM management. Lastly, it shapes opinion and forms consensus by providing a forum in which dialogue can take place between ASM stakeholders.

Consultation should be *transparent*, *meaningful 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 Taskforce should ensure that consultation results in outputs that are circulated to relevant government departments. The Taskforce should consult the forum regularly, permit the forum to transform those consultations into publications, and give the forum control of the contents and publication of those documents. The government should consider creating a small secretariat housed within a department or outside it but answerable to the forum itself, to ensure that these criteria are met. At whatever stages consultations takes place, the government should then review its actions in light of the consultation.

Consultation is *inclusive* when all ASM stakeholders are given equal opportunities participate in it and face equally low barriers to participation. The Taskforce should make it possible for anyone to participate in the consultation, at least 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 formation of ASM representatives, if there are none, is discussed in **Box 1** below.
- 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*.

In other respects, consultation should be designed to meet the standards set out in AccountAbility's *AA1000 Stakeholder Engagement Standard 2011.*

Box 1: 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 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 democratically elected.
- Those leaders make decisions on behalf of members.
- Members have powers to make policy at plenary meetings.

4 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 Taskforce should be responsible for commissioning and supervising research.

Research includes six parts:

1. A Scoping Study.
2. A Government Capacity Assessment.
3. An ASM Industry Assessment.
4. An Impacts Assessment.
5. Supply Chain Mapping.
6. 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 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 Capacity Assessment.

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 socio-economic impacts, environmental impacts, human rights impacts, labor standards, health and safety and gender impacts in ASM.

By **Supply Chain Mapping**, a government will develop a picture of the ASM sector up and down the supply chain. A 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 analyze the efficacy of different 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. Government Capacity Assessment
2. Scoping Study
3. ASM Industry Assessment
4. Impact Assessment
5. Geological and Land-use Mapping
6. 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 Impact Assessments at least once every five years. Governments should also conduct Geological and Land-use Mapping and a Review of Government Capacity at least once every ten years. It should then publish these results, anonymizing the data in line with research ethics, to protect those from whom the data was collected.

4.1 Scoping study

The subject and scope of research must be decided before it is conducted. The purpose of a Scoping Study is to decide the subjects and scope of the a) Industry Survey, b) the Impacts Assessment, c) Geological and Land-use Mapping and d) the Review of Government Capacity. 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 prior knowledge of the ASM sector in its country that is up to date.

A Scoping Study should include:

- A desk study of existing reports and data on ASM in-country;
- Interviews with ASM stakeholders and experts; and
- Select visits to ASM operations. As explained in Section 2.1, this includes mining, processing and trading operations.

The possible contents of a Scoping Study are detailed in Section 13.2.2.

4.2 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 should report to the ASM Taskforce. 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:

1. Administer a system of licensing, regulation and enforcement.
2. Provide education and training programs.
3. Provide:
    a. Services to ASM workers, as defined in Section 11.2.3.1.
    b. Assistance to ASM operations, as defined in Sections 11.2.3.2 and 11.2.3.3.
4. Run ASM Zones.
5. Run a mineral or metal buying scheme.
6. 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; and
- Between subtypes of ASM.

4.3 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 industry assessment, ASM should be defined to include both mining and processing operations. See Section 2.1 for a description of the scope of the ASM sector. At the 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 13.2.1 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 Survey, 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 Survey as well. Monitoring, Evaluation and Improvement, as discussed in Section 12, 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 can be found in the Annex in Section 13.2.2

4.4 Impact assessment

The government, normally the Ministry of Mines or the Ministry of the Environment in collaboration with the Ministries of Economic Planning and Labor 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 socio-economic, environmental, human rights, labor, health and safety and gender impacts of ASM. This assessment should distinguish which impacts each subtype of ASM operations, and location generates.

This assessment could be split up by subject area into a socio-economic impact assessment, an environmental impact assessment, a human rights impact assessment, a labor 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 visits to ASM sites to collect data, and 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 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 both at which mining and processing takes place. Guidance on what to include in an Impact Survey at and around ASM Sites can be found in the Annex in Section 13.2.4.

4.5 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[3].

[3] The government must be cognizant that any commercially sensitive information that they collect remains confidential.

- The size of the sector at each stage.
- The degrees of concentration or dispersion of the sector at each stage 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.

4.6 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 analyze 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 mapping will involve detailed 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:

1. Known, probable and possible mineral and metals deposits. Separate those that ASM operations could feasibly work and those that they could not, by mineral and metal, by alluvial and hard rock deposits, and note their other geological characteristics.
2. Estimated locations of ASM operations. This should form a map of ASM, separated by mineral and metal.
3. 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.

4. 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 analyzes available to the government. These should be collected in a mining cadaster.
- If possible and beneficial, conducting further geological surveys, specifically in areas where there is thought to be high probability of deposits

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

- Conducting aerial surveys.
- Analyzing satellite images.
- 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 licenses, 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 Cadaster or other relevant government bodies to supply them.

The government should map areas that are particularly vulnerable to ASM by referring to the Ministry of Land, the Ministry of the Environment and other relevant government bodies.

Phase 2: Development of an ASM management strategy

ASM management presents many challenges. ASM operations are often informal, practiced in 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 right instruments and initiatives that fit the country's ASM context, and design them accordingly. That is why governments should develop an overall strategy to manage ASM.

Sections 5 to 8 advise governments how to develop an ASM Management Strategy. Developing an ASM Management Strategy is the responsibility of the ASM Taskforce, but all of the relevant departments partially responsible for ASM should be involved.

The first part of developing an ASM Management Strategy is forming 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 use a visioning process to form and express its priorities, the standards it wishes ASM to reach, and its goals for the sector as a whole. Section 5 describes how a government should go about forming a Vision for Responsible ASM and 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 the way in which they should be designed.

The term ASM is used to refer operations with different characteristics and different challenges. In Section 6, the Guidance advises how government should make sure that these differences between different sorts of ASM operations are reflected in government policy. It advises 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, for example. Deciding how to do that is the first major strategic decision that governments are asked to make in the Guidance. *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 7 and 8*. This processing of developing a strategy and then developing sub-strategies for each subtype of ASM is shown in Figure 5 below.

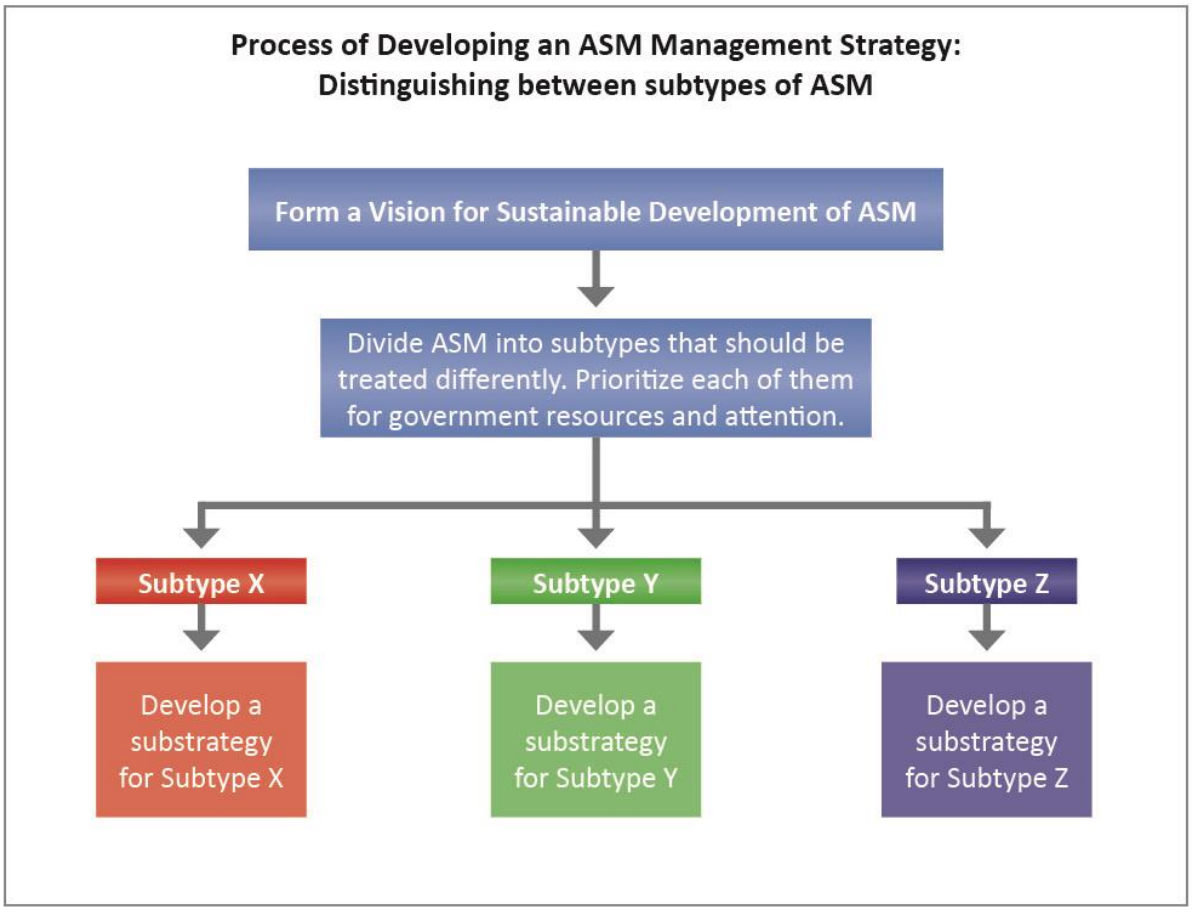


Figure 5: Process of developing an ASM Management Strategy: distinguishing between subtypes of ASM

In Section 7, the Guidance advises governments 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 its circumstances.

In Section 8, the Guidance 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.

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 improve 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 6 below.

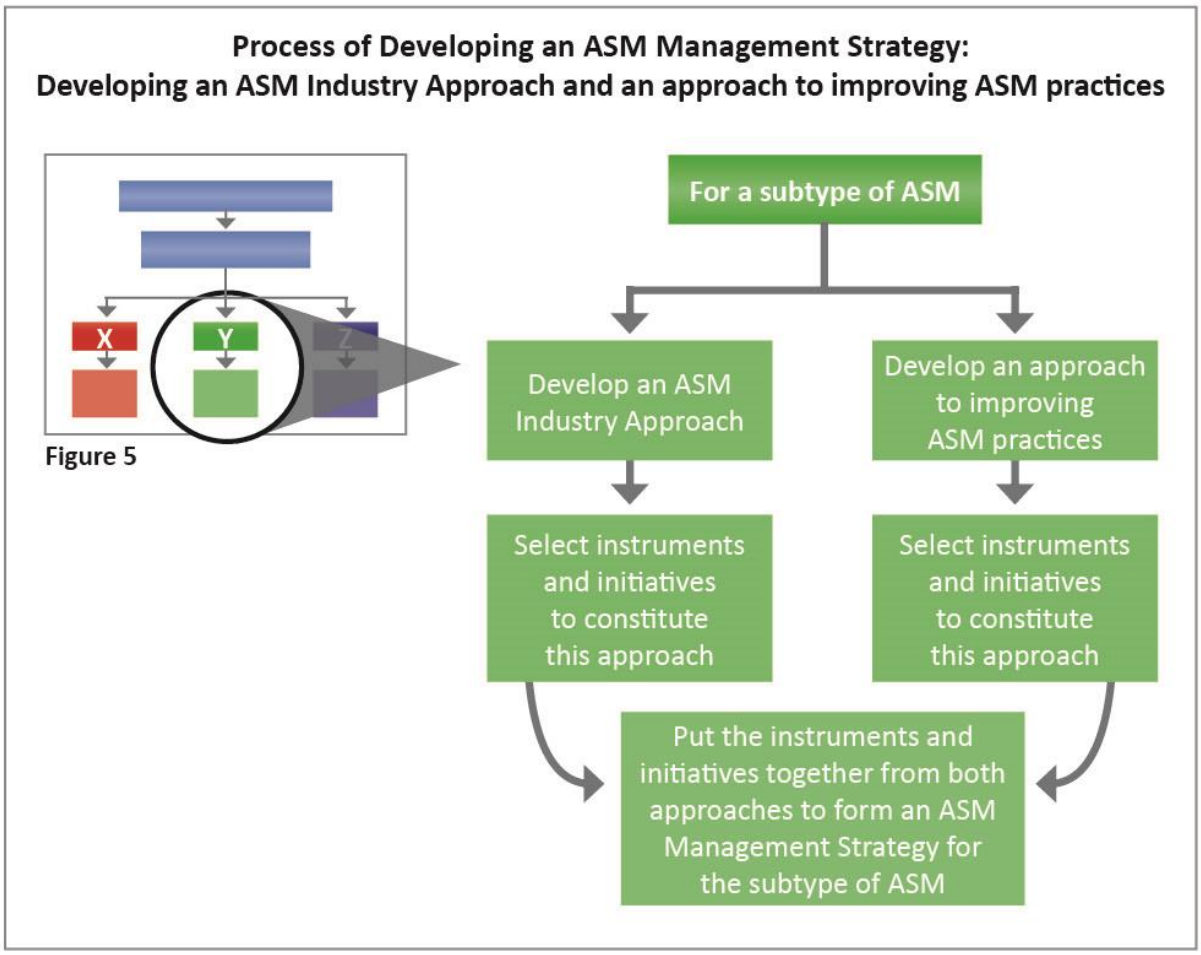


Figure 6: Process of developing an ASM Management Strategy: developing an ASM Industry Approach and an approach to improving ASM Practices

In a License and Regulate Approach, a government makes ASM operations apply for and be granted licenses, closes ASM operations down if these are unlicensed, and only lets operations keep licenses if they comply with regulations. In this approach, a government commits to legalizing ASM by making operations have licenses, and commits to formalizing ASM by making them comply with regulations. Section 8.1 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 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 Better Practices Approach, which is described below. By splitting the approaches that it uses for a subtype of ASM, it segments its approach. Section 8.2 offers advice about how to do this, and the entire process is shown below in Figure 7.

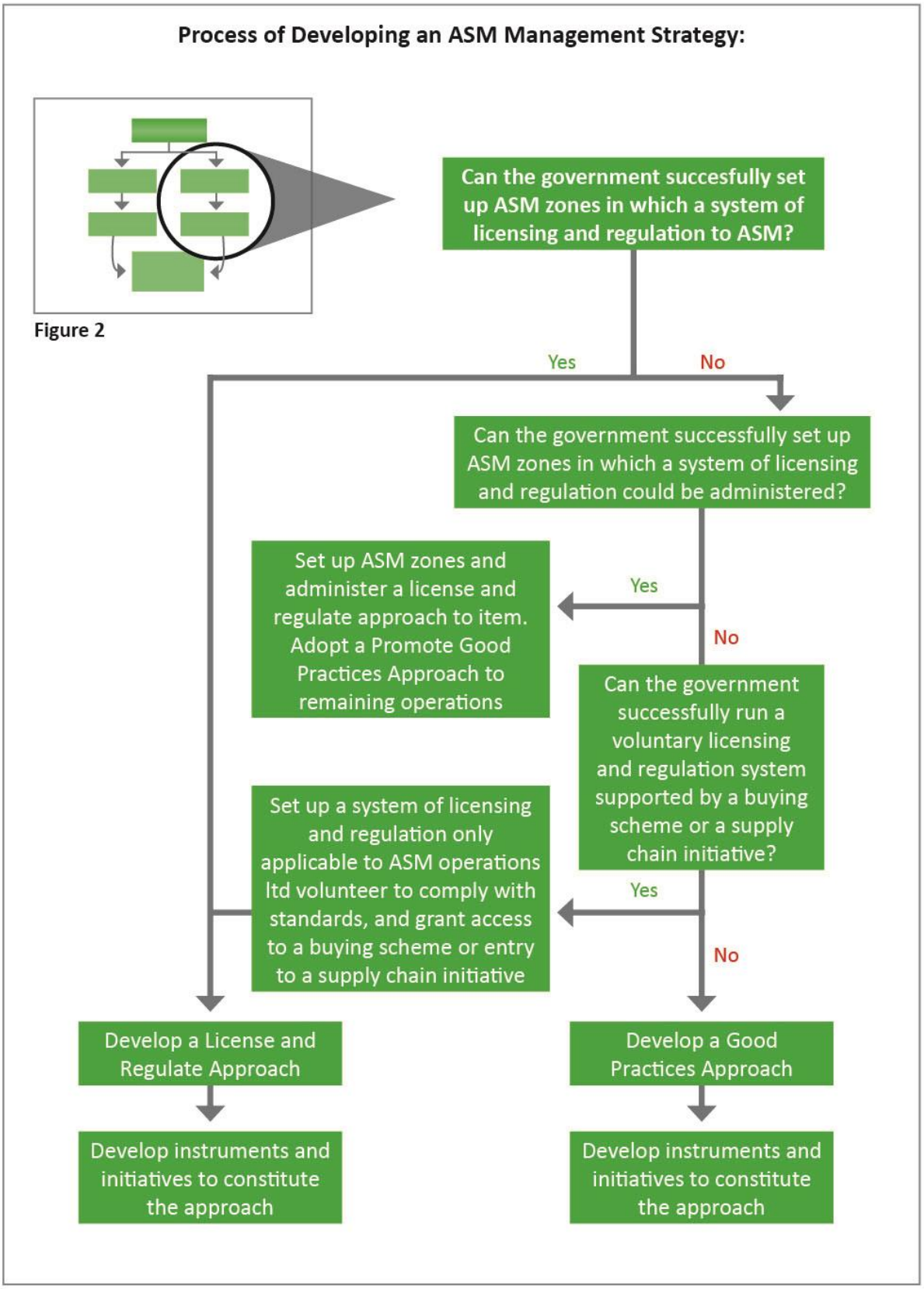


Figure 7: Process of developing an ASM Management Strategy: developing an approach to improve ASM practices decision tree

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. By doing so, it gives up on attempts to force ASM operations to meet high standards by using licensing and regulation. Instead, it relies more on education and training and government assistance to improve ASM practices. Meanwhile, it can 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 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, it compiles the instruments and initiatives that is has selected. Together, this bundle of instruments and initiatives forms the contents of the ASM Management Strategy. This process is shown in Figure 8 below. This figure also shows a complete list of the instruments and initiatives that a government might select and design as part of each of the approaches.

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*)	
		License and Regulate Approach	**Promote Good Practices Approach**
Allocate land for ASM	Select instrument. Decide which land to earmark for ASM.	N/A	N/A
Facilitate or encourage participation in supply chain initiatives	Select initiative. Design to improve the prices and security of sale of ASM operations.	Select initiative. Decide whether to use to support a voluntary system of regulation	N/A
Buying scheme	N/A	Select instrument. Decide whether to use to support a voluntary system of regulation.	N/A
Licensing, regulation, monitoring and enforcement	N/A	Select instrument.	N/A
Plan to improve government monitoring and enforcement capacity	N/A	Select initiative. Design to enable government to strengthen regulations in the future.	Select initiative. Design to enable government to employ a License and Regulate Approach in the future.
Education and training	N/A	Decide to teach ASM operations practices that: • Are in their own interests, but are not commonly employed; • Are in the Minimum Standards that are not commonly known and that they cannot find out for themselves;	Decide to teach ASM operations practices that: • Are in their own interests, but are not commonly employed; • Accompany provision of equipment by the government; and • Teach influential ASM stakeholders

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*)	
		License and Regulate Approach	**Promote Good Practices Approach**
		• Accompany provision of equipment by the government; and • Teach influential ASM stakeholders harmful practices that ASM operations use, and the • Better Practices that could be used instead.	harmful practices that ASM operations use, and the • Better Practices that could be used instead.
Services and technical assistance to ASM operations and services to ASM workers	N/A	N/A	N/A
Healthcare or health or life insurance for workers	N/A	Select instrument.	Select instrument.
Education to workers and workers' children	N/A	Select instrument.	Select instrument.
Security provision	N/A	Select instrument. Make provision conditional upon compliance of ASM operations with regulations.	Select instrument.
Road and transport infrastructure provision	Select instrument.	N/A	N/A
Electricity and electricity infrastructure	Select instrument.	Make provision conditional upon compliance of ASM operations with regulations.	N/A

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*)	
		License and Regulate Approach	**Promote Good Practices Approach**
provision			
Water and sanitation provision, and water and sanitation infrastructure provision	Select instrument.	Make provision conditional upon compliance of ASM operations with regulations.	N/A
Assisted access to credit or insurance	Select instrument.	Select instrument. Make provision conditional upon compliance of ASM operations with regulations.	Select instrument.
Provision of geological data, geological expertise and exploration services	Select instrument.	N/A	N/A
Provision of technical expertise	Select instrument.	Select instrument. Make provision conditional upon compliance of ASM operations with regulations, if provision of expertise is regular.	Select instrument.
Provision of or subsidy of the sale of equipment	Select instrument.	Select instrument.	Select instrument.
Subsidy of inputs into the mining or processing process	N/A	Select instrument. Make provision conditional upon compliance of ASM operations with regulations.	N/A

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*)	
		License and Regulate Approach	**Promote Good Practices Approach**
Government-sponsored demonstration operations	Select initiative	Select initiative	Select initiative
Supporting clean processing and government-sponsored processing plants	N/A	N/A	Select instrument.
Cumulative list of selected Instruments or Initiatives for the ASM Industry Approach and Approaches to Improving ASM Practices			

Figure 8: List of instruments and initiatives that are selected or designed as part of both approaches

5 Forming a vision for responsible ASM and sustainable development

Before developing an ASM Management Strategy, a government needs to decide what its strategy will seek to achieve. If it does not have clear goals and priorities, its ASM management will lack clarity and direction. *This section does not offer a Vision for Responsible ASM and Sustainable Development. Each government should develop a vision that reflects its own value judgments and priorities. However, it helps governments to form their own visions by dividing issues into groups, introducing each and providing relevant sources that governments may use to form their own Guidance.*

In a Vision, a government decides what is important. In the subsequent parts of ASM Management Strategy development, it decides how best to pursue the priorities, goals and standards set out in the Vision, given its circumstances. It is the responsibility of the ASM Taskforce to form a Vision, in consultation with relevant government departments. However, a government may wish to consult with ASM stakeholders as it does so.

5.1 The contents of the vision

The Vision should contain Guidance for responsible ASM practices, in which a government should make three types of value judgments, which should make up the content of the Vision:

1. The importance of different positive and negative impacts of ASM. For example, a government should try to decide whether it values some environmental impacts of ASM more than some economic impacts, and why. It should decide whether it considers health and safety impacts to be more important than security impacts in principle. To help users to prioritize impacts, Sections to 5.2 to 5.6 below set out the main issues connected to ASM, organized into six types. These sections briefly explain the contents of the issues, and include various publications to which users can refer for further guidance.

2. A government should categorize ASM practices into three groups:

    - **Unacceptable Practices** that have very negative impacts and which the government should commit to eliminate at all costs.

- **Minimum Approved Standard of Practices (the Minimum Standards)** that the government aims to make all ASM operations meet.
- **Better Practices** that the government wishes ASM operations to adopt, which have fewer or less severe negative impacts, and more or more beneficial positive impacts.

By setting Unacceptable Practices, Minimum Standards and Better Practices, a government sets three levels of behavior around which it can organize ASM Management Strategy. A government should seek to prevent the employment of Unacceptable Practices at all cost. It should aim to make ASM operations meet the Minimum Standards, circumstances permitting. After making most ASM operations meet the Minimum Standards, it should concentrate on promoting use of Better Practices. 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 5.2 to 5.6 below. Alternatively, a government may employ a full methodology that is set out in the Annex in Section 13.1.

3. The Vision for Responsible ASM Practices should set goals for the future. These goals should be expressed in two ways:

    - As total impacts of the sector, or parts of the sector, for example, as a number of people employed, or the tons of mercury released into water sources.
    - As percentages of ASM operations that meet the Minimum Standards, employ Better Practices and do not employ the Unacceptable Practices.

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.

To aid the construction of such a Vision, the issues connected to ASM are grouped into six types below and are introduced in turn.

5.2 Environment

ASM operations affect the environment, as in turn does the 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 of water sources
- Depleting forest and other natural resources
- Generating green-house gases

These effects cause detrimental environmental impacts, which include:

- Negative impacts upon human health, especially the health of children and pregnant women, either directly by making soil and crops toxic, by making water sources toxic, or by making the air toxic.
- Erosion of environmental resources.
- Negative impacts on natural habitats and biodiversity.
- Global warming.

The environmental impacts of mining *in general* are profiled in Chapter Ten of *Breaking New Ground: Mining, Minerals and Sustainable Development*. The environmental impacts of ASM in particular are profiled in pages 36 to 38 of *Global Report on Artisanal & Small-Scale Mining*. 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 IFC Performance Standards on Environmental and Social Sustainability 3 and 6.

Standards of practice vary for each mineral or metal mined. 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*.

Gold processing can involve mercury amalgamation. Signatories to the *Minamata Convention* are obliged to develop a National Action Plan to reduce and, where feasible, eliminate the use of mercury in ASGM, as set out in Article 7 and other articles. Lastly, a comprehensive guide to techniques that can be used to process gold and mercury-related environmental impacts of each can be found in *A Practical Guide: Reducing Mercury Use in Artisanal and Small-scale Gold Mining*.

5.3 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 1948 Universal Declaration on Human Rights is among the most widely recognized conception of human rights. The International Covenant on Civil and Political Rights 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.

All human rights set out in the International Covenant 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 labor.
Article 9	Concerning arrest, detention, and charge.
Article 12, 1	Concerning freedom of movement and freedom of residence.
Article 14	Concerning rights to a fair trial.
Article 16	Concerning recognition as a person before the law.
Article 17, 1 and 2	Concerning right to arbitrary or unlawful interference with their privacy and the right to protection against it.

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 Human Rights and Security*. Under the UN Framework for Human Rights and Business, governments have a duty to protect against the 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 *Human Rights in the Mining and Metals Sector*.

Children have additional rights, which are outlined in UN Convention on the Rights of the Child. Among them, many of which are routinely violated in ASM. A detailed list of risks that mining in general and ASM in particular can pose to children's rights can be founded in paged 32 to 34 of *Children's Rights and the Mining Sector*.

5.4 Labor standards

There are four fundamental principles and rights at work, as defined by the ILO. Labor practices will vary from country to country, and national labor laws should be enforced. However, if a government seeks guidance on internationally recognized labor standards, they should refer to the four fundamental principles, 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 labor.
3. Effective abolition of the worst forms of child labor.
4. Elimination of discrimination in respect of employment and occupation.

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

Further labor conditions are listed below. These should be prioritized after the four fundamental principles and rights at work:

- Health and safety (which is 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 the Annex.

A set of standards based upon many of these conventions can be found in Provision 13-20 in the Responsible Jewellery Council's *Code of Practices 2013*. Governments should compare these standards to typical labor standards that are found in ASM operations. Much labor is casual and so some of these standards do not apply, but relevant socio-economic development do apply such as the precarity and income stability of workers.

5.5 Health and safety

In general, mining generates many occupational health and safety risks. ASM typically involves fewer machines than medium-scale or LSM, which should make it safer, but takes place with less health and safety training, less protective equipment, and worse worker education, which in fact makes it the more dangerous option.

ILO Convention 155 sets out the role for governments to provide 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.
- PPE is provided.
- They have taken measures to deal with emergencies and accidents.
- Workers cooperate, are informed, trained, engaged, 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 the International Labor Organization Convention 155 entitled *Occupation Health and Safety* have obligations to formulate, implement and periodically review a coherent national policy on occupational safety, occupational health and the working environment. Equally, signatories to Convention 176, entitled *Safety and Health in Mines* 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*. 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*. General standards of occupational health and safety for mining that employers should meet can be found in ILO Convention 176 Articles 6 to 12. Lastly, 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*.

5.6 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 Labor Standards in Section 5.4 above.
- Discrimination in freedom of association and freedom of collective bargaining, which are also covered in Labor Standards in Section 5.4 above.
- Provision of maternity leave, which is also covered in Labor Standards in Section 5.4 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, damage to biodiversity, or air, water or noise pollution.
- 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, which disadvantage women.
- Treatment of services providers to ASM operations that are more often women than men.
- Occupational health and safety risks of services that women provide to ASM operations more than men.

Gender issues related to ASM are discussed in detail in *Gender Dimensions of Artisanal and Small-Scale Mining: A Rapid Assessment Toolkit*.

This toolkit also provides guidance about how to assess gender considerations within ASM.

5.7 Socio-economic benefits and sustainable development

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

The integration of the benefits the ASM sector into a sustainable development framework, such as set in the IGF's Mining Policy Framework and the Extractive Industries Source Book, is important to ensure the benefits accrue beyond the ASM sector. 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 and financial and social infrastructure,

created skilled workforces and contributed to sustainable wealth creation. The Vision for Responsible ASM and Sustainable Development provides the basis for this process to take shape in the ASM context. ASM can contribute to more national economies in the future. The organizational tools and institutional capacities needed to achieve this – and to avoid lesser outcomes – are known and realizable with the right support.

However, considering that resources are finite, more responsibly functioning ASM sector will not in itself *sustainably* contribute to development. This is why the benefits a more responsibly operating ASM sector generates need to be captured in a sustainable development framework, so that they can support sustainable development ends beyond mining. The way a government takes advantage of the socio-economic benefits of ASM and uses them for sustainable development concerns what conception of sustainable development a government has, and what strategies it employs to pursue it. Those subjects lie beyond the scope of this document, and so they are not discussed further beyond this section. However, at the bear minimum a government should consider the following:

Skills development

ASM sectors employ large numbers or workers, who will eventually leave that sector. A government should provide the ASM operators with a regulatory and institutional framework and a supporting environment to allow them to save, invest and diversify their and their workers' skills set and those of their dependants.

Capital investment

Profits that are accumulated from ASM can be invested as capital in other sectors. A government should ensure that they create a regulatory and institutional framework within which capital can be saved, lent, and invested in other sectors profitably. It should consider how it can encourage this capital to serve the purpose of sustainable development.

Taxation, governance and development policy

Once a decision has been made on how much of the resource revenues generated by the sector and collected by the state will be spent, governments should identify and implement policies to ensure that the revenues are well spent to have a positive and sustainable impact on growth and development.

Upstream economic development

Once the ASM sectors functions more responsibly and therefore also more efficiently, greater demands will be placed on the secondary economy around ASM, which provides the sector with crucial inputs, 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 conducive regulatory framework, incentives and initiatives to support professionalization.

For references on these broad purposes, please refer to the IGF Mining Policy Framework and the Extractive Industries Source Book.

ASM can provide socio-economic benefits by providing:

- Capital and capital goods accumulation within ASM operations, and in other sectors.
- Tax revenue generation.
- Employment.
- Workers' incomes and income stability, as well as poverty and precarity.
- Subcontractors' profits.
- ASM operations' profits.
- Foreign exchange generation.
- The sustainability of livelihoods of: miners, service providers to ASM operations, and those that supplement other livelihoods with ASM.
- Funding for education, healthcare and other social services.

Some of these social and economic benefits may be more valuable to some governments than others.

ASM can also have negative impacts, including but not limited to:

- 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.

6 Dividing the ASM sector into subtypes and prioritizing them

6.1 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. For this reason, *a government should differentiate its ASM Management Strategy to reflect the main subtypes of ASM* that it wishes to treat differently. This section offers advice on the best way that a government can divide ASM into subtypes. The Taskforce should decide how to divide the ASM sector into subtypes, in consultation with relevant government departments.

6.1.1 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 Vision?
- How great are the positive impacts from each subtype of ASM, in the terms defined by the Vision?
- How manageable is each subtype of ASM? Key factors that affect the ease of managing each subtype of ASM can be found in Box 2.

Box 2: 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, and 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 so that it is 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 their 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 both difficult to get to and hard to locate. If ASM operations are not accessible to government agents, and 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 they 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 ASGM 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.

6.1.2 Useful subcategories

A government should divide ASM by conceptually simple and tangible criteria that divide ASM into groups that tend to have significantly different characteristics. To achieve this, a government should draw upon the research discussed in Section 4 to make these distinctions. Below are examples of several ways to separate subtypes of ASM. All of these are well-recognized subcategories, but a government should assess whether these categories helpfully separate ASM operations with different characteristics in the country's specific case.

6.1.2.1 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 change 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 cheaper from the national grid than the operation can provide for itself.

The techniques that both mining and processing operations use also often 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, teams can only 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 license criteria, which are similar to but not the same as the distinguishing criteria between subtypes of ASM. They are discussed at length in Section 10.1.3.

6.1.2.2 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 of hard rock deposit make so many upfront 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 is also associated with different environmental impacts and 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.

6.1.2.3 Scale

As discussed in Section 2.1, ASM is an umbrella term that encapsulates mining that ranges from single miners through to small-scale operations, and separates them from medium-scale and LSM. Governments often divide ASM into micro-scale mining, artisanal mining and small-scale mining. Small-scale mining has been associated with greater mechanization, better access to credit, better technical knowledge, high economic potential and immobility than micro-scale and artisanal mining. However, research on this is inconclusive.

Under the circumstances that it is correct, governments will find that mining at different scales needs 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.

6.1.2.4 Minerals and metals

Lastly, a government should consider dividing ASM operations by mineral and metal. The different ways of extracting and processing each minerals and metals 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 is 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 movement of minerals and metals across borders.

6.2 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 the Annex in Section 13.1. A government should then allocate government resources and attention to those subsectors in proportion to how much it can improve each.

7 ASM industry approach

Section 5.2 describes the potential socio-economic impacts of ASM. A government should decide how it wishes to help realize the economic potential of ASM in order to maximize those socio-economic impacts. An Industry Approach to ASM involves analyzing ASM operations not only individually but also collectively, as an industry. A government should analyze 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. It should be thought of as a component part of the government's broader economic planning and poverty-reduction strategies and should be integrated into it 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.

There are three sets of instruments and initiatives that governments can employ to help ASM operations realize their potential, and the process to develop an ASM Industry Approach that includes them is shown in Figure 9 below.

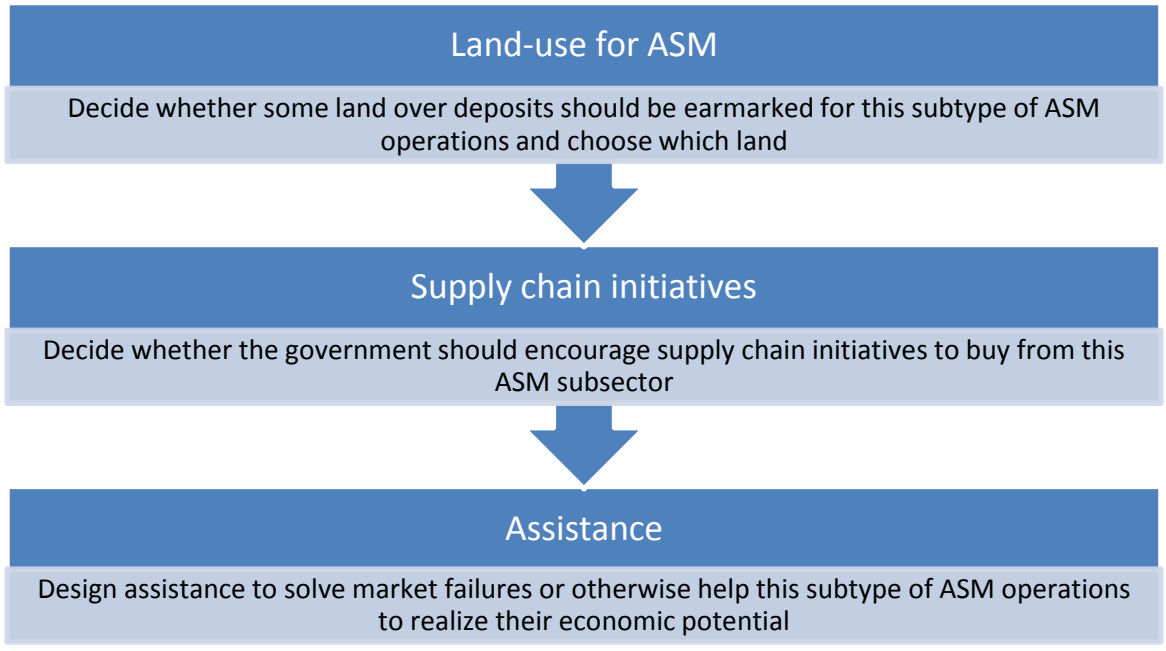


Figure 9: Flow diagram for developing an ASM Industry Approach

7.1 Land-use for ASM

A government should integrate ASM management into land-use policy, and so of course, the Ministry of Land would normally place a large role in this Land-use policy serves many purposes beyond the purview of this Guidance. 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, because some deposits are too deep for ASM operations to reach. Some cannot be accessed with the technology available to ASM operations, and some are of grades that are too low to be economically viable to liberate. Of the remaining set of deposits that are available for ASM operations to work, some are on land that is reserved for other uses. Some land may be too close to urban areas, some may be close to strategic water sources or to national parks, and 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, it 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 decided in its Vision that a subtype of ASM could have a net positive impact and it set the target of increasing the size of that sector in its Vision, then it should try to make available land that contains deposits that ASM operations can feasibly work, so that ASM operations can apply for licenses. If a government does not make enough land available for license for existing operations, legal and illegal, then logically a government can only:

1. Make available land with deposits that ASM operations can work are made for ASM operations;
2. Make ASM operations leave land that they are not permitted to work on; or
3. Let ASM operations continue to work on land that they are not permitted to work on.

To determine 1) whether a government should allocate land for ASM, 2) how much land, and 3) which land, a government should follow the process 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 13.3 to do this.
2. Refer to the Geological and Land-use Mapping described in Section 4.5 and with information gathered about the techniques used in the ASM sector also gathered in research.
3. Use this information to identify known and probable deposits across the country on unused land or land that could feasibly be re-allocated that ASM operations are better suited to work than medium- or LSM companies.
4. Earmark these deposits for use by ASM, but only under the conditions that land could be feasibly 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 the subtypes of ASM that generate the greatest net benefits to apply for licenses 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 either:
    a. Giving ASM operations preferential access in the mining license application process, or;
    b. 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 8.2.1.

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

7.2 Facilitate or encourage participation in supply chain initiatives

Industry- and third party-led supply chain initiatives are common in the mining, minerals and metals sectors. Supply chain initiatives specify rules, which participants must follow about the conditions under which and the means by which minerals and metals may enter and move through supply chains. Fairmined Gold, the Better Sourcing Program, the Conflict Free Sourcing Initiative and the Responsible Jewellery Council Chain of Custody Certification are all supply chain initiatives, but an extensive selection of existing supply chain initiatives is listed in the Annex. Minerals purchased through supply chain initiatives are often sold at higher prices than those that are sold on open markets. These prices may reflect price discrimination or the limited supply of minerals and metals that are compliant with the standards associated with the supply chain initiatives. For example, tin, tantalum, tungsten and gold, which are the subject of conflict minerals initiatives, sometimes sell at lower prices when they cannot be classified as conflict-free. Even if prices are not higher, demand may be more consistent.

Most supply chain initiatives are designed to keep minerals and metals that are connected to negative impacts or practices out of the supply chains of participating firms or countries. 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. Fairmined and the Responsible Jewellery Council Chain of Custody and Code of Practices both specify a range of standards that participants must meet in the extraction and processing of minerals and metals. Supply chain initiatives also specify strict conditions about the means by which participants must ensure origin of their minerals and metals. Upstream, where ASM operations are concerned, these conditions typically include chains of custody, tagging and traceability, and closed-pipe supply chains to ensure that minerals and metals that pass through the supply chain come from where they are supposed to. They also involve administrative checks such as spot checks by initiative agents, whistle-blower and grievance mechanisms and stakeholder forums. Administering these schemes is costly for actors at all stages of the ASM supply chain.

While these schemes are costly to comply with, minerals and metals that are sold as part of these schemes sell for higher prices under some conditions, and this makes encouraging the introduction of supply chain initiatives a potential way for a government to increase the economic potential of the ASM sector. The potential additional benefits of supply chain initiatives for improving ASM practices are discussed in Section 8.2. 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 would lead that venture, in collaboration with the Ministries of the Interior, Environment and Labor at the very least.

Some supply chain initiatives are run by third parties that monitor participants' operations and administer a system of traceability directly. In such cases a government could facilitate the extension of that third party's operations 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 standards set out in those standards. Alternatively, it could 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 8.2.2. 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.

To decide whether it should support the introduction of a supply chain initiative, governments 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 schemes 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?

7.3 Services and technical assistance to ASM operations and services to ASM workers

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 Section 5.7 and 8.1.3, but as part of industry planning, governments should offer assistance to ASM operations for two reasons:

1. To provide services that cannot be feasibly provided by the private sector. This includes several kinds of infrastructure investments. Governments should draw upon the research conducted in Section 4 to assess the feasibility of providing those services and the costs and benefits of doing so.
2. To solve market failures. Namely, when uncertainty, imperfect information, coordination problems, or other market imperfections prevent the optimal allocation of resources and the optimal price settings and the fulfillment of market potential. Governments should draw upon the research conducted in Section 4 and its own assessment to decide which of the following interventions are necessary in order to address market failures and reach the economic potential of an ASM subsector.

The forms of assistance that a government could provide to help the ASM sector reach its economic potential are profiled below. Wherever possible, it 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 left here and are discussed in the Implementation Section, Section 11.

Box 3: Organizing ASM into registered groups that can receive assistance

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

To identify ASM operations, they must be registered in some way. Licensing is discussed in Sections 10.1.1, 10.1.2 and 10.1.3 below. If there is a licensing system, this will suffice to monitor who receives assistance. However, if no widely used system of licenses 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 is available, the government might record who receives assistance based upon their location, if the operations are sufficiently immobile. Alternatively, ASM operations might be registered as cooperatives.

If ASM operations are too small, it will be costly for government to monitor them, and allocate assistance, and record who has received assistance. The size of ASM should not be confused with the scale of ASM. As Section 2.1 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 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 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.

7.3.1 Provision of geological data, geological expertise and exploration services

Geological information about the quantity of, the probable existence of and the characteristics of mineral and metals deposits are essential for ASM operations, but there are three common market failures that impede the provision by independent or freelance geologists.

1. 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.
2. Information is easily transferrable at no cost, and so private sector providers may be unable to recoup the costs of generating and analyzing geological information, even if ASM operations would hypothetically be willing to pay for it.
3. There is uncertainty in the generation of and analysis of geological information. Both ASM operations and third-party providers cannot tell what the yields of providing geological information will be, and if they are risk-averse, they will invest less than

the optimal amounts in geological research, even putting aside the other potential market failures.

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 4.6, but it might go further and conduct geological surveys of its own, on behalf of ASM.

7.3.2 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.

7.3.3 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 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.

7.3.4 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 using some techniques for mining, sluicing and processing. Some subtypes use water more than others, and governments should use the research conducted in Section 4 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.

7.3.5 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 hydropower generation, where grid supply is not feasible. However, providing electricity may change the costs structures of unmechanized 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.

7.3.6 Provision of or subsidy of the sale of equipment

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

- Regulating the mining equipment market to stipulating conditions of pre-sales servicing, guarantees or rules for returns in order to prevent fraud and corresponding caution in the market.
- Provide outright mining equipment that would improve ASM operations but which are unaffordable for ASM operators to buy directly.
- Subsidizing 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.

8 Approaches to improve ASM practices

Once an ASM Taskforce has developed its ASM Industry Plan, 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 Taskforce can choose:

1. A License and Regulate Approach;
2. A Promote Good Practices Approach; *or*
3. A Segmented Approach.

Deciding which type of approach to improving ASM practices to take is the responsibility of the ASM Taskforce.

In a License and Regulate Approach, a government makes a system of licensing and regulation, supported by a system of monitoring and enforcement, the center of its strategy. In other words, it creates a licensing system, and sanctions ASM operations that do not acquire licenses. 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 end in revoking licenses and closing ASM operations down. In this way, *if a government adopts a License and Regulate Approach, it commits to formalizing ASM*. It deploys a series of instruments and initiatives to further improve ASM practices, such as education and training and assistance, but they are designed to build on the content of regulations.

Under some conditions, an ASM Taskforce 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 it cannot adopt a uniform License and Regulate Approach. In this case, a ASM Taskforce should see whether the government can employ a Segmented Approach in which it finds ways to adopt 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 introduce a supply chain initiative or state-sponsored buying scheme, and only let ASM operations sell to these initiatives if they comply with regulations. If a government does either of these things, it then adopts a Segmented Approach. It adopts a License and Regulate Approach to those in the initiatives (the ASM zones or the supply chain initiative or buying scheme) and a Promote Good Practices Approach for the others.

Once these options have been exhausted, an ASM Taskforce'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 this way, instruments and initiatives that are complementary and secondary in a License and Regulate Approach become central parts of a Promote Good Practices Approach. When a government employs a Promote Good Practices Approach, this does not mean that a government does not make ASM operations abide by any laws at all. It should, for example, still enforce criminal law, but it would mean that a government would not dedicate resources to constructing a system of monitoring and enforcement in order to improve ASM practices. These choices are illustrated graphically in Figure 10 below. This is the same figure that was shown at the beginning of Phase 2 on page 40.

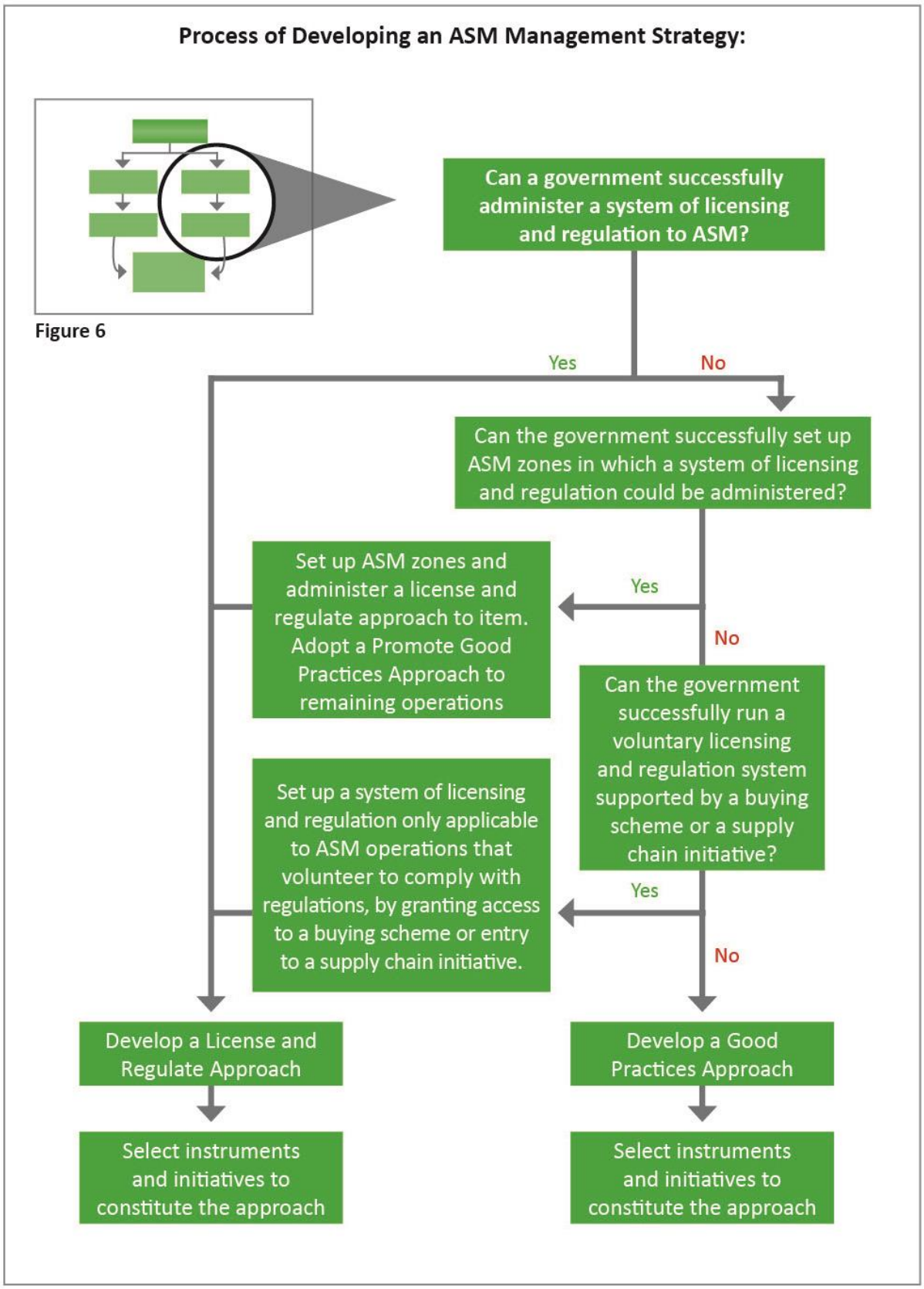


Figure 10: Process of developing an ASM Management Strategy: developing an approach to improve ASM practices decision tree

An ASM Taskforce should consider factors to decide whether or not a government is capable of successfully administering a system of regulation effectively:

- **License administration.** Can the government administer a system of licenses for this subtype of ASM? As Section 8.1 discusses, regulation need not be administered via a system of mining licenses, but the most conventional way is to only permit licensed entities to mine, and as an ultimate sanction, to revoke their licenses. For this reason, governments must be able to issue and administer a system of licenses.
- **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 are in place, will ASM operations of this subtype have sufficient incentives to acquire licenses and comply with regulations?

There are a number of factors that may affect whether a government can successfully administer a system of licensing regulation to some subtype 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 6.2 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 6, 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 6, then the state will struggle to monitor or regulate their activity.
    - The length of duration of this subtype of ASM. If operations are short-term, have short durations and 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 regulations.
- Distrust or antagonism between the state 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 state, 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, labor, 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 legal code.
    - 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 Taskforce 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, and 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 8.1 explains the process of designing a License and Regulate Approach for each ASM subsector, and offers advice on what to do under different circumstances. Section 8.2 explains the process of designing a Segmented Approach, and Section 8.3 explains how a government can design a Promote Good Practices Approach. Section 10.1.3 ties together the approaches for each subtype of ASM by offering advice on how to use license criteria and if necessary adjust sets of incentives to prevent ASM operations. Lastly, Section 8.4

offers advice on how and when governments should form partnerships with LSM companies.

8.1 License and regulate approach

This subsection guides the user through how to design an approach to improve ASM practices with a system of licensing and regulation at its center. A License and Regulate approach makes it illegal to mine without a license, and requires ASM operations to comply with regulations to keep their licenses, supported by a system of monitoring and enforcement. This means that a License and Regulate Approach commits a government to legalize and formalize ASM operations in order to improve ASM practices. It also means that licenses become an administrative tool in a system of regulation. Licenses become valuable to ASM operations because government enforcement makes it costly to mine or process without them. This makes revoking licenses a powerful sanction that governments can apply to ASM operations.

To design the content of regulations, a government should take the Minimum Standards as a baseline, and prohibit practices worse than the Minimum Standards in regulations. 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 just more than they gain by not complying with them. In other words, a government should set the most stringent regulations that give ASM operations sufficient incentives to comply with them. 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 below in Figure 11. Each instrument should be designed to build on the practices achieved by the last, so *it is important that these steps are followed in order.*

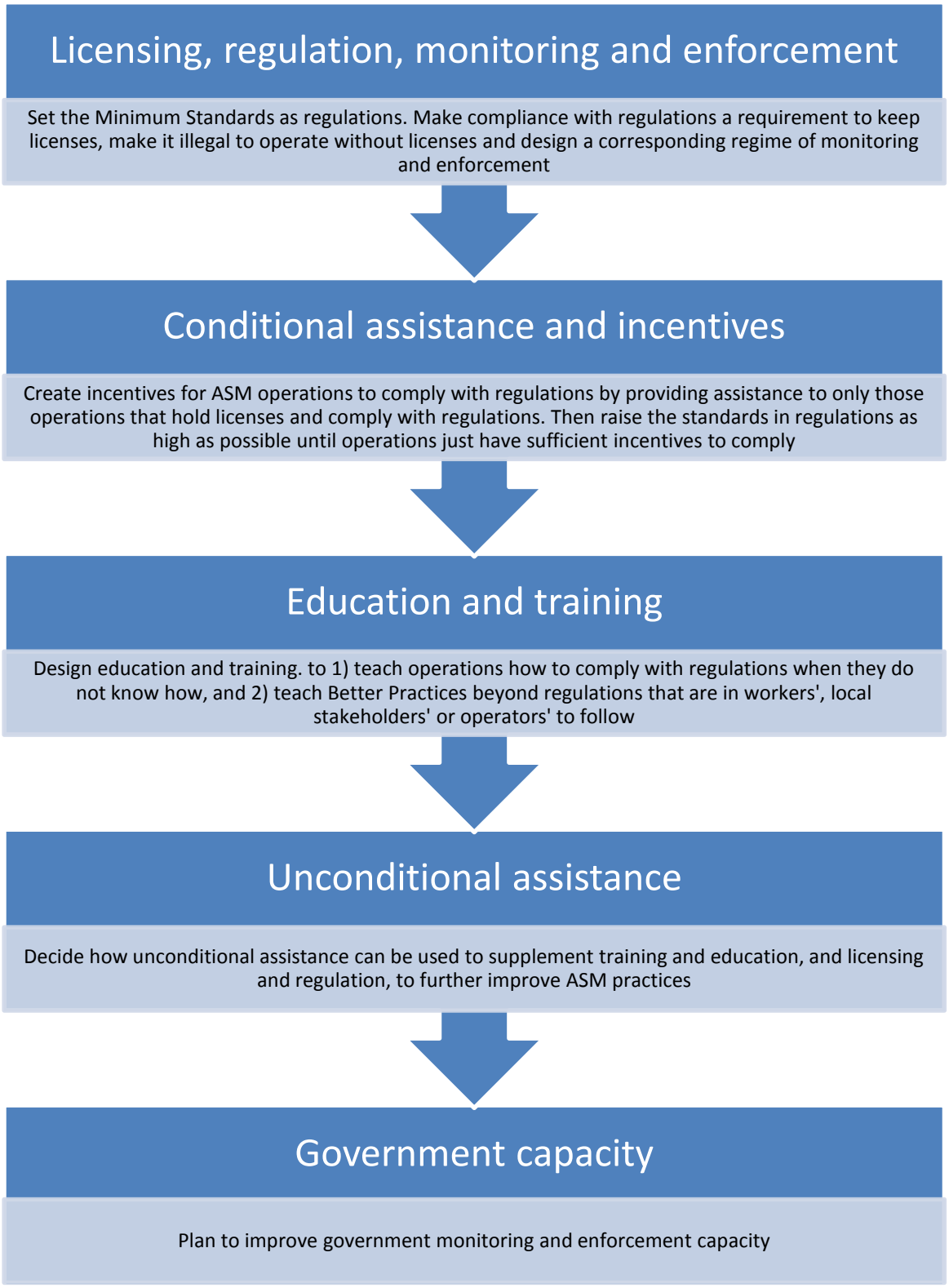


Figure 11: Flow diagram of forming a License and Regulate Approach

8.1.1 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 11.2.3. Some types of assistance can be offered to ASM operations in exchange for them applying for licenses and complying with regulations and 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 licenses 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.

Only some sorts of assistance can be feasibly offered to operations upon the conditions 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 like 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 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 the condition of compliance.

The precise forms of assistance that governments can make conditional upon compliance with laws and regulation will vary from case to case, but from the list of types of assistance, which can be found in 11.2.3, 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.

8.1.1.1 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 8.1.1.

Having revised the complete schedule of sanctions, the government should determine whether this subtype of ASM operations now has further incentives to both acquire licenses and comply with the corresponding regulations. If it does, the government should move practices from the Better Practices to the Minimum Standards, and thereby increase the Minimum Standards. By doing so, it should reflect the greater influence over this subtype of ASM that conditional assistance has granted it.

The government should then evaluate whether it should provide additional conditional services to ASM, not in order to fulfill 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, governments 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.

8.1.2 Education and training

Education and training can be employed to supplement the Minimum Standards set in regulations by finding additional Better Practices that would benefit various ASM actors. When designing the content of an education and training program, a government should include Better Practices that would benefit an ASM operation itself, by improving its productivity. It should further include Better 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 Better Practices that will harm them, and the alternative practices, which they would pressure ASM operations to adopt. These stakeholders might include: the families of miners, the communities among which they work, the traders that buy or process their materials, their suppliers, or their neighbors, to name a few. The practices might include substitutes for inferior practices that harm those stakeholders by generating pollutants, depleting resources, or otherwise adversely affect those stakeholders, for example.

In addition, a government should include in education and teaching 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.

8.1.3 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 11.2.3 other than access to credit or insurance, regular provision of technical support and 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 7. Unlike 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 Better Practices that will made. A full list of the types of assistance that might be offered can be found in Section 11.2.3.

8.1.4 Plan to improve government monitoring and enforcement capacity

Lastly, a government should plan to improve its monitoring and enforcement capacity if that would let it feasibly include additional Better Practices in the Minimum Standards. Further advice on improving monitoring and enforcement capacity are discussed in Section 11.2.2.

8.2 Segmented approach

If a government cannot administer a uniform regulatory regime applicable to all ASM operations of the 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. Other things being equal, an approach that effectively administers licensing and regulation is better than one that does not. If it does this for some ASM operations but not others, it segments its approach. This subsection describes how a government can do that.

Governments should consider whether they could successfully set up ASM zones. ASM zones are areas in which ASM has been approved, under a separate system of administration. If it can, then operations in ASM zones should be treated as a separate subtype of ASM for all purposes. A government should then design a separate License and

Regulate Approach for operations in the zones. In this way, a government adopts a *segmented* approach. Advice on when a government should set up ASM zones is described in Section 8.2.1 below.

A government should then consider whether they can use down-stream demand pressures to incentivize 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 8.1 above.

8.2.1 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., an ASM zone. An ASM zone is an area with known or probable mineral or metal deposits that has been allocated for ASM, which separate rules and administration. Normally, a governing authority or manager would be established and made responsible for managing ASM within each zone, normally under the supervision of the Ministry of Mines. There would be a separate process for attaining licenses to mine or process, and different standards that operations in the zone must meet.

Geographically concentrating the area under consideration reduces the costs of and augments the effectiveness of monitoring and enforcement. 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 of zones differently. Thereby, by creating a system of ASM zones, the government creates a new subcategory 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 8. 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. 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, which 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.

8.2.2 A voluntary system of regulation supported by a state-sponsored buying scheme or a supply chain initiative

If a government decides that it does cannot administer a regulatory approach for some a subtype of ASM *universally*, it might decide that it can still introduce a voluntary system of regulation that some operations choose to participate in. 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. It could sponsor and fund a scheme that buys minerals and metals from ASM at above-market prices. Alternatively, it could take advantage of an industry or third-party supply chain initiative that buys at a higher price than elsewhere. Both of these options are explained below.

8.2.2.1 State-sponsored buying scheme

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

To verify that minerals or metals come from compliant operations that are members of the voluntary scheme, the operations should sell directly to the scheme's buying stations, or a system of supply chain traceability should be implemented.

Sale by ASM operations directly to buying stations will be affected by:

- Whether ASM operations are highly dispersed.
- Whether a government cannot afford to support many buying stations, or run them close to ASM operations.
- Whether a government can employ a system of mobile money to pay ASM operations, which reduces the security costs of running buying stations.
- The produce of ASM operations is costly to transport.

The feasibility of instituting a system of supply chain traceability will be affected by:

- The organizational capability of ASM operations.
- The costs to ASM operations of participating in a traceability system.
- The ratio of value to volume or weight, which affects how easily produce can be introduced into the buying scheme.

If the mineral or metal is also produced in neighboring countries, running a system that buys at a premium will create incentives for neighboring countries to smuggle their produce in and sell it to the buying scheme. A government could introduce a scheme of randomly checking samples it receives and 'fingerprinting' the samples by analyzing the properties of the minerals, metals or ore and comparing that to on-file information about mineral deposits to identify the likely regional sources of the minerals or metals.

If a government decides to initiate a buying scheme, it may also serve to support a subtype of ASM that produces positive externalities, as described in Section 13.5.

8.2.2.2 Supply chain initiative

Under some circumstances, rather than establishing a buying system, a government might take advantage of a supply chain initiative run by a third party. Some such supply chain initiatives build in a mark-up over the normal price, or offer one in effect because minerals or metals that meet the standards set in that initiative are in high demand. The use of supply chain initiatives to increase the economic potential of ASM subsectors was discussed in Section 7.1. A list of supply chain initiatives is shown in the Annex.

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

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

- Identify what standards of practices the subtype of ASM operations will have to meet in order to become compliant with the scheme.

- Include those standards of practices 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 practices.
- If necessary, allocate further assistance to help this subtype of ASM operations meet those standards of practices.
- If necessary, invest in government capacity to regulate this subtype of ASM operations in line with the provisions of the standard.

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. Firstly, the Minimum Standard should include the standards specified by the supply chain initiative. Secondly, this treatment should only apply 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 of whether or not to set up a supply chain initiative. Guidance is offered on the economic benefits of a supply chain initiative in Section 7.1. If supporting the introduction of a supply chain initiative were justifiable as part of the Economic Approach alone, then the government in question should establish one. If using that supply chain initiative to support a voluntary regulatory system is beneficial, then it should do this also. If, in contrast, the economic benefits alone were not enough to justify introducing a supply chain initiative, then the government should re-evaluate whether it is justifiable in light of the advantages that it would bring if it also supported a voluntary regulatory system.

8.3 Promote good practices approach

In a License and Regulate Approach, the Minimum Standards are set as regulations, and a system of monitoring and enforcement is employed to ensure that those standards are met. If a government decides that it cannot realistically *make* ASM operations adopt better practices, then it should promote good practices in other ways. It should also consider whether it can improve capacity and position so that it can adopt a License and Regulate Approach in the future.

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 8.1, 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 practices contained in the Minimum Standards to the Unacceptable Standards and make them the content of light regulation. This would be preferable to no system of regulation at all, and it would also provide a strong basis to improve ASM monitoring and enforcement capacity in the future.

Whether or not a government can do either of these things, it should proceed to design other aspects of government action with the intention of improving ASM practices in the absence of a system of regulation. These steps are shown in Figure 12 below.

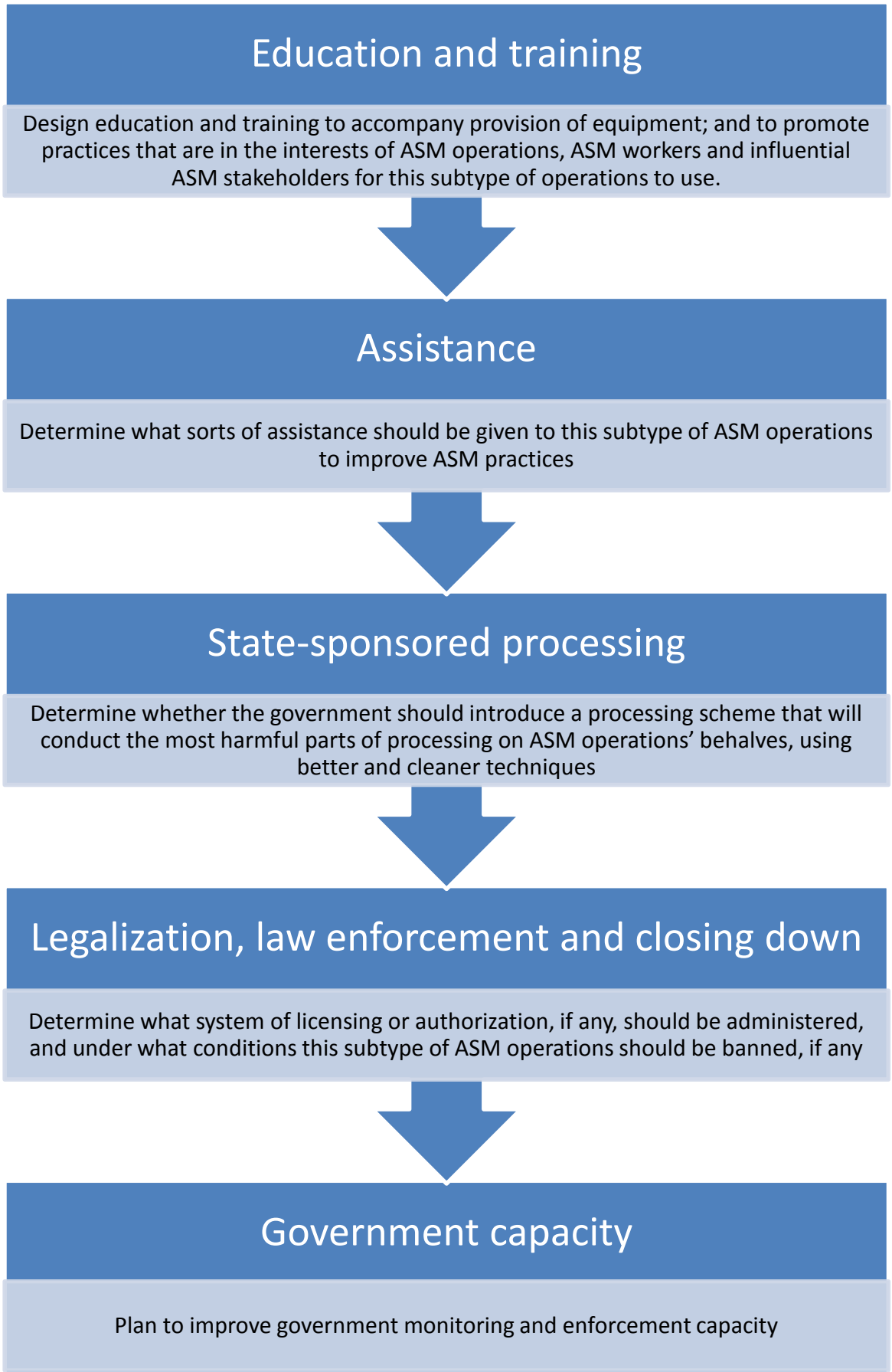


Figure 12: Flow diagram of forming a Promote Good Practices Approach

8.3.1 Education and training

In a Promote Good Practices Approach, education and training should be designed to cover mostly the same content categories as in a License and Regulate Approach described in Section 8.1.2. Namely, it should always include techniques that are beneficial to ASM operations; particularly those that they do not yet know about and/or incorrectly apply. A government should educate influential ASM stakeholders about practices that are harmful to them and it should teach ASM operations better practices that they should employ instead.

However, in the absence of the powers of licensing and regulation, education and training is more important and should be given further resources. Minimum Standards that are enforced as regulations in a License and Regulate Approach include practices that fall into the content categories above. This means they would not need to be taught in education and training. For example, regulations often prohibit using techniques that are harmful to miners and/or harmful to nearby residents. In the absence of licensing and regulation, it falls on education and training to promote safe practices instead.

8.3.2 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. These would be offered in addition to the assistance already offered to ASM operations in the ASM Industry Approach described in Section 7. 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 Standards, and if possible, exceed these and adopt Better Practices too. A full list of the types of assistance that might be offered can be found in Section 11.2.3.

8.3.2.1 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 plants costs' higher than the costs of artisanal or small-scale processing, so to encourage private companies to set up processing plants.
- Subsidize processing plants.
- Sponsor 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 would be higher.
- If ASM operations are geographically dispersed, then either the costs of transportation would be higher, or more processing plants would 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 of 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.

8.3.3 Legalization, law enforcement and closing down

If a government decides that it does not have the capabilities to run a system of regulation, it does not follow that the government necessarily lacks the capacity to enforce any laws. It only means that the government does not have the capacity to both monitor and enforce a system of regulations designed to improve ASM operations. Under some conditions, a government may lack the capacity and local presence to monitor ASM operations frequently enough to make a system of monitoring and enforcement work, but have just enough capacity to enforce simple laws. In these circumstances, once a government has exhausted all other ways to improve mining practices discussed above, it should determine whether there are any conditions under which operations of this subtype of ASM should be closed down and whether it has the capacity to close them down.

In deciding whether to do so, a government should weigh up the sum of operations' negative and positive impacts, and compare them to the consequences of closing down operations. The sometimes considerable consequences of closing down ASM operations, and the probabilities of success, are discussed below, as are procedures that government agents should follow as they do so. To choose when ASM operations should be shut down, the government should refer to the Unacceptable Practices developed in the Vision in Section 5. 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.

Once it has decided what those conditions are, ASM operations using those practices or under those conditions should be made illegal as part of the revision of the legal framework described in Section 9.1. 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 11.2.2.

Once a government has decided under what conditions some subtype of ASM should be prohibited, under all other conditions, it should be made legal. If a government cannot use licenses as part of a system of regulation, monitoring and enforcement, it does not mean that a government should not issue licenses at all. There are three reasons to make a subtype of ASM legal if there is to be no system of regulation to improve practices. Firstly, illegality is harmful to ASM operations. Illegality impedes access to credit, insurance, and other services, which makes ASM operations less profitable, and more vulnerable. Secondly,

if the government creates a system of ASM licenses 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 license administration to build upon, and a sector of registered and licensed ASM operations.

A government could legalize this subtype of ASM by repealing the clauses in the mining code and other laws that forbid this sort of ASM without licenses save under the aforementioned conditions. Alternatively, a government could institute a system of licenses that come without a corresponding set of regulations.

8.3.4 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 to do that is to create a system of licenses that can be held without meeting regulations, as described directly above in Section 8.3.3. 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 that conducts 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 and/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 prevalent corruption in government agencies involved in monitoring and enforcing regulations in the ASM sectors of many countries.

Thirdly, 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 8.1.4.

Further advice on improving monitoring and enforcement capacity are discussed in Section 11.2.2. Government capacity building on monitoring and enforcement can also be

undertaken in conjunction with development agencies and NGOs that have direct experience in these areas of work.

8.4 LSM-government partnerships

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

- Removing ASM from a LSM site, or containing and controlling their presence on the site, particularly to mitigate commercial, reputational and/or operational, 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 visa-versa, such as environmental impacts.
- Improving community relations.
- Reducing security risks.

A full account of LSM companies' interests in ASM is given in *Working Together*. 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.

In a partnership, government and LSM companies should cooperate to pursue shared interests. They can do so by each making available complementary resources that the other partner cannot provide. LSM companies can provide the following resources to a partnership, among others:

- Geological and engineering expertise
- Operational presence near ASM operations
- Finance
- Processing operation

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.

The parties should meet to discuss and to negotiate agreement on the terms of partnerships.

Further information about how LSM companies address ASM issues can be found in *Working Together.*

8.5 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 3.2.

Phase 3: Implementation of the ASM Management Strategy

After developing an ASM Management Strategy, a government should go about implementing it. Phase 3 of the Guidance advises governments how to implement an ASM Management Strategy. Section 9 describes how the ASM Taskforce can develop an Implementation Plan, which involves allocating roles and responsibilities, building government capacity and setting budgets. Section 10 describes how a government should prepare to implement an ASM Strategy. Section 11 describes how each instrument and initiative that a government might have chosen should be implemented. If Phase 2 advised governments *which* instruments and initiatives a government should choose, Section 11 in Phase 3 describes *how* those instruments should be implemented. Lastly, Section 12 describes how a government should monitor, evaluate and improve upon the ASM Management Strategy and its implementation.

9 Implementation plan

After developing an ASM Management Strategy, a government should develop an Implementation Plan. 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 Taskforce should develop the Implementation Plan, and the Taskforce 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 Taskforce 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, et cetera. Lists of possible measurements of outputs are listed in Section 12 on Monitoring, Evaluation and Improvement.

The ASM Taskforce 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 tons of mercury produced. Others should be expressed as the number or proportions of ASM operations that stop using the Unacceptable Practices, the number or proportion that meet the Minimum Standards, and the proportion that employ various Better Practices described in the Vision in Section 5.

9.1 Government capacity building

After allocating roles and responsibilities, a government should allocate resources between departments and develop capacities to ensure that they can fulfill them. While The Ministry of Finance is normally responsible for setting budgets, the ASM Taskforce should play a role ensuring that budgets for managing ASM reflect the roles and responsibilities set out in the Implementation Plan.

Government capacity is a large and recurrent challenge in managing ASM. Often, governments manage ASM unsuccessfully because they were under-resourced, because funding was unpredictable, or because available funding was mismanaged. Ensuring that government departments have sufficient funds and that these are managed well, and ensuring that government has 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.

If some departments lack capacity to perform their roles, the government should investigate if 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 increase it more quickly or cheaply.

If a government cannot adequately resource 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 8.1.4 and 8.3.4 set out when government should decide to increase government monitoring and enforcement capacity in the future.

9.2 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 3.2.

10 Preparing to implement the ASM management strategy

After completing an Implementation Plan, a government should prepare to implement the ASM Management Strategy. If a government rolls out programs without preparing to do so first, it will suffer from problems of implementation. An ASM Taskforce 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 13 below.

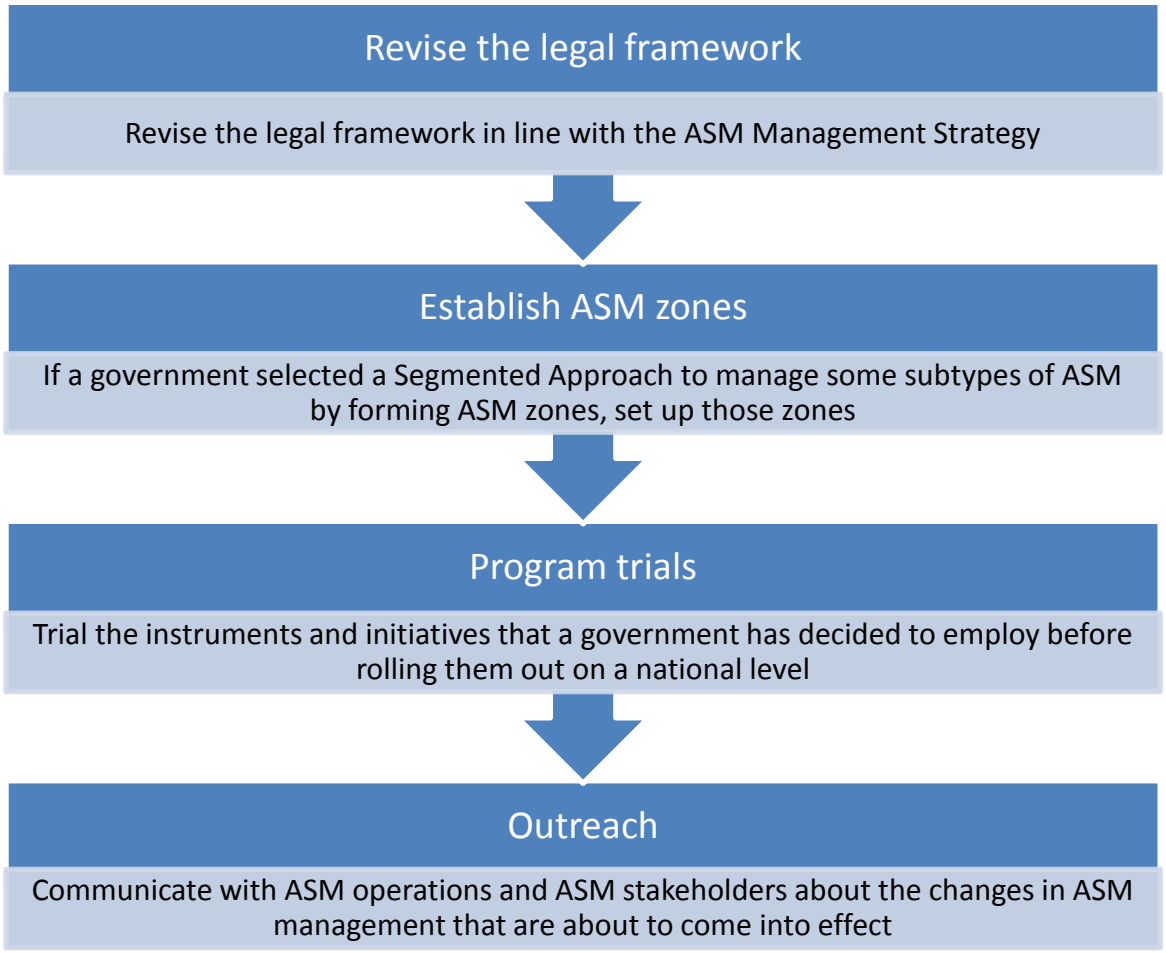


Figure 13: Process diagram of preparing to implement the ASM Management Strategy

10.1 Revision of the legal framework for ASM

Laws and regulations governing ASM should be revised in accordance with the ASM management strategy outlined above. 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.

10.1.1 Licenses

Laws and regulations should be revised so that:

- There are different classes of licenses for each subtype of ASM operations defined in the ASM Management Strategy. Alternatively, there should be one type of license, but operations' subtype should be marked on the license as license criteria, as described below.
- If the government chose a License and Regulate Approach, regulations for each subtype of ASM are composed of the Minimum Standards as described in Section 8.1, and holding a license is conditional upon complying with those regulations. If the government chose a Promote Good Practices Approach, there should be no regulations for ASM operations, as described in Section 8.3.
- They authorize the sanctions and associated legal procedures that are part of the system of licensing, regulation, monitoring and enforcement described in Section 11.2.2.
- If necessary, the legal framework should provide the government with the powers to designate and manage ASM Zones, as described in Sections 7.1 and 8.2.1.
- Licenses:
    - Are divided by prospecting, mining, processing and trading, regardless of the other ways in the ASM sector is subdivided into categories.
    - Include license criteria, as described below.
    - Are specifically designed for ASM, and are not the same as licenses 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 licenses to land that is not fully exploited and/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 licenses to administer and enforce ASM regulations. The government could apply sanctions to other legal entities that conduct mining, if they exist, and if miners are not registered as legal entities, even prohibit mining at sites, rather than legal entities from mining. However, most mining codes permit only those with licenses to mine. Consequently, the most common way to administer mining regulations is to instruct law enforcement agents to stop anyone from mining without a license, and revoke the mining licenses of legal entities that do not follow regulations as a sanction of last resort.

10.1.2 License applications

License application procedures should be designed so that:

- The process is transparent.
- The process of applying for licenses is administratively simple.
- The process is short.
- There are dedicated application points for all licenses and permissions.
- License 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.

10.1.3 License criteria

License criteria are set as part of the mining laws or regulations. License criteria are not the same as contents of regulations, which are referred to in this document at the conditions for holding licenses. Nor are they the same as the conceptual definitions of ASM and subtypes of ASM. Instead, ASM criteria are prerequisites to attaining licenses that are designed to 1) distinguish between subtypes of ASM, and 2) prevent ASM operations from miscategorizing 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. License criteria are the means by which a government makes those distinctions. Examples of license criteria include:

- The minerals or metals mined or processed.

- The type of or amount of equipment is 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 license.
- The time period of licenses.
- The renewability of licenses.

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 licenses for micro-scale miners in order to avoid burdensome regulations. Alternatively, micro-scale miners might wish to take small-scale mining licenses 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 license criteria to prevent miscategorizations of these kinds. License criteria can be chosen that prevent ASM operations of a certain subtype acquiring licenses intended for another type.

10.2 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 as per Section 4.6 and in recognition of the mining territorial license regime, if in place. They 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 7.1.

This department should appoint a manager or director 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 that 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 bring geographically concentrated effects, such as providing transport, electricity and water infrastructure.

10.3 Program trials

The government should conduct trials of the major instruments and initiatives that it intends to implement. Trials should be conducted in diverse locations and evenly spread across the areas where the government expect its proposed programs and activities to be difficult to conduct and those where they expect them to be easy to conduct. While trials should be conducted

10.4 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 advanced warning to ASM operations of the changes that are being planned in ASM management. If the government chose a License and Regulate Approach as described in Section 8.1 then it should take special care to introduce the Minimum Standards, the contents of regulations for ASM. Advice on disseminating the Minimum Standards is discussed in Box 4 below. 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 Ministry of the

Environment or Labor. Outreach should not be conducted by law enforcement agents, wherever possible.

Box 4: Dissemination of the Minimum Standards

Government should design an overview of the Minimum Standards for license-holders that is available in an 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 to the following contact points with ASM operators:

- Outreach
- License applications
- Visits and inspections by regulators
- Education and training

11 Implementation

In Phase 2, 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 Figure 8.

11.1 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 directly by the government, or by a state-owned company, responsible to an independent body and tasked with maximizing sales from regulation-compliant operations, subject to remaining cost-neutral.
- If possible, a mobile money system is used to pay ASM operations, to reduce the security-related costs of running buying stations.
- Buying stations are located close to ASM operations.
- A traceability system and due diligence supply chain system, including a set of whistleblower mechanisms and checks, is introduced as part of the scheme where required due to external circumstances, such as conflict.

The buying scheme and the corresponding voluntary system of regulation should display 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 contents of monitoring should be formed following the process described in Section12. 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 licenses or offer other verifiable proof that they are members of the scheme.

11.2 Facilitate or encourage participation in supply chain initiatives

Supply chain initiatives can be introduced in order to fulfill the economic potential of some subsector of ASM by letting ASM operators sell their minerals or metals at higher prices as described in Section 7.1. and ideally at the prevalent world market adjusted prices, where external circumstances, such as illegality, have previously forced ASM operations to sell at discounted prices into the grey market. The responsibility to facilitate or encourage participation in supply chain initiatives would normally fall to the Ministry of Finance, Trade, Economic Planning or Mines.

In either case, supply chain initiatives will conventionally require ASM operations to comply with standards of practice, and to pass on their products to buyers through an integrated traceability and due diligence system that meets standards set out in the initiative. Governments should amend education and training to help the subtype of ASM operations meet those standards.

However, they might also be designed in order to improve the practices of some ASM subsectors by providing incentives for ASM operations to meet higher standards of practices and making them the basis of a system of voluntary regulation, as described in Section 8.2.2. As explained in Section 8.2.2, participating ASM operations are treated as a separate subsector of ASM, and the Minimum Standards, education and training and assistance that they receive is adapted accordingly.

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:

- Determining whether there are any requirements such as whistle-blowing mechanisms that government could legislate for or provide models of to make the practice of implementing those requirements simpler for ASM operations.
- Identifying if there are any procedures that the government could provide at a cheaper collective cost than individual ASM operations, such as risk assessments, monitoring and administration of traceability scheme, convening community-based reporting groups.

If a third party runs the initiative, the government should take on an advocacy role to persuade the third-party to extend its operations into the country. This might involve:

- Directly contacting a third-party that administers a supply chain initiative to persuade them to extend their operations to the area in question.
- Using government data obtained in research as described in Section 4 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 more attractive proposition.

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:

- Advertising on behalf of the ASM subsector that the sector is compliant with industry standards.
- Using government data obtained in research as described in Section 4 to create market research that participating companies will be unable to otherwise obtain and that will give them reasons to enter the sector.

11.2.1 Education and training

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

11.2.1.1 Content

The best content of education and training programs for each ASM subsector depend upon the approach that a government adopts to improve ASM practices. These differences are discussed in Sections 8.1.2 and 8.3.1, 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 teach ASM operations better practices that they should employ

instead. If a government employs a regulatory Approach to Improving ASM, these practices can only include Better Practices. If it employs a non-regulatory Approach, any commonly-used practices that are harmful and could be improved should be included.

- Lastly, 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.

11.2.1.2 Location and points of contact

Education and training can be delivered:

- In regional education and training centers.
- By mobile or roaming staff.
- By on-call experts that 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 adverts;
- Through interactive communication technology such as web, telephone and SMS helplines.

All of those 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:

- Education and training is for workers rather than operation managers or owners.
- Education and training for influential ASM stakeholders, rather than ASM operations themselves.
- 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 rumors about the content of the training.

As government inspectors will monitor whether or not ASM operations employ these practices to meet regulations as per the guidance in Section 11.2.2, those inspectors could be tasked with conducting education and training at the same time to extend its availability and reach.

11.2.1.3 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, a government should educate ASM operations about the risks and opportunities associated with them and train ASM them to use them well when they provide them with the equipment.

As 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 reimported and misconceptions that have developed can be corrected. Roaming trainers, online platforms and phone or internet hotlines can be used to maintain knowledge continuously.

11.2.1.4 Staff

Teachers and trainers should be selected that:

- Will be welcomed and trusted by the audiences in question.
- Where appropriate, are current or former 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 feasibly explain and demonstrate better practices.

11.2.2 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 8 of the Guidance. 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 Ministry of Labor and Environment. Those departments

should decide whether the Ministry of Mines will take responsibility for inspections and supervision of ASM operations regarding issues of labor and environmental standards, or whether all three departments will pool the responsibilities of inspections, or 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 Defense may have a role to play in supporting the Ministry of the Interior also.

11.2.2.1 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 licenses, those licenses 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, which ends in closing operations down. The details of this how this process of enforcement should work are detailed in Section 11.2.2.3 below.

11.2.2.2 License and Regulate Approach

If a government adopts a License and Regulate Approach for an ASM subsector, then a government employs a system of licenses and regulation, supported by a system of monitoring and enforcement. A government makes ASM operations acquire licenses or stop operating, and prosecutes ASM operations that have licenses but do not comply with regulations with a series of sanctions that ends with revoking licenses.

A government should set a schedule of sanctions for ASM operations that mine without licenses or conduct the Unacceptable Practices, which ends in closing operations down. The details of this how this process of enforcement should work are detailed in Section 11.2.2.3 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.

The content of regulations should be set using the Minimum Standards as a starting point. A government should translate the Minimum Standards into draft regulations in which practices worse than those in the Minimum Standards are prohibited. Then, it should analyze ASM operations' incentives to comply with those draft regulations, keeping in mind the costs of complying with regulations and rules, and effectiveness of monitoring and enforcement and the strength of punishments. The costs of compliance includes the direct costs of paying fees and taxes, as well as the costs that changes in practices will produce, such as giving up some techniques and adopting others. The effectiveness of monitoring and enforcement is a function of the probability of an operation being caught not complying with regulations and the probability of that operation being effectively sanctioned, and the severity of those sanctions. Regulations should be designed so that it is less costly to comply with regulations than it is to avoid complying with them, even if that means substantially weakening regulations.

Responsibilities to ensure that ASM operations of this subtype comply with the Minimum Standards, or 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 whistleblower schemes and running investigations.

In general, monitoring and inspections should be administered by the Ministry of Mines, the Ministry of Labor or the Ministry of the Environment. The Taskforce 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 Environment should oversee site closure to ensure that mines are closed in line with good practice.

11.2.2.3 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 the 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 for Security and Human Rights.

This procedure is shown in Figure 14, and described in detail below.

1. Notify the ASM operation in question that they are in contravention of a law. 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. Otherwise, instruct the operation and its staff that they must cease to operate within a time frame and manner decided by the government. If required, appropriate and feasible, arrange to economically resettle the operation. Economic resettlement is described in Box 5. Then, proceed to step 3.
2. Inspect the site to determine whether the operation has ceased to contravene the law. 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. If it has not ceased to contravene the law, proceed to step three.
3. Inspect the site to determine whether the ASM operation has closed down. If it has, check that the site meets standards for site closure and post-closure in accordance with socio-economic, environmental and safety standards set out in the ASM Vision, and if not, close the site so that it does. The closing down procedure is now complete. 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.

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 5.3 above. Then, check that the site meets standards for site closure and post-closure in accordance with socio-economic, environmental and safety standards set out in the ASM Vision, 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 remedy human rights abuses. They should do so by ensuring that law enforcement and security services:

- Only use force when necessary.
- Do not use force to deny peoples' human rights to assembly.
- Provide medical services to each and every person that experiences injuries during the use of force.
- Comply with the UN Basic Principles on the Use of Force and Firearms.
- 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.

Box 5: Economic Resettlement

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

Economic resettlement should be preceded by a period of outreach and consultation in which ASM operators are informed that they will be resettled. This period of outreach should coincide with the registration of the staff that work at the ASM operation in question and any persons who live there, to prevent others who are not eligible for resettlement or compensation claiming it.

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 they 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 returning to the operations that they were moved from.
- Be close to the original site of the ASM operation.
- Be appropriate for the skills and capacities of the ASM workers.
- Be offered as a choice, wherever possible.

Government should refer to the following sources on resettlement:

- IFC Performance Standard on Environmental and Social Sustainability 5: http://www.ifc.org/wps/wcm/connect/c8f524004a73daeca09afdf998895a12/IFC_Performance_Standards.pdf?MOD=AJPERES
- Davidson, F., M. Zaaijer, M. Peltenburg, and M. Rodell. 1993. Relocation and Resettlement Manual: A Guide to Managing and Planning Relocation. Institute for Housing and Urban Development Studies, Rotterdam.
- International Finance Corporation. 2002. Handbook for Preparing a Resettlement Action Plan: A Good Practice Guide to Designing and Implementing Resettlement Action Plans for IFC Clients and Private Sector Companies. Washington, DC.
- International Finance Corporation. 2006. Performance Standard 5 – Land Acquisition and Involuntary Resettlement, Performance Standards on Social and Environmental Sustainability. Washington, DC.

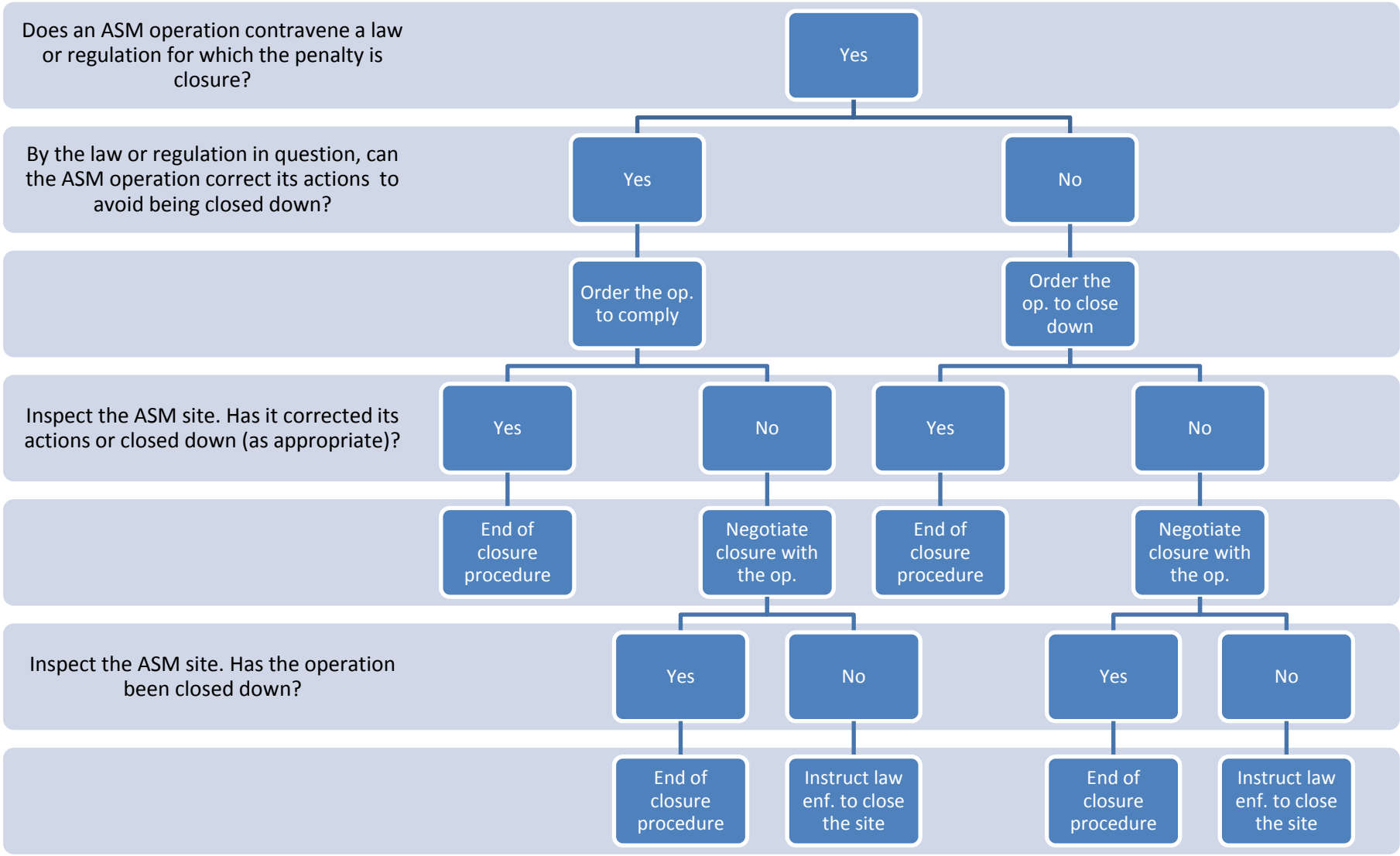


Figure 14: Closure procedure decision tree

11.2.3 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 it might be effectively implemented. Assistance might be offered in order to fulfill the economic potential of each ASM subsector, as described in Section 7. However, above and beyond assistance with economic purposes, further assistance might be provided in order to improve ASM practices, or as part 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 Taskforce, and they are mentioned in where relevant. However, the ASM Taskforce is responsible to oversee 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 8.4. A list of the forms of assistance described below is shown below.

- Services for ASM workers
    - Healthcare or health or life insurance for workers
    - Education to 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 of the sale of equipment

11.2.3.1 Services for ASM workers

11.2.3.1.1 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 Taskforce.

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 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 that require workers to seek healthcare, especially emergency healthcare, will find this form of assistance particularly valuable, and so it will also be an effective incentive if used as a conditional incentive. However, governments should consider whether they would be willing to withdraw healthcare as part of an incentives scheme, on ethical grounds, especially if *workers'* healthcare was withdrawn to sanction the actions of ASM *operations*.

11.2.3.1.2 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 regulation, 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 labor 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. Provision of education to ASM workers' and workers' children should be administered by the Ministry of Education in collaboration with the Ministry of Mines, under the supervision of the ASM Taskforce.

11.2.3.2 Services to ASM operations

11.2.3.2.1 Security provision

ASM operations are exposed to security risks by potential 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 11.2.2. 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, including:
    - Determining whether they, their employees or their subcontractors have reputations or records of human rights abuses.
    - Whether they are appropriately trained and equipped.
- Do not supplement 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 Defense may be asked to work along the Ministry of the Interior to provide or supplement security. Whichever ministries are chosen, they should work under the supervision of the ASM Taskforce.

11.2.3.2.2 Transport infrastructure provision

Governments are normally the monopoly 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. As transport infrastructure can seldom be withdrawn from non-regulation compliant ASM operations, it cannot be used as an incentive.

A government should analyze ASM trade routes, using data generated during the Supply Chain Mapping in Section 4.5. Sometimes, transport infrastructure provision is about the design of the transport system. At the macro level, it 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 or clusters of operations to transport networks. Sometimes, laying a short road can significantly reduce transport costs for a single operation which otherwise has to move 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 services smooth, 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 Taskforce.

11.2.3.2.3 Electricity and electricity infrastructure provision

Governments are sometimes the only suppliers of electricity infrastructure. Electricity is also often 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, it may reconnect itself illicitly by laying cables to a neighbor'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 give ASM operations access to the power generated. As this power source would be separate from the main grid, it could more easily be switched off if ASM operations cease to comply. Under these circumstances, electricity could be provided to ASM operations upon the condition that they hold licenses and comply with regulations.

ASM operations are often 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- hydro-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 Taskforce.

11.2.3.2.4 Water and sanitation provision, and water and sanitation infrastructure provision

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

Water can be supplied to ASM operations upon the conditions that they hold licenses 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 as appropriate, in collaboration with the Ministry of Mines and under the supervision of the ASM Taskforce.

11.2.3.2.5 Assisted access to credit or insurance

ASM operations often 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 the 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 the spread of arrangements in which a lender offers money in exchange for the right to buy future minerals or metals produced at a discounted rate. Alternatively, 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 7.3.
- 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-in credit repayment into monitoring and enforcement regimes, which are discussed in Section 11.2.2.
- Encourage and arrange 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 sums of tens of thousands, hundreds or thousands of millions of United States dollars. Micro-scale miners, in contrast, might need credit to the sum of hundreds of United Stats 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. They often include criteria such as having

licenses, 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 do not have, and applying these criteria may inadvertently wean out the very operations that benefit from credit the most. 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 Taskforce, normally provides credit or insurance.

11.2.3.3 Technical assistance to ASM operations

11.2.3.3.1 Provision of geological data, geological expertise and exploration services

ASM operations often lack geological information, which would make their operations more effective and would give them greater certainty. Therefore, this information would be economically advantageous to ASM operations. However, once geological information has been given, it cannot be withdraw. For this reason, it is not a useful incentive to use to induce compliance, though it is imperative to support the more efficient functioning of the sector as a whole.

Geological data, geological expertise and exploration services are normally provided by the Ministry of Mines, in collaboration with the Ministry of Land, an under the supervision of the ASM Taskforce.

When providing geological data, expertise or exploration services, a government should seek to procure services locally wherever possible to support the local economy. It should balance this against the need to procure high quality services, where necessary.

11.2.3.3.2 Provision of technical expertise

Sometimes ASM operations lack technical expertise and the economies of scale to make it worth hiring in that expertise. Gaining technical expertise can improve not only economic outcomes, but can also improve ASM practices. The Ministry of Mines, under the supervision of the ASM Taskforce, normally provides technical expertise.

When providing technical expertise, a government should seek to procure services locally wherever possible to support the local economy. It should balance this against the need to procure high quality services, where necessary.

11.2.3.3.3 Provision of or subsidy of the sale of equipment

Equipment is often unavailable, or only available at high prices. Improving equipment can both improve ASM economic outcomes and ASM practices. As equipment cannot be easily withdrawn, equipment is not an effective incentive to induce compliance. Equipment is normally provided or subsidized by the Ministry of Mines, under the supervision of the ASM Taskforce.

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

11.2.3.3.4 Subsidy of inputs into the mining or processing process

ASM operations use many inputs other than equipment, such as electricity, petrol, water, and chemicals. Subsidizing inputs is distortive, but may be desired for reasons set out in Sections 8.2.2 and 13.5. 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, there is little demand for them for other uses, or the passage of those goods is controlled. Inputs are normally provided or subsidized by the Ministry of Mines, under the supervision of the ASM Taskforce.

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.

11.2.3.3.5 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. Education and training should be the first methods that are used to address information problems like these. However, if information problems persist despite well designed and

implemented education and training programs, the Ministry of Mines, under the supervision of the ASM Taskforce, could sponsor demonstration operations.

A demonstration operation should meet Better Practices that are in ASM operations' interests, ASM workers' interests or influential ASM stakeholders' interests 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 how they are done on the job.

A government might finance and run a demonstration mine 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 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.

11.2.3.3.6 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. The Guidance offers advice on whether or not governments should provide these services in Section 8.3.2.1.

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

Processing plants should employ good 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.

Government-sponsored processing plants

The Ministry of Mines, under the supervision of the ASM Taskforce, 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 is not loss-making, 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 setup processing plants, it could put up public tender for contractors to set up and run processing plants.

12 Monitoring, evaluation and improvement

Monitoring implementation, evaluating success and improving it is part 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, evaluation and improvement should be led by the ASM Taskforce, though the participating departments should conduct most data collection and processing.

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 they really do to manage ASM, and 2) the consequences of what they do. These measurements should reflect the targets set in the Implementation Plan as described in Section 9.

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 designed as described in Section 3.2. The purpose of consultation should be to gather information about ASM management, solicit feedback, to 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.

To improve ASM management, government should conduct an ASM Management Review in which it analyzes the data gathered and adjusts its ASM Management Strategy.

12.1 Measuring outcomes

Outputs should be related to the negative and positive impacts of ASM described in Section 5 on the Vision. Ways to measure these impacts are described in the Impact Assessment as part of Research in Sections 4.3 and 4.4. As described in those sections, all research should be conducted at least once every ten years. However, to monitor the outcomes of ASM management, a government should conduct an Industry Survey and an Impacts Assessment at least once every five years.

12.2 Measuring outputs

Wherever possible, government should make collecting output measurements routine reporting activities 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 Industry Survey or the Impact Survey of ASM Sites. A survey allows a government to measure the quality of services, and 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.

13 Annex

13.1 Methodology to select unacceptable practices, minimum standards and better practices

13.1.1 Value statement

To form a vision, a government should first decide how to categorize the outcomes of ASM into issues, and secondly how much these outcomes matter. Governments should choose the categories into which the outcomes or consequences of ASM should be organized. Examples include environmental impacts, social impacts, et cetera. In Section 5, the Guidance briefly introduces a number of conventional categories that impacts of ASM are normally organized into.

Governments should then find a practical way to express how important the government thinks various impacts of ASM are. For example, a government might make a working typology of 'a little costly', 'somewhat costly', and 'severely costly' impacts, and 'a little beneficial', 'somewhat beneficial', and 'very beneficial' impacts. Some impacts will be synonymous with practices. For example, violations of human rights are consequences, but they are also actions or practices. Most usefully, a government could add numerical weights to each consequence by calculating the estimated value of positive and negative impacts of ASM.

Severely costly impacts or practices are unacceptable and should be priorities for government action. A government may find it helpful to subdivide the possible impacts of ASM by the metals or minerals that are currently mined or might be mined in the future.

Section 5 contains a number of suggested sources that the government might turn to for further information. Where possible, these sources include those that list the possible ASM impacts that fall into each category, and offers advice on how seriously they should be treated. It also includes standards of acceptable practices, which may inform governments' decisions of which practices are unacceptable.

13.1.2 Create a ranking of ASM practices

Once governments have rated the importance of different impacts of ASM, divided per mineral and metal, they should translate this into a ranking of ASM practices, also divided per mineral or metal. Practices are more helpful terms than impacts for government agents in many circumstances, because while impacts are hard to measure, different practices are easily identifiable. Regulations are set in terms of practices, or actions, which may or may not be done, rather than particular outcomes. In practice, some impacts already listed above are already synonymous with practices. For example, recognition of labor rights is an impact of a kind, but it is also a practice.

To guide the subsequent steps in this section, a government should develop a ranking of ASM practices for ASM for each mineral and metal. To do this, they should:

1. Divide ASM of this mineral by each stage in the value-chain. A typical mining sector value-chain is shown in Section 2.1.
2. Identify which techniques can be used at each stage of the value chain, and which are interchangeable.
3. Separately, identify what other practices can be employed across the value chain, such as provision of welfare, and levels of respect for human rights.
4. Use the Value Statement to rate the net costs or benefits of each practice.
5. For each stage in the value chain, rank the practices from those with the greatest net negative impacts to those with the greatest net positive impacts.

13.2 Research

13.2.1 Industry survey sampling methodology

For more detailed information on industry survey methods, refer to United Nation Statistic's *Industrial Statistics: Guideline and Methodology* 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 sample 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 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.

13.2.2 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 licenses must ASM operations acquire? What licenses 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 socio-economic 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?

13.2.3 ASM industry survey contents

At a minimum, the survey 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, license-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.

13.2.4 Impact survey of ASM sites contents

13.2.4.1 Survey contents at ASM sites

An Impact Site Survey might record:

1. Environment:
    a. Chemicals used.
    b. Methods of disposing of or storing chemicals.
    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 disposing of or storing tailings.
    g. Area of forest-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. Labor standards:
    a. Recognition of and respect for labor 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 labor.
        iv. Differences in pay for equal work of gender, sexuality, race, religion, ethnicity or class.
        v. Child labor:
            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 incidents reports.
    d. Number and types of potentially dangerous incidents in the last year.
    e. Use of personal protective equipment.
    f. Cordoned-off and sign-posted 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 Research Scoping Study 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. Socio-economic 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' socio-economic 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.

13.2.4.2 Impact survey around ASM sites

An Impact Survey around ASM Sites 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 fresh and sea water 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. Socio-economic:
    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.

13.3 Vision for responsible ASM and sustainable development of ASM

13.3.1 International Labor Organization Conventions

The four fundamental principles are based upon the following conventions:

C87 Freedom of Association and Protection of the Right to Organise Convention, 1948
C98 Right to Organise and Collective Bargaining Convention, 1949
C29 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 labor issues, are set out in the following conventions:

C001 Hours of Work Convention
C132 Holidays with Pay Convention

13.4 Methodology to prioritize ASM subcategories for government attention and resources

Section 6.2 described that a government should prioritize ASM operations by estimating how much it can improve the net impacts of each ASM subsector, and allocating 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. Calculating the mean negative and positive impacts of each subtype of ASM operation using Research from Section 4, per unit of minerals and metal produced. Subdivide the impacts by each issue dimension and by how costly or beneficial they are.
2. Calculating the current size of each ASM subsector by the units of mineral and metals produced.
3. Estimating the probable size that each subsector could reach within the timeframe of the ASM Industry Plan, such as five or ten years. To do so, use the information compiled through research as specified in Section 4. Draw upon the industry survey, the geological information, and land-use information.
4. Estimating 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 this to calculate whether each subtype of ASM has net positive or net negative impacts, after governments' efforts. This conclusion should be used in Section 7.1 on Land-use for ASM.
6. Putting these four things 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 the Value Statement in Section 13.1.1.
7. Prioritizing each subsector in proportion to the total improvement in net impacts that government estimates that 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.

13.5 Externalities and subsidies

1. Calculate the externalities a subsector of ASM.
2. As when prioritizing sectors, calculate the average negative and positive impacts of the subtype of ASM operations that are feasible 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. This 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 8.2.2, 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 on 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 exception 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.

13.6 Supply chain initiatives

Below are several examples of prominent supply chain initiatives.

RJC Chain of Custody Certification	http://www.responsiblejewellery.com/chain-of-custody-certification/
Better Gold	http://www.seco-cooperation.admin.ch/themen/05404/05405/05406/05411/index.html?lang=en
Conflict Free Sourcing Initiative	http://www.conflictfreesourcing.org/
Conflict-free Gold Standard	http://www.gold.org/gold-mining/responsible-mining/social
Fairmined Gold Standard	http://www.communitymining.org/en/fairmined-standard
Kimberley Process	http://www.kimberleyprocess.com/
Better Sourcing Program	http://www.bsp-assurance.com

13.7 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 12. 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 adverts, and the estimated number and proportion of ASM workers who hear or see it.

2. Administer a system of licensing, regulation and enforcement:
    a. The number and proportion of ASM operations that apply for licenses.
    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 to not 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:
    a. Services to ASM workers:
        i. Healthcare, or health or life insurance to ASM workers:
            1. Number and proportion of ASM workers that receive access to healthcare, or administered health or life insurance, broken down by key demographics.
            2. The number of people to which healthcare is administered, broken down by key demographics.
            3. The number of people that claim on health or life insurance as an estimated proportion of those that could.
        ii. Education to workers and workers' children:
            1. Number and proportion of ASM workers and workers' children that 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 of 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 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, along these criteria: dirt and paved roads; single, two lane and three or more lane roads; and local, distributor, arterial and freeway roads, or equivalent system as applicable.
        2. Distance by road route from ASM operations to roads of each category as defined above.
        3. Distance by road route 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 sea and airports.

iii. Electricity infrastructure provision:
    1. Number and proportion of ASM operations that are connected to grids 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. Liters of water that ASM operations consume from government-provided water services;
    3. Liters of waste water 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 the consequence of government encouragement.
    2. Increase in the use of credit arrangements in which lenders offer money in exchange to 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.

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