

PROMINES 27: Elaboration d'un document stratégique sur les exploitations artisanales et à petite échelle

Comparative analysis of ASM strategies in four countries of Africa, Asia and Latin America

(Ghana, Tanzania, Peru and Philippines)

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About this report

This report was developed by Estelle Levin Ltd. for PROMINES. The project was undertaken in partnership with PACT and IPIS. It is a comparative analysis of ASM strategies in four countries and has been developed to inform the subsequent strategic document on the ASM sector for the client, based on international best practice.

Contents

1. Summary.....	8
2. Objective and methodology	17
2.1 Terms of Reference.....	17
2.2 Methodology.....	18
3. Ghana.....	20
3.1 Context.....	20
3.1.1 Mineral production and employment.....	20
3.1.2 Country definition of ASM.....	20
3.1.3 Operational and organizational aspects of ASM.....	21
3.2 Policy and legal and institutional framework.....	24
3.2.1 Evolution of the policy and legal framework.....	24
3.2.2 Legal parameters for ASM formalization	28
3.2.3 Institutional framework for ASM.....	28
3.3 Interaction with ASM projects and initiatives	29
3.4 Outcome and lessons to learn	30
3.4.1 Formalization rate and benefits	30
3.4.2 Ghana summary and lessons learnt	31
4. Tanzania.....	34
4.1 Context.....	34
4.1.1 Mineral production and employment.....	34
4.1.2 Country definition of ASM.....	35
4.1.3 Operational and organizational aspects of ASM.....	35
4.2 Policy and legal and institutional framework.....	40
4.2.1 Evolution of the policy and legal framework.....	40
4.2.2 Legal parameters for ASM formalization	43
4.2.3 Institutional framework for ASM.....	45
4.3 Interaction with ASM projects and initiatives	46
4.4 Outcome and lessons to learn	49
4.4.1 Formalization rate and benefits	49
4.4.2 Tanzania summary and lessons learnt	50
5. Peru.....	52
5.1 Context.....	52
5.1.1 Mineral production and employment.....	52
5.1.2 Country definition of ASM.....	52
5.1.3 Operational and organizational aspects of ASM.....	53
5.2 Policy and legal and institutional framework.....	60
5.2.1 Evolution of the policy and legal framework.....	60
5.2.2 Legal parameters for ASM formalization	65
5.2.3 Institutional framework for ASM.....	69
5.3 Interaction with ASM projects and initiatives	70
5.4 Outcome and lessons to learn	72
5.4.1 Formalization rate and benefits	72
5.4.2 Peru summary and lessons learnt	72
6. Philippines	76
6.1 Context.....	76
6.1.1 Mineral production and employment.....	76
6.1.2 Country definition of ASM.....	77
6.1.3 Operational and organizational aspects of ASM.....	78
6.2 Policy and legal and institutional framework.....	82
6.2.1 Evolution of the policy and legal framework.....	82
6.2.2 Legal parameters for ASM formalization	87
6.2.3 Institutional framework for ASM.....	88

6.3	Interaction with ASM projects and initiatives	90
6.4	Outcome and lessons to learn	91
6.4.1	Formalization rate and benefits	91
6.4.2	Philippines summary and lessons learnt.....	92
7.	Analysis of the research questions	94
7.1	Macro-economic models guiding the strategies regarding ASM	94
7.2	Institutional frameworks, roles and responsibilities for ASM administration	96
7.3	Legal status of ASM and approaches to formalization	97
7.4	Role of miners' organizations at local and national level	100
7.5	Situation of mine workers in ASM	101
7.6	Role, rights, status, challenges and potential of women in ASM	103
7.7	Lessons learnt from projects implemented in the selected countries	106
7.8	Integration of the national strategies into wider initiatives	108
7.9	Additional findings from similar previous studies	109
8.	Conclusion and Recommendation.....	110
9.	Bibliography.....	117
	Annex 1: Summary of findings from similar previous studies.....	124

Abbreviations

Abbreviation	Text	Context
AMASUC	Asociación de Mineros del Sur Medio y Centro	Peru
APOGORE	Proyecto Apoyo a los Gobiernos Regionales para la Formalización de la Minería Artesanal	Peru
ASM	Artisanal and Small-scale Mining	
AURELSA	Comunidad Aurífera Relave S.A.	Peru
BSP	Bangko Sentral ng Pilipinas (Central Bank of the Philippines)	Philippines
CADT/CALT	Certificates of Ancestral Domains/Ancestral Land Title	Philippines
CASM	Communities And Small-scale Mining initiative	
CDMP	Community Development and Management Programme	Philippines
CMRB	City Mining Regulatory Boards	Philippines
COSUDE	Cooperación Suiza para el Desarrollo (=SDC)	
DENR	Department of Environment and Natural Resources	Philippines
DMT	Dry metric ton	
DRC	Democratic Republic of Congo	
DREM	Dirección Regional de Minería / Regional Mining Directorate	Peru
EMTAL	Energy and Mining Technical Assistance Loan	Peru
EO	Executive Order	Philippines
EPA	Environmental Protection Agency	Ghana
ERP	Economic Recovery Plan	Ghana
FEDEMIN	Federation of Artisanal Miners of Madre de Dios	Peru
FENAMARPE	National Federation of Artisanal Miners	Peru
FPIC	Free and Prior Informed Consent	
FTAA	Financial or Technical Assistance Agreement	Philippines
GAMA	Proyecto Gestión Ambiental en la Minería Artesanal / Environmental Management for Artisanal Mining Project	Peru
GCD	Ghana Consolidated Diamonds	Ghana
GDP	Gross Domestic Product	
GEF	Global Environmental Facility	
GMP	Global Mercury Project (UNIDO) / Global Mercury Partnership (lead: UNEP)	
GSGDA	Ghana Shared Growth Development Agenda	Ghana
GST	Geological Survey of Tanzania	Tanzania
GTZ	Gesellschaft für Technische Zusammenarbeit	Germany
ha	Hectare (100m x 100m, 1/100 km ²)	
ICC	Indigenous Cultural Communities	Philippines
ICGLR	International Conference on the Great Lakes Region	

Abbreviation	Text	Context
IGV	Impuesto General a la Venta (=VAT)	Peru
ILO	International Labour Organization	
IMF	International Monetary Fund	
IPEC	International Programme on the Elimination of Child Labour	
IRR	Revised Implementing Rules and Regulations (of RA 7076)	Philippines
LGC	Local Government Council	Philippines
LGU	Local Government Unit	Philippines
LS / LSM	Large-scale / Large-scale Mining	
MACDESA	Empresa Minera Aurifera Cuatro de Enero S.A.	Peru
MAPEM	Minería Artesanal y Pequeña Minería Project	Peru
MEM	Ministerio de Energía y Minas	Peru
MGB	Mines and Geosciences Bureau	Philippines
MPSA	Mineral Production Sharing Agreement	Philippines
MSPI	Multi-Stakeholder Partnership Initiative	Tanzania
MWAREMA	Mwanza Regional Miners Association	Tanzania
NCIP	National Commission on Indigenous Peoples	Philippines
NEMC	National Environmental Management Council	Tanzania
NRDC	Natural Resources Development Corporation	Philippines
NSGRP	National Strategy for Growth and Reduction of Poverty	Tanzania
PD	Presidential Decree	Philippines
PEMIN	Pequeña Minería Project /Small-scale mining Project	Peru
PEMO	Provincial Environmental Management Office	Philippines
PERCAN	Peru-Canada Mineral Resources Reform Project	Peru
PML	Primary Mining License	Tanzania
PMMC	Precious Minerals Marketing Corporation	Ghana
PMRB	Provincial Mining Regulatory Boards	Philippines
PNDCL	PNDCL Law	Ghana
PRADD	Property rights and artisanal diamond development project	
PRDC	Provincial National Defence Council	Ghana
PROMINES	Projet d'appui au secteur minier	DRC
PRSP	Poverty Reduction Strategy Paper	
PSSMA	People's Small-Scale Mining Areas "Minahang Bayan"	Philippines
RA	Republic Act	Philippines
SACCOS	Savings and Credit Cooperative Societies	Tanzania
SAESSCAM	Service d'Assistance et d'Encadrement du Small Scale Mining	DRC
SDC	Swiss Agency for Development and Cooperation	
SMMRP	Sustainable Management of Mineral Resources Project	Tanzania
SONAMIPE	Small-scale Mining National Association	Peru
SOTRAMI	Sociedad de Trabajadores Mineros S.A.	Peru

Abbreviation	Text	Context
SS / SSM	Small-scale / Small-scale Mining	
SSMC	Small-Scale Mining Contract	Philippines
SSMD	Small-Scale Mining Department	Ghana
SSMP	Small-Scale Mining Permit	Philippines
SSMP	Small-Scale Mining Project	Ghana
SUNAT	National Superintendence of Tax Administration	Peru
TAWOMA	Tanzanian Women Miners' Association	Tanzania
TRA	Tanzania Revenue Authority	Tanzania
TUO	Texto Único Ordenado / Unified Ordered Text	Peru
UIT	Tax Imposition Unit	Peru
UNCSD	United Nations Conference on Sustainable Development	
UNDP	United Nations Development Programme	
UNEP	United Nations Environmental Program	
UNDESA	United Nations Department of Economic and Social Affairs	
UNIDO	United Nations Industrial Development Organization	
USGS	United States Geologic Survey	
VAT	Value Added Tax	
WBG	World Bank Group	
WDL	Williamson Diamond Mines Ltd.	Tanzania
CURRENCIES		
EUR	Euro	
GHS	Ghana Cedi	
PEN	Peruvian New Peso	
PHP	Philippine Peso	
TZS	Tanzanian Shilling	
USD	United States Dollar	

1. Summary

The objective of the comparative analysis of four countries is to find models and best practices that could inspire the formulation of the DRC's national policy and strategy towards an ASM sector that contributes to poverty reduction through the creation of stable and dignified employment opportunities, as well as to GDP growth through an increased mineral production.

For that purpose, the consultant (Groupement Pact, Estelle Levin Ltd et IPIS) performed a rapid scoping analysis, covering nine countries in Africa, Asia and Latin America, of which SAESSCAM decided and requested to include **Ghana, Tanzania, Peru** and the **Philippines** in this comparative analysis.

Ghana:

Ghana has been one of the first countries in Africa addressing ASM formalization. The initial “flaw” of addressing ASM in a separate legal framework in 1989 was ameliorated by integrating ASM in the Minerals and Mining Act 2006. The legal framework however only addresses the higher-end segment of ASM (small-scale mining) and the lower-end poverty driven galamsey miners have received limited attention. With exception of PRSP I (2003-2005), inspired by the Yaoundé Vision Statement, National Development Frameworks failed to identify ASM as a development opportunity and rather focus on ASM as an annoyance.

Lack of attention to the galamsey sector by the State, and probably even more its marginalization as “illegal mining” and crackdowns in the mid 2000's made it an easy prey for stakeholders with criminal intentions, such as illegal immigrants of Chinese origin seeking to circumvent legal requirements intentionally by “camouflaging” as galamsey. The public discourse fails to distinguish between Ghanaian galamsey, who (theoretically) can, and foreign immigrant “galamsey” who cannot legalize or formalize their operations by obtaining small-scale mining licenses.

Still, with an “official policy” adamantly against illegal mining including legitimate traditional mining, the Government pursues a second, “pragmatic policy” buying gold from galamsey miners through PMMC, in benefit of the national monetary policy and central bank reserves.

Main lessons learnt:

- **ASM formalization is a long-term (and even permanent) process.** Ghana was a pioneer of ASM formalization and had made good inroads in its first PRSP 2003-2005, but then lost track in its effort of addressing the sector.
- **Without properly distinguishing small- and artisanal-scale mining, formalization of the lower segment (galamsey) is likely to fail.** Maintaining this segment unaddressed in the informal economy is not helpful to resolve its issues in benefit of the miners and the Government.
- **Illegal mining is not a synonym for ASM.** Clear criteria for distinguishing illegal, informal and formal ASM must be in place and must be communicated. Otherwise, measures to curb

illegal mining will always victimize the most vulnerable, who do not have the intention to be illegal, but to subsist on daily income.

- **The absence of strongly enabling legal framework for ASM and incentives for formalization empowers criminal elements to take over the ASM sector.** In case of Ghana, the informal context made it easy for illegal Chinese investors to camouflage as ASM. For the individual digger it makes no difference, who gives him a shovel.

Tanzania:

Tanzania has a long history on ASM formalization alongside LSM development. ASM is addressed in national PRSPs since 2005 and in consequence, ASM is reflected in the country's Mining Policy 2009. Formalization strategies focus on higher-end ASM stakeholders but provide little instruments and incentives for lower-end subsistence miners. Although the Government emphasizes the importance of licensing individuals, the reality is that landlords and licence holders often lease out land to unlicensed groups.

Experiences to date show that it is vital to ensure that administrative policies and institutional roles are designed in ways that improve the accessibility of licences in marginalized ASM communities. It appears that decentralization of the process for issuing primary mining licenses – to the Zonal Mines Office level rather than the Dar es Salaam office – has been an important step in developing a more regionally situated management system that can respond to local contextual needs.

Main lessons learnt:

- **ASM formalization is a development issue.** Similar as Ghana, Tanzania was an early adopter of a legal framework for ASM, but through consistent integration of ASM in its development strategies, the country is making constant progress.
- **ASM formalization strategies have to be periodically reviewed.** The Bomani Report was mission critical to re-orient Tanzania's ASM policy (as well as its mining policy in general). As the context for ASM is permanently changing, ASM strategies have to be adapted as well.
- **Differentiation between the segments of ASM (small- and artisanal-scale) is crucial.** Reportedly, the Government of Tanzania is already evaluating options to follow the Ethiopian approach, which is reported to be successful in addressing the artisanal sub-segment.
- **Unlicensed areas for ASM are scarce; innovative approaches are needed.** The approach of holding relinquished and/or expired areas under Prospecting Licences for a period of 4 months to allow ASM to apply for Primary Mining Licences is innovative.
- **Organization of the ASM sector is of crucial importance.** ASM organizations, despite eventual weaknesses, have become an important driver for development.
- **Women miner organizations contributed to a more equitable access to and benefit from mineral resources.** An enabling environment for organization of the ASM sector also enabled women organizations to progress and achieve empowerment of their members.
- **The existence of local forms of organization, institutions and relationships need to be recognized.** As, in some cases, miners consider SACCOS their most appropriate form of organization, SACCOS were considered qualified to obtain PMLs.

Peru:

The legislative process in 2001-2002 for enacting Law 27651 “Formalization and Promotion of Small Scale and Artisanal Mining”, is seen as a good example of constructive consultation and stakeholder engagement. It has been used to gradually formalize ASM, with 66,622 concession titles existing as of March 2011, many of which involve large numbers of individual miners organized as legal entities. Successful formalization experiences have occurred precisely in situations in which miners were able to organize in companies, production cooperatives, mining associations, or any other form of productive organization permitted by the General Corporate Law. Miners’ organizations have played a pivotal role in facilitating ASM formalization through peer-to-peer training. Another success factor were the (in international comparison) large maximum concession areas for artisanal mining (up to 1,000 ha). This promoted the creation of community-based entrepreneurial organizations, where – in some cases – entire villages organized in one single mining company or cooperative.

Unfortunately, after this very promising start, the Government lacked the capacity and political will to address formalization as a process and, in the period of 2005-2010 lost interest and track in the sector for different reasons. Particularly in regions where miners’ organizations were weak and good practice examples to follow were scarce, the mining operations grew in an uncontrolled manner towards illegal medium-scale mining with high environmental impacts, but still claiming to be artisanal. The government’s response in 2012 of heavy-handed policing of the entire ASM sector has proved a wholly inadequate solution to these issues, undermining all informal ASM operations before they have even been given adequate opportunity to formalise and to make a more positive economic and social contribution to the country.

Main lessons learnt from Peru cover the entire spectrum from best practice to attempt prone to fail:

- **Legal frameworks for ASM need to reflect the needs of all involved stakeholders.** The legal framework of Law 27651 was developed in a multi-stakeholder process between Government, ASM, the conventional mining sector and NGOs.
- **Formalization and organization of the ASM sector are mutually reinforcing.** The early success of Law 27651 was largely based on the commitment of gremial ASM organization to apply “peer pressure” on communities to organize and formalize.
- **Decentralization of government’s ASM administration is vital but dependent on proper resourcing.** Half-hearted “de-concentration” and decentralization efforts appear largely as attempts of the central Government to delegate a nuisance. Uptake by regional governments and by miners was enthusiastic, but without resources allocated, the efforts were prone to considerable difficulties of delivering on objectives.
- **ASM development can be a very fast process. The ASM administration needs the capacity to address new challenges at a similar fast pace.** Particularly in times of high commodity prices, the entire sector can enter a rush situation. This exceeded the capacity of the ASM administration.
- **Before resorting to penalising all non-formal ASM operations, it would be prudent to first increase the level of support given to those seeking to formalise.** Thus far, the provision of assistance has been extremely limited.

- **Formalization must start with an incentive.** Experience in the early days of Law 27651 and from all over the world has shown that ASM will formalize, if the overall cost (including all intangible benefits) of being formal is lower than the cost of being informal. Starting a formalization approach with taxes in mind is in most cases counterproductive.
- **Legal requirements must be realistic, measuring not only the miners' possibilities but also the Government's own resources.** Recent legal decrees, providing 120 days for formalization of 150,000-200,000 under new, modified requirements, resulting in costs between 10,000 USD (according to Government officials) and 80,000 USD jeopardize the Government's credibility and do more harm than good.
- **Clearer concepts are needed to differentiate between illegal mining and ASM which is operating in the informal economy.** It would then be possible to formulate differentiated policies which target illegal mining, whilst providing support to informal miners.

Philippines:

The foundation of the Philippine legal framework for ASM were established 1984 and 1991. Both legislations, although partly overlapping and lacking clarification of applicability until 2007 were rather favourable for ASM, but were never implemented in their entirety. Declaration of *People's Small-Scale Mining Areas* (PSSMA) lacked behind, and the *People's Small-scale Mining Protection Fund* never received the envisaged funding. Despite not much progress in formalization, the ASM sector succeeded to grow into producing close to 80 percent of the country's annual gold supply.

In 2012, an executive order was issued to strengthen the protection of the environment, promote responsible mining and provide a more equitable revenue sharing scheme between government and the private sector. The order aims at restricting ASM in several ways, such as limiting ASM to PSSMAs, requiring Environmental Impact Statement, strictly prohibiting mercury use, and extensive administrative requirements. The recently (in March 2015) published regulations appear to tighten the grip even more. It remains to see, whether the Government will be able to deliver on its promises (capacity building and training) and on its self-imposed duties (massive declaration of PSSMAs). The current situation (ASM only allowed in PSSMAs, but only very few PSSMAs declared) renders most ASM in the Philippines practically illegal. In principle, this could represent the ideal starting point for an auto-destructive crackdown approach, similar to the Peruvian case. In case of the Philippines, which do not have major LSM gold mines like Peru, it would put 80% of the country's gold production at risk.

Main lessons learnt:

- Many lessons learnt maintain similarity with the other countries covered in this report, such as the need to see **ASM formalization as a continuous process** and to **adapt ASM strategies to ever changing circumstances** (with Philippines continuing on strategies introduced in the 1980/1990s such as the PSSMAs).
- **Formalization strategies need to be long-term, progressive and consistent.** A laissez-faire approach to ASM, as apparently applied over the past decades by not fully implementing the existing legal framework, allows the ASM sector to grow successfully, but bears the risk of uncontrolled growth. Shock-type strategy changes bear a high risk of rendering a large portion of ASM illegal, possibly squandering efforts of years.

The report draws the following Conclusions:

Artisanal and Small-scale Mining (ASM) is highly relevant in all four countries. With exception of the Philippines, the percentage of ASM miners compared to the total rural population is in all compared countries in the range of 2.5% or higher, contributing significantly to family income and livelihoods of more than 10% of the rural population. Additionally, mineral production of ASM is contributing significantly to GDP, export volumes and consequently, particularly in case of gold, to foreign exchange earnings of all four countries. At individual level, ASM provides income opportunities superior to most alternative livelihoods.

After a short-lived uptake of ASM in poverty reduction strategies following the “Yaoundé Vision Statement” of 2003, recent political trends appear to be adverse to ASM. This comes as not entirely surprising. Mostly always has ASM been either ignored or marginalized. A new trend is however the increasing “criminalization” of the sector through an enhanced focus on “illegal mining”. In a global political climate of conflicts, conflict players achieved in a short timeframe what governments failed to accomplish during decades: to capitalize on the opportunities of ASM. Issues like conflict minerals are a topic that surged only approximately a decade ago. ASM, as the victim, is in the political discourse often portrayed as the victimizer.

This largely negative portrayal overlooks the great diversity, which exists within the sector. Some ASM are undoubtedly irresponsible and uninterested in formalising (as indeed are many medium-scale operations), but equally there are others who comply fully with all local legislation and social and environmental best ASM practice. Operating somewhere between these two extremes are many miners actively seeking to formalise their operations, but still unable to overcome the significant challenges involved.

Technical upscaling of artisanal miners was, during decades, one of the declared objectives of governments and development agencies. Finance for the ASM sector for that purpose was always demanded by miners, but never delivered. The period of rising gold prices of the past decade finally allowed many artisanal operators to invest in mechanization and to up-scale their mines. “Rudimentary manual tools” became replaced by compressors, frontend loader, backhoe excavators, hydraulic dredges, etc. New actors entered, seeking quick profits. By outgrowing their category, and not conforming with terms of larger scale mining according to the general mining law, some of these mines have in fact become “illegal”.

With most ASM legislations dating back to the period of the 1980s to early 2000s, entire legal frameworks for ASM became outdated and virtually “collapsed” under the gold-rush of the 2000s. Under these circumstances, it is even understandable that political decision makers started to “panic”, responding with heavy-handed interdiction approaches like in Ghana or in Peru with 1,500 troops. Chances that this approach leads to sustainable results are considered minimal. An ASM policy that is measured by numbers of destroyed mining equipment can hardly be seen as a development policy.

Among the four countries compared in this paper, Tanzania appears to be the only country with a relatively “calm” ASM policy, not driven by a “battle against illegal mining” or by exaggerated government revenue expectations. Instead, the country pursues to improve conditions and

livelihoods for small-scale miners, decrease environmental degradation and facilitate peaceful co-existence between ASM and large-scale mining companies. Results are visible in a relatively constantly increasing number of ASM licenses. Similarly calm and positively proactive was the Peruvian ASM policy in the early 2000's, after enactment of the Law 27651. ASM miners' organizations had lobbied for "their law", and even substituted in the early years the government's duty to promote formalization.

The process in Peru only stalled because of lack of interest of the central government, delegating responsibilities to regional governments without assigning the corresponding resources. The latter is however not a particular Peruvian problem. All four countries have opted to decentralize attention to the ASM sector through regional offices, as ASM in rural areas cannot be effectively administrated from the central government's office. However, it is also reported from all four countries that human and financial resources are inadequate to attend the ASM sector to satisfaction. Mining authorities prioritize attention to large-taxpayer LSM corporations than attending a large number of ASM miners, which are marginal taxpayers, but requires significant administrative resources. Such departmental budgeting however does not take into account the macroeconomic benefit of ASM, such as employment generation or value generation in benefit of foreign exchange balance.

Relevance of ASM gold mining comes particularly into play in relation to foreign exchange balance and monetary policy in general. It is trivial that ASM gold can be bought by Central Banks with national currency and exchanged into foreign currency at any time. Buying ASM gold is for Central Banks virtually printing money; but real money! Not surprising, with a renewed focus on gold as an asset, Central Banks of most countries are re-establishing their ASM gold businesses. Key to successful acquisition of ASM gold is a competitive market price. In practice, if the price offered is too low, gold is smuggled out, if it is too high, gold will be smuggled in, regardless of eventual punitive laws. Both is counterproductive and detrimental. Good estimates of domestic ASM gold production are crucial for pitching the price right.

The report draws a few but fundamental Recommendations:

- **The ASM sector is extremely diverse.** Many ASM legislations fail to define their subject appropriately. A national ASM definition needs to reflect the different realities on the ground. Wrong legal ASM definitions lead to "illegal mining". One single "small-scale" definition can hardly cover the entire spectrum of realities. To capture these different realities, the regulator needs to be in close dialogue with the miners living their reality. This requires a bottom-up approach to define what is legitimately "small", what is "artisanal" and what is already "medium". It must also take into account the demographic and economic realities of the artisanal miners to ensure being legal is compatible with the diverse groups' livelihood situations.
- **ASM operations are governed by clear rules, even where ASM develops in alleged total informality.** The ASM sector in its interior does not "need" laws and regulations to develop; miners have and strictly adhere to their own customary rules. The society needs that ASM integrates into the formal legal system and the formal economy. The closer the formal legal

system assembles the pre-existing customary legal system, the more likely is compliance through self-regulation.

- **The ASM sector is in constant evolution.** Successful miners outgrow their segment, new person start to seek a livelihood in mining, rushes occur that attract new groups, disasters may happen, which drive people into mining, etc. All these people need to be accommodated in the formal economy. ASM Formalization is therefore an inherently permanent process and task.
- **New ASM always starts in the informal sector.** ASM does not follow the conventional mining cycle starting with identifying a prospective area, obtaining prospection and exploration licenses, to finally construct a mine and operate it. ASM miners simply find a deposit and start mining it. The sector is extremely competitive: if the one, who discovers a deposit, does not mine it instantly, others will do. Formalization of such “informal” operations is therefore a permanent task, similarly important as negotiating contracts for the LSM sector. There are good reasons, why the Colombian Mining Ministry recently established a Directorate of Formalization, attending ASM, at eye level with the Directorate of Entrepreneurial Mining, attending LSM.
- **Transition between the different strata or categories must be possible.** Artisanal miners may become small-scale and small-scale miners may become industrial medium scale miners. This is only possible if ASM legislation is an integral part of the general mining legislation. For each category, rights and obligations need to be balanced. Transition between categories needs transition periods to adapt to the next higher category. Even more, downscaling of mining operations should equally be possible. In hard rock mines, ASM often continues for decades after industrial mining has come to an end. Such ASM activities do not necessarily have to start from scratch in the informal sector, if options for smooth transition and handover to formal ASM are provided in the legal framework.
- **At the lowest category, entry barriers need to be eliminated.** Informality has a cost. Miners will only formalize, if being formal provides an advantage, i.e. if the cost of being formal is lower than the cost of being informal.
- **Mining administrations are different to public health administrations that count on an institutional infrastructure to attend hundred thousands of individual people.** Mining administrations are usually designed to deal with a few companies. Formalization of ASM is only reasonably feasible if it addresses the sector at an organized group- or at individual entrepreneurial level. The larger the groups, the easier the task for the mining administration. Incentivising and enabling ASM to organise is therefore a recipe for improved oversight and control, good governance, and greater legality.
- **Organization of the ASM sector is as important as its formalization.** Organization of the ASM sector is important at first level (community) where larger organized groups of miners drastically reduce the administrative burden of formality (both for the Government as for the miners) if local forms of organization are fully integrated. It is also important at second level (regional), where gremial ASM organizations are valuable partners of decentralized

administrations for maintaining fluid and meaningful communications with the sector, and at third (national) level, for consensus building on ASM policies.

- **Legitimate Organizations cannot be created top-down, they have to emerge from bottom-up.** In an enabling environment, where organizations (at all levels) perceive support and are given a chance to achieve their goals, such organizations will emerge almost “automatically”. The Government’s role is that of a facilitator.
- **The closer the ASM administration is to the mines, the better the officials know “their miners”, and the less barriers exist for miners to approach “their officer”.** This reduces entry barriers for miners and access barriers for the administration. Decentralization of ASM administration can almost be seen as a “must”. With regards to license areas this poses a challenge: Information on mining licenses must be accessible at all levels simultaneously, to avoid delays and eventual superposition of granted areas to LSM at central level and ASM at local level. Modern mobile broadband, increasingly available in rural areas, contributes to close this gap.
- **Institutional responsibility for ASM must be clearly defined and to some degree segregated from institutional responsibility for LSM.** The Peruvian approach to create a dedicated directorate directly under the Vice-minister is in principle an appropriate approach. Independent agencies are another viable option. Hosting institutional responsibility for ASM in the same department as responsibility for LSM creates always conflicts of interests.
- **Large groups of miners require suitably sized mining areas to sustain production during an extended period.** Too small mining areas cause an ASM sector that is unorganized, temporary, and highly migratory. This generates negative social and environmental, as well as economic consequences. Large areas allow miners’ organizations to mature, stability to establish and development to take root.
- **Security of tenure is for ASM as important as it is for large mining corporations.** Without security of tenure, operations will always stay improvised, rudimentary, and precarious in relation to safety and environment. Security of tenure creates property – property creates responsibility! Security of tenure includes transferability of mining areas (to other miners of the same category, in order to avoid abuse)
- **Local artisanal miners are excellent and efficient prospectors.** No geologic survey in the world has a comparable capacity to identify deposits for hundred thousands of possible workplaces in the mining sector. Attempts and efforts to identify and designate reserve areas for ASM are therefore in most cases futile exercises, which may cost millions of taxpayer money. ASM miners are fully qualified to identify deposits suitable to their technological capacity.
- **Many areas of interest for ASM are usually already licensed to larger mining companies for exploration.** Instead of treating ASM miners as invaders, mining companies need to be encouraged to enter into agreements with artisanal miners. This requires an appropriate legal framework for such contracts, based on incentives for the license holder.

- **Regulations and requirements at each level – and particularly at entry level – need to be as simple as possible.** For many ASM miners at entry level the biggest barrier may be literacy or numeracy! Regulations need to be short, straight forward, logical, and understandable. Obligations need to be clear, realistic and enforceable.
- **One of the most important points to consider is however the capacity of the mining administrations themselves.** *“Well intentioned is often the opposite of well done”*. Unprocessed applications, pending administrative processes, administrative delays, as documented not only from the 4 countries covered in this paper but from almost all countries are a clear indicator that the legal and regulatory frameworks are often too demanding for the mining administration itself. If an administration is not in capacity to timely issue 100 licenses of 1 ha, then the legal framework probably needs to promote the issuing of 1 licence of 100 hectares; if miners do not “stay” in reserved areas, then probably the institutional and technical capacity for allocation of appropriate areas was insufficient and the approach of such areas should be abandoned; if EIAs cannot be timely approved, then probably too much information was requested and a standardized Environmental Declaration would do the job; if Central Banks offices do not have the liquidity to buy any amount of gold at the spot, then legal gold trading should be allowed to private traders; etc.

2. Objective and methodology

2.1 Terms of Reference

“The objective of the comparative analysis of four countries (long-list to include 9 countries) is to find models and best practices that could inspire the formulation of the DRC’s national policy and strategy towards an ASM sector that contributes to poverty reduction through the creation of stable and dignified employment opportunities, as well as to GDP growth through an increased mineral production.

Key elements of this work are to:

- Conduct a rapid scoping of countries which have established national strategies or other public policies in relation to ASM
- Compile a nine country short-list of countries with similar characteristics to DRC to be agreed upon with the Ministry of Mines.
- Through consultation with the Ministry of Mines and project partners (led by Pact), produce a short-list of four countries.
- Conduct an in-depth literature review and desk-based research as well as interviews with in-country experts, policy-makers and other stakeholders.
- The four countries will be assessed and compared against the following criteria:
 1. Underpinning macro-economic model which guides the strategy regarding ASM;
 2. Strategies that support this macroeconomic vision, for example poverty reduction, employment generation, implications for investment promotion, creation of social peace and value addition in country;
 3. Institutional framework, roles and responsibilities, especially decentralised responsibilities regarding administration of ASM and/or services provided to the ASM sector;
 4. Legal status of ASM and approaches to formalisation such as (i) areas reserved for ASM, (ii) types of licenses for ASM in unlicensed areas, (iii) contractual arrangements with license holders in already licensed areas, (iv) etc.;
 5. The role of miners’ organizations at local and national level, particularly regarding their relationship with the government with regards to their potential to support the government's efforts toward formalizing the ASM sector as well as required support from the government to fulfil their role of promoting responsible mining;
 6. The situation of mine workers in ASM (both self-employed, hired labour and mixed forms of employment) with regards to legal status, inclusion in social security country systems, health and safety, etc.;

7. The role, rights, status, challenges and potential of women in the ASM sector and how equitable access to resources and their benefits can be promoted;
8. Successful projects implemented in the selected countries and in close collaboration with the mining authorities that have contributed effectively in improving the national strategies that aim at improving the formalisation of ASM as well as their revenues, efficiency at work, good social and environmental practices;
9. The integration of the national strategies into wider initiatives, for instance in interregional community legal frameworks (such as the International Conference on the Great Lakes Region, CIRGL), directives, and how these tools have been able to influence or support the emergence of the National ASM Strategy.
10. Upon completion of the comparative analysis, Mr. Hruschka will be required to provide technical advice and support to Mr. Walser who will be responsible for benchmarking the results of the comparative analysis against the DRC and producing a summary report.

Additionally, the research will also examine the processes through which a National ASM Strategy was established in each country (if applicable). This will allow further insight into successes and challenges of establishing a National ASM Strategy and will inform the development of the National ASM Strategy and the review of the existing draft SAESSCAM Plan.

The Comparative Analysis will specify lessons learnt and best practices (where applicable complemented by information from countries covered during the scoping exercise) and will include recommendations for the drafting of the National ASM Strategy and the review of the existing draft SAESSCAM Plan in DRC. These findings and recommendations will be submitted to the Government by Pact two weeks prior to a stakeholder meeting in Kinshasa at which the results will be presented for discussion. The Associate is not expected to participate in this meeting.”

2.2 Methodology

A comparative analysis of four countries is expected to identify models and best practices that could inspire the formulation of a national policy and strategy of the DRC for the Artisanal and Small-scale Mining (ASM) sector. For that purpose, the consultant (Groupement Pact, Estelle Levin Ltd et IPIS) performed a rapid scoping analysis covering nine countries in Africa, Asia and Latin America, as agreed with the client during the inception workshop of the project.

The list of countries included in the rapid scoping analysis was:

- **Africa:** Ghana, Tanzania, Uganda, Ethiopia
- **Latin America:** Colombia, Ecuador, Peru
- **Asia:** Mongolia, Philippines

ASM policy, legalization and formalization aspects of each of the nine countries were summarized in a scoping report and criteria for selecting and proposing four countries for further comparative analysis were proposed:

- a balanced mix of countries in low, lower middle and upper middle income categories, prioritizing African countries and most case-relevant low income countries,
- a balanced mix of countries with poverty- and opportunity-driven ASM (i.e. evolution towards new livelihoods options or an emerging entrepreneurial sector) ,
- different licensing approaches such as of unified and segregated ASM legislation, small and large concession sizes and short and long periods of tenure,
- countries with ASM policies focusing on economic development as well as countries focusing on social development,
- a focus on countries with the most innovative best practice examples and outstanding policy outcomes.

Based on the above analysis the consultant proposed to select the following four countries for the further in-depth study: Tanzania, Ethiopia, Colombia, and Ghana.

SAESSCAM agreed with the proposed countries **Ghana** and **Tanzania**, and proposed to replace Ethiopia and Colombia with **Peru** and **Philippines**.

Bibliographic research for the “four country comparative study” draws mainly on published, peer reviewed scientific papers, publicly available reports from Governments, Donors and Consultants, as well as online repositories of official policy documents, laws and regulations. Due to time constraints¹, possibilities for requesting additional unpublished data from Governments, such as statistics on the ASM sector, cadastral data of ASM operations, etc. were limited.

For the purpose of comparison, each country is presented in an extended profile, describing:

- Context
 - Mineral production and employment
 - Country definition of ASM
 - Operational and organizational aspects of ASM
- Policy and legal and institutional framework
 - Evolution of the policy and legal framework
 - Legal parameters for ASM formalization
 - Institutional framework for ASM
- Interaction with ASM projects and initiatives
- Outcome and lessons to learn
 - Formalization rate and benefits
 - Summary and lessons learnt

Based on findings during the research of each of the four countries, the topics provided in the TOR are analysed. Additionally, findings from other similar studies are presented.

The report concludes with a chapter on conclusions and recommendations.

¹ Timeframe: 1 month. Country selection by SAESSCAM was communicated on 17 March. The draft for discussion of the comparative report was expected by mid April and delivered on 15 April. Comments received are addressed in this final draft.

3. Ghana

3.1 Context

3.1.1 Mineral production and employment

Ghana has long been recognized for its rich mining possibilities, hence its colonial name, the *Gold Coast*. With a reasonably well-known and attractive mineral resource base, significant mining investment has been attracted into the country over some 20 years of stable multi-party democracy and the mining sector has become an important part of Ghana's economy, with gold accounting for over 90% of the sector. Ghana is the second largest gold producer in Africa and the 9th largest producer in the world. This has resulted in export revenues of over USD 5 billion. In 2011, the mining sector directly contributed 38.3% of Ghana's total corporate tax earnings, 27.6% of government revenue and 6% GDP. The sector employs 28,000 people in the large-scale mining industry whilst over 1,000,000 people are engaged in the small-scale gold, diamonds, sand winning and quarry industries. (Aryee, 2012)

In 2012, Ghana produced more than 110 tons of gold with about a fourth being produced by small-scale miners (USGS, 2012). Other sources estimate around a third of the nation's gold production to come from ASM (both legal and illegal), although this fell in 2013 due to the government's clamp down on illegal mining, the falling price of gold, and low recovery from the small-scale miners. (Collins & Lawson, 2014)

3.1.2 Country definition of ASM

The legal definition of ASM in Ghana was introduced in 1989 through the Small-Scale Gold Mining Act²: "*Small-scale gold mining operations*" means the mining of gold by a method not involving substantial expenditure by an individual or group of persons not exceeding nine in number or by a co-operative society made up of ten or more persons. The Minerals and Mining Act 2006³ further establishes that small-scale licenses shall only be granted to citizen of Ghana. Artisanal mining is not defined as a sub-category.

The term "galamsey" (allegedly derived from "gather them and sell") refers to ASM mining and/or ASM miners who extract minerals without counting on the correspondingly required legal permits.

While small-scale gold mining in Ghana has increased in scale over the last few decades, gold mining is a **traditional** activity that has existed in Ghana for over 2000 years (Opoku-Antwi, 2010). Different commentators place different emphasis on the reasons that small-scale mining is so prevalent today, but the majority now agree that it can largely be attributed to **poverty**, and is driven by rising gold

² P.N.D.C.L.218: <http://faolex.fao.org/docs/pdf/gha41085.pdf>

³ Act 703 (2006): <http://faolex.fao.org/docs/pdf/gha85046.pdf>

prices, high levels of unemployment, and an agrarian reform causing a slump in agriculture. (Aryee, Ntibery, & Atorkui, 2003; Hilson & Garforth, 2012; Hilson & Garforth, 2013; Collins & Lawson, 2014)

Traditional, poverty driven galamsey, carried out without the corresponding legal permits, is considered illegal. However, in parallel to citizens of Ghana engaged in galamsey (who would in principle be eligible to formalize as small-scale miners), an entire new illegal mining sub-sector is emerging, driven by foreign investors (mainly Chinese citizens)⁴, intentionally ignoring legal requirements and acting on purpose as illegal miners, but camouflaging as “galamsey” by contracting a local workforce. Both types of “galamsey” are obviously not the same, but to distinguish between them causes apparently significant confusion in the public and political opinion. (Adjei, Oladejo, & Adetunde, 2012)

3.1.3 Operational and organizational aspects of ASM

Mineral resources suitable for ASM

Ghana is covered by the Paleoproterozoic rocks of the Birimian Super group and the overlying clastic sedimentary Tarkwaian group. A result of a series of erosional events, however, significant portions of these rocks have been re-deposited as placer formations in a number of streams and channels. Placer Gold Deposits, which are also referred to as ‘alluvial gold’, are found in the majority of rivers draining Birimian rocks. Large deposits of placer gold also occur along the terraces, floodplains, channels and riverbeds of the Offin, Pra, Ankobra, Birim and Tano rivers, where large Birimian and Tarkwaian gold deposits have experienced several episodes of erosion and subsequent deposition. **Small-scale gold mining** is, for the most part, confined to these areas, since most operators lack the requisite mechanized equipment to mine hardrock deposits of the Birimian and Tarkwaian Belts. The rivers and waterways contain placer gold deposits and are quintessentially the main locations of small-scale gold-mining activities. **Small-scale diamond mining** is more localized, with 60 per cent of licensed operations occurring at the Ghana Consolidated Diamonds (GCD) site at Akwatia, and the balance within surrounding areas. In fact, small-scale diamond mining occurs either under licences issued by the Minerals Commission or tributer permits granted by GCD on its concession (Hilson, 2001).

⁴ Mining.com June 7, 2013: “Illegal mining by Chinese nationals has become an increasing source of contention and resentment for local Ghanaians, with disputes often turning into armed clashes and leading political figures raising pointed concerns. The escalating tensions forced President John Dramani Mahama to launch a taskforce to crackdown on illegal mining last May in the wake of an accident at a gold mine in central Ghana, which left 17 miners dead. It’s estimated that 50,000 illegal Chinese gold prospectors are currently operating in Ghana”. (<http://www.mining.com/illegal-chinese-miners-caught-in-ghana-to-be-deported-next-week-91251/>)

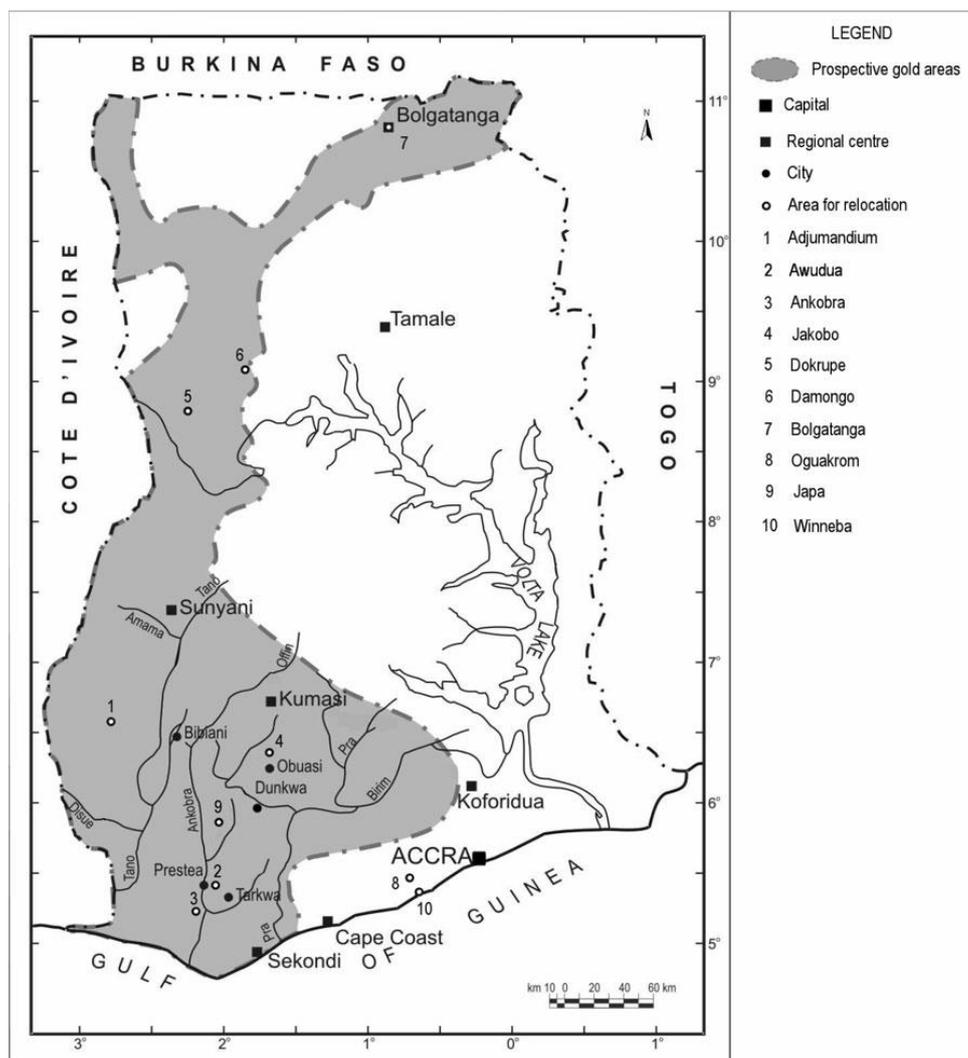


Figure 1: Prospective gold mining areas in Ghana (Hilson, Yakovleva, & Banchirigah, 2007)

ASM mining methods

Methods used in the small-scale gold mining in Ghana, can be categorised into three groups:

- **Shallow alluvial mining:** used to mine alluvial deposits usually found in valleys or low-lying areas. The mineralized material is removed and transported to nearby streams for sluicing to recover the gold. This is the main method applied by galamsey.
- **Deep alluvial mining:** used to mine alluvial deposits found along the banks of major rivers. This method involves excavating a pit and digging until the gold bearing gravel horizon, which is typically located at depths of 7 to 12 metres. As needed, terraces or benches are constructed along the sides of pits to prevent collapse.
- **Hard rock (lode) mining:** adopted to mine gold bearing reefs, which can be located close to the surface or deep-seated. Holes are sunk to intercept the reefs and in cases where ore is hard, explosives are commonly used (Collins & Lawson, 2014; Aryee, Ntibery, & Atorkui, 2003; Lynas, 2014).



Figure 2: “Deep alluvial mining” in the Tarkwa District ⁵

Organizational setup of ASM

Typically, a (licensed) operator employs between five and 20 groups of tributers consisting of five to 10 workers each that excavate ore and process gold. The arrangement is that the tributers keep two thirds of the profits, and the remaining third is given to the concessionaire. In diamond mining, as with gold, a number of people are employed as diggers, transporters and washers. Within the concession of Ghana Consolidated Diamonds (GCD) in Akwatia, a similar tributer system is in place. Small-scale miners obtain plots for a nominal fee. Plot owners employ gangs of individuals and the profits earned from the concentrate obtained are shared between owners and the workers. Typically, the plot owner keeps one-third of the profits, and the balance is distributed to workers. (Hilson, 2001)

Women participation

Overall, women constitute some 15 per cent of the legalized segment of Ghanaian small-scale mining labour force. Women account for 6 per cent of licensed buyers, 10 per cent of concession holders and 15–20 per cent of the sponsors of work groups, members of cooperatives or mining groups. Participation is more widespread, however, in small-scale clay mining and stone quarrying, where there is more need for basic activities, such as washing, transport and sieving. Furthermore, 75 per cent of the Ghanaian small-scale salt-mining workforce is female as well as 50 per cent of the illegal

⁵ Photos in this report are of the author, unless otherwise indicated.

galamsey industry. Female participation faces serious limitations due to lack of training and socio-economic attitudes. Women are often confined to basic scratching, panning, transport and washing activities. Furthermore, because of traditional cultural values - more specifically, the continental perception of men playing a more prominent role in society - African women experience difficulties in securing bank loans for small-scale mining equipment, which more often than not, discourages female involvement. (Hilson, 2001; Yakovleva, 2007)

3.2 Policy and legal and institutional framework

3.2.1 Evolution of the policy and legal framework

Up until the 1980s, small-scale mining activities in Ghana remained largely unregulated and received little, if any, support from governmental bodies. Small-scale mining, as in most developing countries, was for decades treated as an informal industrial sector, employing thousands of people but featuring largely rudimentary, unmonitored and uncontrolled practices. This, changed with the implementation of the national **Economic Recovery Plan (ERP)**, which was launched in the mid-1980s. In a desperate move to revitalize a stagnating economy, the then Provincial National Defence Council (PRDC) government consulted authorities from both the World Bank and International Monetary Fund (IMF) to assist in the drafting of national economic plans and policies. The Ghanaian minerals sector, which had experienced mass declines in mineral output, was heavily targeted. This included the small-scale mining segment and the Ghanaian government started to discuss plans to formalize the sector. Initially, only diamonds could be legally mined on a small scale in Ghana. However, in 1989, a much-needed move was taken to legalize small-scale gold mining, which, from an economic perspective, is by far a more important sector of the economy. (Hilson, 2001)

After identifying the potential earnings in the industry, decision makers considered that revenues generated under an informal organizational scheme, were largely lost via smuggling and other avenues of illegal trading (Hilson, 2001). Different to a survey carried out in 1998, which concluded that small-scale mining legislation is usually introduced as part of the provisions of the general mining laws of a country, countries such as Ghana, Zimbabwe and Tanzania decided in favour of a separate legislative frameworks for the ASM sector (Hilson & McQuilken, 2014). By the end of the 1980s, the government had put in place a series of policies and regulations for the small-scale mining sector. The following three laws were passed (Hilson, 2001):

- **The Small-scale Gold Mining Law (PNDCL 218):** provides for the registration of activity; the granting of gold-mining licences to individuals or groups; the licensing of buyers to purchase product; and the establishment of district-assistance centres.
- **The Mercury Law (PNDCL 217):** legalized the purchasing of mercury (for mineral processing purposes) from authorized dealers.
- **The Precious Minerals Marketing Corporation Law (PNDCL 219):** transformed the Diamond Marketing Corporation into the Precious Minerals Marketing Corporation (PMMC), which was authorized to buy and sell gold.

Shortly after legalising ASM, the Ghanaian Government established the Precious Minerals Marketing Corporation (PMMC), which purchases gold and diamonds produced by small-scale miners under the

Precious Minerals Marketing Corporation Law (Aryee, Ntibery, & Atorkui, 2003). The PMMC was set up alongside the Minerals Commission, the Mines Department and the Geological Survey Department, as part of the Small-Scale Mining Project (SSMP) funded by monies from the World Bank. (Collins & Lawson, 2014).

The main policy objective was obviously capturing ASM gold for monetary policy purpose. The PMMC purchased (and still purchases) gold mined both legally and illegally. Buying agents employed by the PMMC do not discriminate on the basis of a miner's legal status when purchasing gold (Collins & Lawson, 2014; Hilson, Yakovleva, & Banchirigah, 2007).

Small-scale mining, defined as *“mining by any method not involving substantial expenditure by an individual or group of persons not exceeding nine in number or by a co-operative society made up of ten or more persons”*, includes both artisanal (mining using more rudimentary implements) and small-scale mining (more sophisticated mining activities operating at a relatively low level of production). Legal small-scale miners were expected to operate under a license granted by the Minerals Commission on concessions registered in their names. Small-scale mining licenses may only be granted to Ghanaians (not foreigners) 18 years of age and older, but the law allowed Ghanaians holding mineral licenses to enter into agreements with foreign partners to provide, capital, expertise, equipment, etc., for the project. Licenses were subject to the following conditions (Collins & Lawson, 2014; Aryee, Ntibery, & Atorkui, 2003):

- a maximum allocation of three acres in the case of a grant to any one person or group of persons not exceeding four in number;
- a maximum allocation of five acres of land in the case of a grant to any group of persons not exceeding nine in number; and
- a maximum allocation of 25 acres in the case of a grant to a co-operative society of 10 or more persons and registered companies.
- Valid for five years for cooperatives (or three years for those other than cooperatives), after which time the license may be renewed.

In addition, small-scale miners of precious minerals (gold and diamonds) are required to obtain an environmental permit from the Environmental Protection Agency (EPA) before receiving a license from the Minerals Commission. The EPA inspects the site prior to issuing the permit, which needs to be renewed every two years and includes the following prerequisites (Aryee, Ntibery, & Atorkui, 2003; Collins & Lawson, 2014):

- a description of the proposed operational methods;
- a site plan of the area in which mining is to be undertaken;
- anticipated environmental impacts, proposed mitigation measures; and
- costs for reclamation proposals.

Aligned with the *“Yaoundé Vision Statement”* of 2003, which had identified that *“very few Poverty Reduction Strategy Papers (PRSPs) make reference to ASM”*; and that *“Mining authorities should revisit their contribution and commitment to poverty reduction ... [which] should go beyond the provision of increased fiscal revenues, foreign exchange earnings, and mining jobs”*, Ghana's first PRSP 2003-2005, **“An Agenda for Growth and Prosperity”** addressed ASM explicitly: *“Current mining laws tend to disproportionately favour large-scale mining enterprises. To address this apparent*

imbalance, measures will be put in place to expand the scope and increase the support to the small and medium scale sub-sector with the view to making it the predominant means of exploiting minerals in the long term.” (IMF, 2003, p. 91). But the discussion failed to generate meaningful action over the medium-term. Moreover, what seemed, at first, to be a dynamic dialogue about ASM, would rapidly fizzle. In the case of Ghana, the expectation was that the ideas tabled about ASM in the PRSP would be further developed in the country’s second PRSP 2006-2009, “**Growth and Poverty Reduction Strategy**” (IMF, 2006) but the document fails to even mention the sector. (Hilson & McQuilken, 2014)

In 2006, the legal regime of small-scale gold mining (Small-Scale Gold Mining Law, PNDCL 218 enacted in 1989) was integrated into the new **Minerals and Mining Act 2006**⁶ and applied to all ASM. Sections 81 to 99 of Act 703 apply exclusively to small-scale mining. On the other hand, procedures of issuing a license to a small-scale firm were changed, reducing areas as follows (Adjei, Oladejo, & Adetunde, 2012; Collins & Lawson, 2014)⁷:

- A maximum allocation of 1.2 hectares of land in the case of a grant to any one person or group of persons not exceeding four in number;
- A maximum allocation of 2.0 hectares of land in the case of a grant to any group of persons not exceeding nine in number; and
- A maximum allocation of 10 hectares in the case of a grant to a co-operative society of 10 or more persons and registered companies.

Almost simultaneously, in September 2006, the Government of Ghana announced that it was undertaking a nationwide sweep of illegal artisanal mining communities. The operation “*Fight Against Illegal Mining*” was carried out by the National Security Council under the auspices of the Ghana Chamber of Mines, when the “Prestea Plan” to relocate ASM miners had failed. The sweep began in Prestea in the Western Region of the country, where all unlicensed workings were suspended, a considerable amount of mine equipment was destroyed and numerous arrests were made. The failure of the Prestea Plan is attributed to overlooked community issues (“relocating” community miners would have disrupted families), high level of unemployment in the area (lack of alternative income opportunities), unattractive alternative mining sites (previous areas were chosen by galamsey because they were suitable for ASM), and the fact that mostly all prospective areas were already licensed to large-scale mining companies. (Hilson, Yakovleva, & Banchirigah, 2007)

Besides of the lack of unlicensed prospective areas for galamsey to formalize as small-scale miners, tedious procedures by which an individual obtains a small-scale mining licence were previously reported. The completion of several forms and final approval from governmental authorities are required, a number of criteria must be met, and several restrictions apply. The process, overall, was considered costly and time consuming, which is why most of the country’s small-scale miners continued to operate illegally, easily evading governmental authority (Hilson, 2001).

⁶ Act 703 (2006): <http://faolex.fao.org/docs/pdf/gha85046.pdf>

⁷ Other sources (<http://vibeghana.com/2014/12/31/decentralise-license-for-small-scale-miners/>) indicate that areas of 3-25 hectares continue to be allocated.. No official information was found at public websites of the Government of Ghana.

A National Mining Policy that seeks to outline current government positions on mining as well as future challenges was drafted by the Minerals Commission in 2010 (NN, 2014). Of these the most notable are addressing environmental issues, minimizing social conflicts, assisting small-scale miners, ensuring an equitable distribution of economic benefits, attracting more local capital and ensuring adequate public consultation. The policy draft seeks to balance a favourable regulatory climate with environmental and social protections as well as mediate between large-scale mining and small-scale miners and affected communities. It also discusses the need to encourage and facilitate women's participation in the sector as well as improve occupational health in mining communities. In terms of small-scale miners, the policy draft pledges to provide them with greater access to finance, simplify the licensing process, reserve of areas for small-scale mining, encourage safer technology, help with the formation of representative associations and improve health and safety. The policy draft also discusses the need to generate Geo-Data support for both large-scale and small-scale miners as well as the importance of promoting alternative livelihoods in mine-affected communities. The Mining Policy draft is currently not available from official websites of the Government of Ghana. According to (Aye, Søren, Shukla, & Le, 2011; Aryee, 2012) the Policy has not been enacted.

The third National Development Policy Framework 2010-2013 “**Ghana Shared Growth and Development Agenda**” (GoG, 2010) misses to address ASM as a development opportunity, but rather focuses on illegal mining as the main source of natural resource and land degradation and formulates strategies to “*reduce illegal artisanal mining (galamsey)*”.⁸ The policy framework fails to distinguish between non-formalized local community miners and criminal foreign investors, addressing both as “illegal miners”. This approach, opposed to the National Mining Policy draft of 2010, probably explains the non-enactment of the latter.

In practice, the hard-handed approach seems to target mainly foreign illegal miners. A Google search on news for the keywords “Ghana illegal mining” reveals several operations of arresting and repatriating Chinese miners in the recent past.⁹ On the other hand, while the law governs that small-scale mining cannot take place without a license, in reality, there is little enforcement of the law and the majority of small-scale miners operating in Ghana do so illegally (Collins & Lawson, 2014).

By end of 2014 the National Development Planning Commission (NDPC) had conducted a series of national consultations on the follow-up Development Policy Framework “**Ghana Shared Growth Development Agenda II**” (GSGDA II), to be implemented over the period 2014-2017. The final document was not yet available when this document was drafted.

⁸ (GoG, 2010): Key focus area III.4. Land Degradation and Land Use: 1.10 Control the negative effects of mining (especially **illegal** mining), 1.11 Vigorously pursue reclamation and plantation development in areas mined-out by **illegal** miners

Key focus area III.5. Marine and Coastal Ecosystems: 2.1 Implement regulations and fines for **illegal** mining, indiscriminate bush burning, mangrove and wetland, sand and gravel mining

Key focus area III.6. Mineral Extraction (including Oil and Gas): 1.1 Control the negative effects of mining (especially **illegal** mining) 1.2 Vigorously pursue reclamation and plantation development in areas mined-out by **illegal** miners. 2.8 Improve the capacity and the operations on the small scale mining sector, and reduce **illegal** artisanal mining (galamsey)

⁹ E.g. The Guardian, 15 July 2013: “Immigration authorities say more than 4,500 Chinese nationals have been repatriated after a series of swoops on illegal goldmines.” <http://www.theguardian.com/world/2013/jul/15/ghana-deports-chinese-goldminers>

3.2.2 Legal parameters for ASM formalization

Organizational scope of ASM formalization. According to Act 703 only citizens of Ghana are eligible for small-scale (SS) licenses. A Ghanaian citizen may apply for SS licenses as a person (individual entrepreneur), a group of persons, a co-operative society or a company.

Segmentation of small-scale and artisanal mining: No special provisions to obtain rights exist for the lower-end artisanal mining (galamsey).

ASM's options to obtain mining rights: To apply for and obtain a SS license is the only way of ASM formalization addressed in the legal framework. SS Licenses are granted for 5 years and are, according to Act 703, section 85, renewable for only one further period at the discretion of the Mining Minister.

ASM's options to operate on licensed land: Alternative contractual schemes for ASM formalization in areas already licensed under LS concessions are not addressed in the Minerals and Mining Act.

Cost of obtaining rights to extract minerals. Costs of obtaining a SS License easily ascend considerably above 1,000 USD among all fees and duties, and more if calculating related costs and payments. The entire licensing process is both costly and cumbersome, which further discourages registration. The preparation of site plans by a professional can cost an applicant up to 1,000 Ghana Cedis (GHS) or USD 512. A payment of GHS 100 (USD 51) must also be made for the application form, as well as a GHS 250 (USD 128) processing fee, a GHS 550 (USD 282) "consideration" fee, GHS 750 (USD 384) to the Environmental Protection Agency for the environmental impact assessment which is required for even a small-scale mining licence, and payment of a number of other fees, including stamp duty, court duties, and stool land registration. Applicants also end up paying an assortment of bribes and making several informal payments to various landowners, which can amount to tens of thousands of GHS. Although the government claims decisions on licenses are made in a matter of weeks, the entire process has been known to take several months and even years. (Hilson, 2013)

3.2.3 Institutional framework for ASM

Institutionally, the Ghanaian Minerals Commission is responsible for all policymaking and regulatory activities in the industry. Established under the Minerals Commission Law of 1986, the Minerals Commission, which was one of four main departments of the (at that time) Ministry of Energy and Mines, seeks to help formulate government policy with respect to 'exploration for and exploitation of mineral resources' and to handle 'all public agreements relating to mining'. Its actions have brought small-scale mining into legal channels through the establishment of the buying offices of PMMC and licensed traders. The Minerals Commission is also the main sectoral agency responsible for ensuring that operations are carried out in an environmentally sound manner. When a prospective applicant notifies a local branch of the Minerals Commission of his or her intentions, a representative evaluates the chosen site to determine its suitability. If deemed appropriate, the area is then demarcated and site plans are prepared; a notice of intention to allocate the area for small-scale mining is published by the District Assembly for a period of 21 days, and if no objections are made, the applicant completes the necessary forms, which, along with an environmental impact assessment

statement, are then submitted to the Minerals Commission in Accra. A Small-Scale Mining Unit comprised of some 35 personnel was initially established in the Minerals Commission to handle these and related responsibilities (Hilson, 2001).

The Ministry of Energy and Mines was later restructured into the Ministry for Lands, Forestry and Mines, and in 2009 into the current Ministry of Lands and Natural Resources.

In terms of the local/regional administrative infrastructure for the ASM sector, the Ministry of Lands and Natural Resources through the Minerals Commission has established seven (7) District Offices located at Tarkwa, Dunkwa-on-Offin, Bibiani, Asankrangwa, Assin Fosu, Akim Oda and Bolgatanga, which are responsible for:

(i) Licensing and Technical Support

- These Offices are mandated to promote the regularization, education and
- awareness creation in illegal mining communities, development of small scale mining, as well as monitoring of the activities of small scale miners, in their respective areas of operations.

(ii) Provision of Technical Services and Training

- The District Offices are staffed with mining engineers who continually render extension services to small-scale miners.
- Currently training is largely on mercury pollution abatement. The target groups are miners as well as other members of the mining communities.

(iii) Management of Government Assistance to Small Scale Miners This includes:

- Supervision of Geological investigation of designated areas for licensing to small scale miners
- Monitoring of financial assistance for the purchase of equipment or rehabilitation of facilities to enhance and/or expand operations of Small Scale Miners.

The three regional offices of the Inspectorate Division also assist in the regulation of small-scale mining. (NN_GoG, 2010)

The policies of PMMC raise additional questions about the government's commitment to formalizing small-scale mining. While the Minerals Commission is adamantly opposed to any dealings with galamsey, the 800 buyers employed by PMMC to purchase gold produced by small-scale miners do not abide by such a policy, forging deals with both legal and illegal operators. By offering its buyers 97 percent of the market rate in local currency for collected product, the authorities are assured of capturing most of the gold produced in Ghana on a small scale (Hilson, Yakovleva, & Banchirigah, 2007).

3.3 Interaction with ASM projects and initiatives

Since its legalization, an array of projects have been sponsored and implemented. Shortly after legalising small-scale gold mining in 1989, the Small-Scale Mining Project (SSMP) was inaugurated to handle relevant policy-related matters in the sector. The SSMP was comprised of the following four institutional pillars:

- a) The Minerals Commission: carry out priority studies on ASM, issue licenses, and implement relevant industry policies.

- b) The Precious Minerals and Marketing Corporation: provides purchasing services for small-scale miners.
- c) Mines Department: put in charge of the industry's health and safety issues.
- d) Geological Survey Department: conducts prospecting and identifies areas suitable for small-scale mining.

As the main administrative body involved with small-scale mining, the Minerals Commission established the Small-Scale Mining Department (SSMD) in 1991 to better address industry policy making and regulatory issues (Ofei & et.al., 2004).

The SSMP was further strengthened in the mid 90's, using World Bank monies awarded as part of the *Mining Sector Development and Environmental Project*¹⁰, the main objects of which were (i) to enhance the capacity of the mining sector institutions to carry out their functions of encouraging and regulating investments in the mining sector in an environmentally sound manner, and (ii) to develop techniques that will improve the small-scale mining operations. The following initiatives were pursued under the scheme for small-scale mining:

- Identification and testing of improved equipment and processing
- Dissemination of equipment and technology
- Improved geological information available to small-scale miners
- Improved small-scale mining sub-sector framework and set-up
- Land reclamation for small-scale mining degradation

GTZ was hired to provide on-site training to small-scale miners and district officers. The organisation worked in cooperation with the World Bank to carry out the *Mining Sector Development and Environment Project's* tasks for small-scale mining (Ofei & et.al., 2004).

As part of a grand plan for reducing mercury emissions from small-scale gold mining in Ghana, UNIDO implemented a two-phase mercury abatement project. The first phase involved assessing the environmental and health-related impacts of mercury in small-scale gold mining regions, an undertaking carried out in 1999. The second phase involved the promotion of retort usage, principally the (quite controversial) ThermEx model. (Ofei & et.al., 2004).

A portion of the 40 million EUR awarded in May 2002 for mining sector support under the EU-SYSMIN facility was used to undertake further mercury management research. (Ofei & et.al., 2004).

3.4 Outcome and lessons to learn

3.4.1 Formalization rate and benefits

Earlier efforts to support ASM produced variable results but demonstrated outstanding commitment on the part of government and some notable progress was achieved. Between 1998 and 2002, officially reported production rose from 2% to 7% for gold and 40% to 80% for diamonds. And yet, only 620 licenses were granted in this period, to which miners attribute to a complex licensing process that can take up to six months. (Hinton & Levin, 2010)

¹⁰ <http://www.worldbank.org/projects/P000966/mining-sector-development-environment-project?lang=en>

In 2010, the Government of Ghana reported to UNCSO over 650 registered small-scale mining groups engaged in the mining of gold, diamonds and industrial minerals (NN_GoG, 2010). This covers, roughly estimated, some 50,000 individual miners/workers. Compared with the estimated 200,000 miners at the time of enacting the Small-scale Gold Mining Law (PNDCL 218) it corresponds to 25%. Taking into account the growth of the ASM sector towards a million persons involved today, current formalization rate is estimated at 5%.

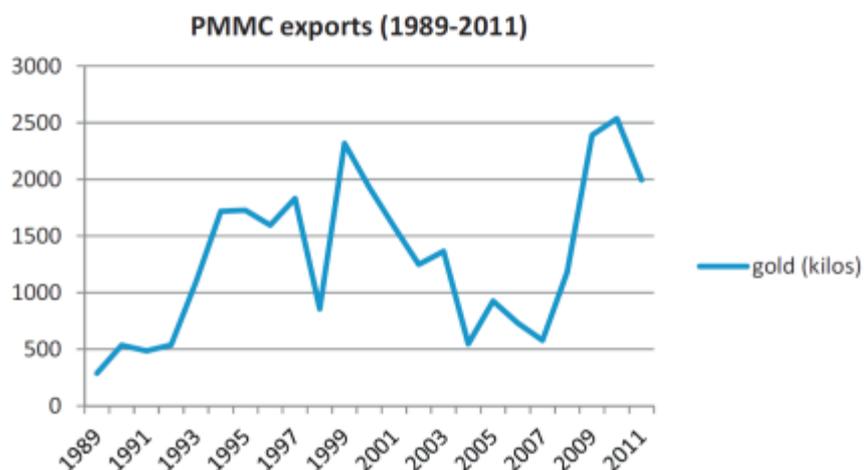


Figure 3: Exports of gold by PMMC (Fold , Jønsson, & Yankson, 2014)

Figure 3 shows the PMMC gold exports since the establishment of the institution for the period 1989–2011. The export increased until 1999 after which year it fell gradually towards the period 2004–2007, partly because the PMMC position as the sole buyer and exporter of gold from ASM ended in 1999. According to the current management of the PMMC, another reason was inadequate allocation of funds to buy gold: with the change of government in 2008, PMMC purchases and exports rapidly increased, reflecting the new management’s changed priority for constant availability of cash and competitive prices for gold. (Fold , Jønsson, & Yankson, 2014)

Direct government revenues from ASM are mainly limited to license application fees, which, including costs, are high for the individual small-scale miner (up to 1,000 USD per license, see chapter 3.2.2), but in their totality irrelevant (total government income from the 650 licenses mentioned above would not have exceeded 0.5 million USD).

Indirect government revenues and benefits from ASM are however highly significant, particularly from PMMC’s role as the main buyer of (legal and illegal) ASM gold. Operational profits from the State-owned PMMC enter the treasury, and even more importantly, buying gold from galamsey in GHS (ASM miners don’t need foreign exchange), and exporting it in USD, contributes significantly to the Foreign Exchange balance of the State.

3.4.2 Ghana summary and lessons learnt

Ghana has been one of the first countries in Africa addressing ASM formalization. The initial “flaw” of addressing ASM in a separate legal framework than LSM was ameliorated in the Minerals and Mining Act 2006.

The pioneering role of Ghana is however curtailed by the fact that the legal framework only addresses the higher-end segment of ASM (small-scale mining) and that the lower-end poverty driven galamsey miners have received limited attention. With exception of PRSP I (2003-2005), inspired by the Yaounde Vision Statement, National Development Frameworks failed to identify ASM as a development opportunity and rather focus on ASM as an annoyance.

The legal framework fails to distinguish between the higher end small-scale sector and the lower end artisanal (galamsey) sector. Legal provisions address the formalization of small-scale mining as a - to some extent - simplified form of conventional LSM, which is not the case for the large number of galamsey who therefore remain largely in the informal economy.

Lack of attention to the galamsey sector by the State, and probably even more its marginalization as “illegal mining” and crackdowns in the mid 2000’s (e.g. failed Prestea Plan) made it an easy prey for stakeholders with criminal intentions, such as illegal immigrants of Chinese origin seeking to circumvent legal requirements intentionally by “camouflaging” as galamsey. The public discourse fails to distinguish between national and foreign galamsey actors, and criminalizes both as “illegal mining”, boldly overlooking the fact that Ghanaian galamsey (theoretically) can, but foreign immigrants cannot legalize or formalize their operations by obtaining small-scale mining licenses.

Still, with an “official policy” adamantly against illegal mining including legitimate traditional mining, the Government pursues a second, “pragmatic policy” buying gold from galamsey miners through PMMC, in benefit of the national monetary policy and central bank reserves. Gold, regardless of being purchased from galamsey in GHS, is a reserves asset, tradable at any moment in international currency. This is an extremely ambivalent position, which can be found in several countries. This raises the question: Is there a real political will to address the problems of the sector (as per the official policy) or is it that the government considers, that it can reap the highest benefits from their galamsey citizens by maintaining them in the informal sector?

One of the principal reasons for limited uptake of ASM formalization appears to be that the legal framework provides the obtainment of small-scale mining licenses as the main or only option. This pathway to ASM formalization is closed to the majority of artisanal and small-scale miners who work in areas which are/were already covered by LSM concessions. While co-existence arrangements between ASM and LSM operators are mostly always an option at discretion of the parties, the legal framework fails to contribute with incentives (or even better requirements) for LSM operators to enter into formal agreements with galamsey miners.

Main lessons learnt:

- **ASM formalization is a long-term (and even permanent) process.** Ghana was a pioneer of ASM formalization and had made good inroads in its first PRSP 2003-2005, but then lost track in its effort of addressing the sector.
- **Without properly distinguishing small- and artisanal-scale mining, formalization of the lower segment (galamsey) is likely to fail.** Maintaining this segment unaddressed in the informal economy is not helpful to resolve its issues in benefit of the miners and the Government.

- **Illegal mining is not a synonym for ASM.** Clear criteria for distinguishing illegal, informal and formal ASM must be in place and must be communicated. Otherwise, measures to curb illegal mining will always victimize the most vulnerable, who do not have the intention to be illegal, but to subsist on daily income.
- **The absence of strongly enabling legal framework for ASM and incentives for formalization empowers criminal elements to take over the ASM sector.** In case of Ghana, the informal context made it easy for illegal Chinese investors to camouflage as ASM. For the individual digger it makes no difference, who gives him a shovel.

4. Tanzania

4.1 Context

4.1.1 Mineral production and employment

Tanzania is the fourth largest gold producer in Africa after South Africa, Ghana and Mali. Gold production currently stands at roughly 40 tonnes a year, copper at 2,980 tonnes, silver at 10 tonnes and diamond at 112,670 carats. In total, the mining sector contributes 2.8% to GDP each year but this could rise considerably in future years, with anticipated average annual growth in the sector of 7.7% between 2011 and 2015. Minerals that have been identified in Tanzania include gold, iron ore, nickel, copper, cobalt, silver, diamond, tanzanite, ruby, garnet, limestone, soda ash, gypsum, salt, phosphate, coal, uranium, gravel, sand and dimension stones. (USGS, 2012; TCME, 2015)

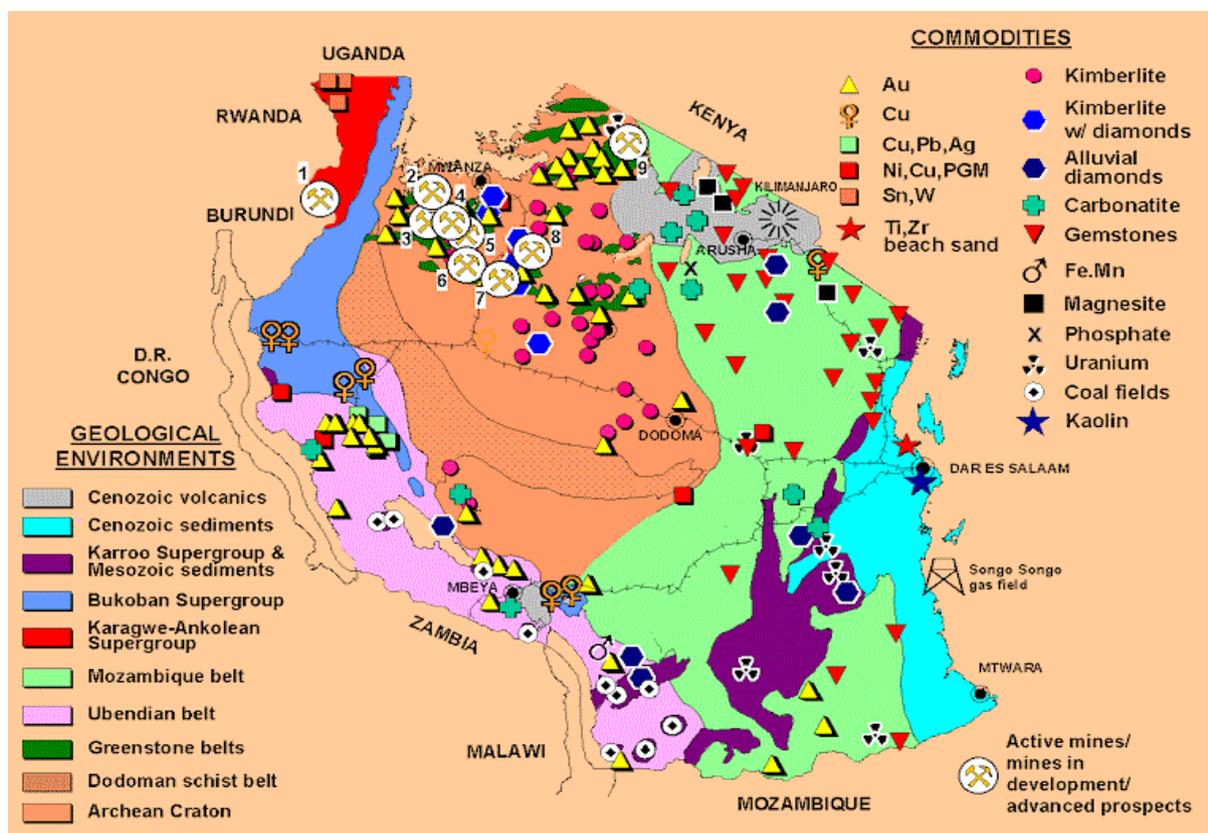


Figure 4: Mineral resources of Tanzania (Mahobe & Magayane, 2013)

Tanzania’s mainly informal ASM sector began to grow in the 1980s. The downturn in the performance of other productive industries, poor markets for agriculture, droughts, and other factors have been associated with the increase in the number of people working in ASM in the 1980s and 1990s. A report by one of Tanzania’s regional small-scale mining associations notes: “*The closure of state-owned mines in the 1980s and privately owned mines in Tanzania in the early 1960s forced semi-skilled people to opt for artisanal mining*” (Hainga, 2010). In the 1990s, when large tracts of land were allocated to large companies as part of a national economic reform process, many farmers became reliant on artisanal mining. The rise in gold prices globally has been a factor in attracting

people into the ASM sector, but researchers widely recognize that most ASM in Tanzania is driven fundamentally by critically limited livelihood options. (Spiegel, 2012)

Estimates of the number of artisanal and small-scale miners in Tanzania range from 500,000 to 1.5 million. The government has estimated that small-scale mining generates at least three jobs for each individual directly involved. Gold and gemstones are the most widely extracted minerals by artisanal and small-scale miners, and the artisanal diamond mining sector has also been growing in recent years. National gold exports reached US \$1.076 billion in 2009, up from US \$932.4 million the previous year – including all large, medium, and small-scale mining operations. Artisanal and small-scale gold mining may account for approximately 10% of Tanzanian gold production, though most of the small-scale mining activities are currently informal (i.e., not licensed officially). (Spiegel, 2012)

4.1.2 Country definition of ASM

Small-scale mining is “defined” indirectly in the Mining Act 2010, as the type of operation whose capital investment is less than USD 100,000 and therefore entitled to acquiring a “primary mining license” (PML).

Tanzanian mining legislation does not provide a direct definition of “artisanal” mining; only “small-scale” mining has been defined in law, its operations characterized by small capital investment, low levels of technological sophistication, and full ownership by Tanzanian citizens (1998 Mining Act and 2010 Mining Act). In policy literature in Tanzania, the terms “artisanal” and “small-scale” mining are often used to refer to mining activities carried out by individuals, families and/or groups of local communities and/or migrant workers, the majority of whom have no formal technical training and depend on rudimentary tools. (Spiegel, 2012)

4.1.3 Operational and organizational aspects of ASM

Mineral resources suitable for ASM

The potential for economic mineralization is widely recognized at over 800,000 km² in Tanzania. Gold mineralization is concentrated in Lake Victoria greenstone belts such as the North Western region up to Mpanda, Lupa mineral fields and Western part of Tanzania in the Ubendian system. Diamond occupy more than 300 kimberlite pipes which extends from Mwanza through Shinyanga to Tabora and Singida, and proterozoic coloured gemstones in Usagarian and Ubendian system of central and western part of Tanzania. (Mdee, 2015)

Artisanal and Small Scale mining activities (ASM) in Tanzania involve the mining and extraction of gold, gemstones and a variety of building and industrial minerals. The ratio of individuals engaged in gold to gemstones to other types of minerals being 11:8:1 (Massawe, 2010; Mahobe & Magayane, 2013).



Figure 5: ASM areas in Tanzania (Drechsler, 2001)

ASM mining methods

Two categories of mineral deposits can be distinguished: minerals that are mined and marketed without processing. Such mineral commodities include sand, clay, onyx; and minerals that are mined and processed prior to marketing. These mineral commodities include gold, diamond, gemstones, dimension stones, kaolin, lime, gypsum, construction aggregates, etc. (Drechsler, 2001):

- **Gold mining** involves digging pits using simple tools such as hand hammers, picks, hoes and shovels. After mining the ore, gold is recovered through a repeated series of crushing, grinding, gravity concentration, and finally, an amalgamation process.
- **Underground gemstone mining** and processing includes breaking the rock using low-energy explosives, followed by material sorting by hand after cobbing. A general flow chart for processing gemstones therefore covers cobbing, grading and sizing of the valuable stones.
- **Alluvial gemstone mining** includes the following procedure: gravels are wetted to loosen individual grains from rock matrices; washing and sieving; and then, hand sorting the gemstones.

Small-scale gold mining operation of the upper segment (towards medium scale mining) increasingly use mechanized extraction techniques, heavy earth moving machinery. Cyanide use has become popular in the Lake Victoria area, where cyanidation is used to leach tailings that were mainly discarded by ASM (Massawe, 2010).



Figure 6: Left: Artisanal alluvial diamond mining, Shinyanga; Right: Small-scale cyanide leaching, Lake Victoria area

Organizational setup of ASM

The artisanal gold mining sector has a three-tiered functional division of labour (Bryceson & Jønsson, 2012):

- 1) **Primary mining license (PML) owners** at the apex of the artisanal mining hierarchy have the right to exploit an area for seven years. As claim owners, they are legally responsible for mining activities conducted on their claim, including hiring and paying labour, organizing the mining, and adherence to safety and environmental regulations.
- 2) **Pit holders** - It is a widespread practice among PML owners to informally lease out mining activities to pit holders, who organize procurement and sourcing of necessary inputs and labour and conduct the mining. Capital investments and the risks and costs related to fruitless periods fall upon pit holders who are the primary financial risk-takers. Most begin as diggers, and sometimes sink back down to digging if they experience financial collapse.
- 3) **Diggers** - They are far more numerous and can be roughly divided into traditional drillers, *waponjaji*, who work their way into the rock mainly with hammers and chisels, sometimes power drills and *vutafelo*, who remove the waste material and gold-bearing rocks out of the

pit. They are usually provided only with food and medicine in periods of no mineral output. Their payment for labour services comes during production with the division of the gold-bearing rock.

The division of gold bearing rocks among the above varies, but in most places the rule of thumb is: 30% PML, 40% pit holder and 30% divided amongst the diggers. Generally, miners are getting returns that are three to five times higher than the average farmer, which explains the attraction of the sector for many Tanzanians. In addition to the above listed miners engaged in mineral extraction further along the commodity chain there are tens of thousands of men and women engaged in processing of the artisanally mined gold. Once the excavated ore reaches the surface and is divided between the above three categories, it is processed for onward sale. Those involved include (Bryceson & Jønsson, 2012):

- 4) **Processors** - Working close to the mine sites where there is access to water. The mineral-bearing ore need to be crushed followed by separation of the gold from the other ore material, usually with the use of mercury.
- 5) **Buyers & Dealers** - Trading at the mining site, in the regional towns and in Dar es Salaam.

Informal and formal local organizations of artisanal and small-scale miners historically have played a crucial role in Tanzania. Diverse informal organizations exist among groups of pit holders, diggers, gold processors, and others at any given artisanal and small-scale mining site, even if they do not have licences, and their capacity to work together to address environmental health, safety, and wellbeing is vital for the success of the community. In 1983, the government directed small-scale miners in each region to establish associations to link miners and government institutions. Miners' associations, such as the Mwanza Regional Miners Association (MWAREMA), formed in 1986, play major roles in coordinating miners and facilitating organization and capacity-building. Based in Geita District and covering 579 licences for small scale mining, MWAREMA has more than 700 members. (Hainga, 2010; Spiegel, 2012)

However, bad planning and management, poor technical facilities for members and lack of funding sources have all been cited as major handicaps to some of these Regional Miners Associations. In addition, membership is mainly for claim holders, some of whom have done well through their organizations, which can act as gatekeepers for donor project funding. Some miners have started forming smaller local associations to demand the right to exist and express grievances against discrimination. However, the capacity of these local groups is often very restricted. (Fisher, 2007)

In some cases, small-scale miners have formed registered cooperatives, creating Savings and Credit Cooperative Societies (SACCOS). The SACCOS model is an important example of how miners have mobilized to create an organizational structure that allows the acquisition of credit. According to experiences of the Geita District Cooperative Officer, some miners in the Geita District are aware of the advantages of the SACCOS. (Spiegel, 2012)



Figure 7: Artisanal mining SACCOS in Geita

Women participation

Men and women have different “typical” roles in ASM, which may occur at any/all stages along the ASM value chain. In addition to being involved in mining itself, women are often heavily involved in indirect labour related to mining. In Tanzania, it is estimated that women constitute about 25 percent (137,500) of the total ASM workforce. Additionally it was observed that 2.5 times as many women are engaged in indirect roles (such as hauling and food and water provision) than in direct mineral production. (Eftimie, et al., 2012)

The nature of ASM activities and changing socio-economic circumstances have also helped some women (although the minority) to break through the barriers of culture and move up the ladder in the ASM hierarchy to become pit owners and mineral rights owners. In addition, some women are also powerful service providers in these communities. Being able to diversify activities, capitalizing on the different needs in such communities and accumulate capital, these women can now compete side by side with men, and command much respect in the mining areas. (Mwaipopo, Mutagwaba, Nyange, & Fisher, 2004)

The Tanzanian Women Miners’ Association (TAWOMA), another key organization with a national scope, was formed in 1997 with 400 active members (miners, mineral brokers and dealers, service

providers, and mineworkers). Headquartered in Dar es Salaam, TAWOMA has 17 regional offices and 15 local branches, representing all of the major mining areas. TAWOMA plays an active role of awareness raising and advocating for small-scale women miners and children, providing capacity building for members, giving input to legal reforms, and providing a platform for networking and information and knowledge exchange. (Negele, 2010; Spiegel, 2012)

4.2 Policy and legal and institutional framework

4.2.1 Evolution of the policy and legal framework

In the early 1960s, the contribution of mining to GDP averaged 3 - 4 percent. In the period 1960 to 1966, however, the last old big gold mines at Geita and Kiabakari closed down. Following political changes in 1967, a number of industries were nationalised, mining included. In the period up to the 1980s, diamond production from Williamson Diamond Mines Ltd (WDL) accounted for more than 70 percent of the total value of mineral production in Tanzania. As production at WDL continued to decline, contribution of the mining sector to GDP fell to about 1 percent and its contribution to national revenue was only 0.3 percent. There was little investment in the sector, and due to price regulations and lack of market, the greater share of recovered gold and gemstones were smuggled out of the country. (Lange, 2006)

The 1979 Mining Act created opportunities for small-scale mining by allowing mining permits in areas designated for mineral prospecting that did not require large expenditures and specialized equipment. In the late 1980s, the government began to support new opportunities for small-scale mining communities when it ended the monopoly of the State Mining Company and began liberalizing the mining and selling of gold. The government's Small-Scale Mining Policy Paper of 1983 encouraged citizens to supplement their incomes by participating in mining activities. (Spiegel, 2012)

In 1986 Tanzania agreed to a structural adjustment programme designed by the World Bank. Internal and external trade was liberalized, and the government opened up for foreign investment in the country. The liberalization of mining, accompanied by the legalization of the buying and selling of gold and gemstones through banks and designated dealers, had immediate effects. In 1991, mineral sales increased almost 70 percent. This dramatic raise is attributed to record gold production and sales mainly by small-scale miners. (Lange, 2006)

In the 1990s, the government developed a legal and policy framework for formally integrating small-scale mining into a national mineral development strategy, introducing the Tanzanian Mining Policy of 1997 and the Mining Act of 1998, components of a mining policy reform process that was supported by the World Bank. Among other policy aims, the reforms included the aim of legalizing and formalizing the small-scale mining sector by establishing a suite of basic environmental and safety standards for ASM along with a new permitting system. (Spiegel, 2012)

At the same time it passed the 1998 Mining Act, though, the government prioritized the development of large and medium-scale mining as an economic strategy, leading to many large tracts of land being allocated to larger companies. Since then, a number of public debates have emerged on Tanzanian mining policy, highlighting a need for allocating land for artisanal and small-

scale mining activities specifically and making the licensing system more equitable and accessible to marginalized groups. . (Spiegel, 2012)

Similar as in Ghana, in the aftermath of the Yaoundé Vision Statement, the **National Strategy for Growth and Reduction of Poverty** (NSGRP) 2005 began to emphasize that, “*Artisanal and small-scale mining is increasingly becoming dynamic as it provides alternative economic opportunities to the rural communities. There is need to balance the livelihood requirement of artisanal miners with the economic objectives of the large-scale operators.*” (Tanzania, 2005).

The Ministry of Energy and Minerals formulated strategies aimed at developing small-scale mining, initiating measures for improving information and statistics on ASM, and developing extension services aimed at assisting miners to improve technologies. Government policy papers recognized that detailed knowledge of dynamics in mining communities is vital to regulate extraction activities effectively, and the official government policy objectives have been to promote small-scale mining cooperatives, to support the improvement of equipment in small-scale mining, to encourage partnerships between small-scale miners and companies, and to deliver assistance to mineworkers through technical training at selected sites. (Spiegel, 2012)

Responding to a number of concerns about mining laws, the President of Tanzania commissioned a high-level review of mining legislation and policies in 2008, led by the “*Bomani Presidential Mining Sector Review Committee*”. The findings of the Committee (Bomani Committee, 2008) emphasized the need to amend the mining legal framework and associated mining policies, particularly so that Tanzanian citizens have greater opportunities to benefit from and participate in the mining sector. Specific small-scale mining related recommendations of the Bomani Report were:

5.5.1 Licensing

- i) *Small license application to be made at local authorities and license to be processed at regional offices so as to speed the mining activities*
- v) *Section 68 to be amended in order to give powers to zonal mineral officers to issue license of small scale miners*

5.5.3 Small mining

The committee proposes that the licensing small scale miners should be extended to 10 years to at least give them room to acquire more loans from financial institutions.

5.12 Small Miners

- i. *Small scale miners to be empowered in equipment so as to improve their mining task*
- ii. *The government to contribute on a special fund basket, for financing and capital, the basket to involve different stakeholders*
- iii. *To be launched finance institutional to finance small scale miner through SACCOs*
- iv. *in the new mineral Authority structure, to be located a special department that will deal with manage small scale mining*
- v. *The government to accomplish the law and policy strategies that aims to allocate special areas for small scale miners*
- vi. *To strengthen trade relation between the large scale miner and small scale miners that will also minimize misunderstanding*
- vii. *The government to practically accomplish technical education, entrepreneurship to power local investors*
- viii. *Management Stabilizing by allocating mineral offices in the level of district and if possible those offices to be resourced with equipments*
- ix. *The government to conduct a research by understanding the mineral treasure in small scale mining area*
- x. *The law and regulations of security and health in mining site to be monitored so as to protect workers health's and to avoid accidents as it have been happening in small scale mining areas especially Mererani.*
- xi. *The government to put into place a law that will instruct investors to cover their worker*

- xii. Environmental Laws and regulations due to small scale mining to be improved. Either, the government to launch and manage an environmental conservation programme in mining area
- xiii. Areas returned by large scale miners to be allocated to small scale miners
- xiv. License giving to small scale miners to be given by the local government so as to build good relation with owners
- xv. The government to motivate small scale miners for introducing SACCOs due to mining
- xvi. To areas that the backbone of the economy is mining i.e. Nyamongo, the government should isolate a special location for small scale miners.
- xvii. According to The situation that is in Nyamongoi, the government and Barrick Company Ltd have no other wise but to allocate a special area for small scale miners and to place a buffer zone between them

5.13 Gemstones

- i) Gemstone mining to be for Tanzanians 100%
- iv) Gemstones to be mined with small machines so as to prolong its life spans so that the next generation can also benefit.

5.17 Environmental Monitoring.

- ii) Small scale miners to be educated on environment conservation and better use of chemicals that are used to refine mines more so mercury
- iii) The government to help small scale miners to prepare EIA and EMP

This led to a new Mining Law being passed in 2010 with four key evolving areas of ASM policy in Tanzania (Spiegel, 2012):

- Recognizing the need for the government to expand significantly upon previous efforts to regulate ASM, the Tanzanian Parliament promulgated a new mining law in 2010 that stipulated measures to allocate **land areas** specifically for small-scale mining.
- As the Bomani Commission concluded that mining sector decision-making had been too disconnected from district-level governance and cross-sector land use decision-making, the government decentralized the **permitting process** for Primary Mining Licences, intending to make the small-scale mining formalization process more efficient and more accessible to rural communities.
- As artisanal and small-scale miners often lack collateral and do not qualify for credit under existing commercial banking channels, the government initiated steps in 2011 to develop **microfinance services** tailored for the ASM sector and aimed at encouraging banks, companies, and microfinance institutions to assist mineworkers.
- Zonal Mines Offices are responsible for conducting extension services, but limited funds have hampered their capacity to do so. The government has therefore initiated policies and programs to strengthen institutional capacities to conduct **outreach and training** activities with artisanal and small-scale mining groups (licensed as well as informal/unlicensed workers) and improve environmental management, technology upgrade programs, and regional regulatory implementation.

The enactment of **The Mineral Policy of Tanzania** (Tanzania, 2009) preceded the enactment of the Mining Act in 2010. The Mineral Policy of 2009 indicates among its objectives to support and promote development of small-scale mining so as to increase its contribution to the economy; and to facilitate, support and promote increased participation of Tanzanians in gemstone mining. The policy specifically addresses the ASM issues of (i) Effective Development of Small Scale Mining, (ii) Contribution of gemstone mining industry in socio-economic development, (iii) Strengthening Management of safety, occupational health and environment in mining activities, (iv) Promotion of Women Participation and Prohibition of Child Labour in mining activities and (v) the role of the Government as a Service Provider.

Also to some extent similar as in Ghana, after a very promising inclusion of ASM in the post-Yaoundé NSGRP 2005, the sub-sector lost attraction in latest **National Strategy for Growth and Reduction of Poverty II** - NSGRP II from 2010 (Tanzania, 2010). While NSGRP focused on ASM as alternative livelihoods opportunity, NSGRP II proposes “Promoting joint ventures between large foreign mining companies on the one hand and land owners, small scale miners, communities and local experts on the other hand, in order to improve access to external markets and technologies by the latter” and “Availing technological information and support to small scale entrepreneurs in the mining sector to enhance productivity and enable them to compete in local, regional and international markets” (Tanzania, 2010, p. 51). This strategy, clearly focusing on growth of the upper segment of small-scale mining, has limited scope for artisanal miners in terms of poverty reduction. On a positive note, the NSGRP II avoids to repeat the stereotypes of confusing ASM with illegal mining.

4.2.2 Legal parameters for ASM formalization

The principal legislation on mining is the Mining Act, No. 15 of 2010 (“the Mining Act”) as well as regulations made under the Act concerning mineral rights, environmental protection, mineral beneficiation, safety and occupational health, mineral trading and mining of radioactive material. ASM is addressed as integral part of the Mining Act 2010, with art. 4 specifying the PML and art. 16 introducing the instrument of areas exclusively reserved for holders of PMLs. Articles 54 to 57 sets the conditions for obtaining and renewing PMLs. According to art. 58, PMLs are upgradeable to regular mining licenses.

Licence	Maximum size	Duration (year)	Renewal Period (year)	Application Fee	Preparation Fee	Annual Rent
Primary Mining Licence (PML)	10 hectares for other minerals	7	7	TShs. 50,000/- on Initial Application; and TShs. 100,000/- for renewal	TShs. 50,000/-	Tshs. 40,000/- Per hectare*
	5 hectares for building materials					Tshs. 80,000/- Per hectare**

Figure 8: Current parameters for Primary Mining Licenses¹¹

Organizational scope of ASM formalization

PML holders encompass diverse types of individuals and business entities in Tanzania. The 2010 Mining Act states that a “primary mining licence means a licence for small scale mining operations, whose capital investment is less than USD 100,000 or its equivalent in Tanzanian shillings”. This builds further on the 1998 Mining Act, which stipulated that while the mining licensing system in Tanzania generally works on a “first come, first served” basis (which has historically benefited large-scale enterprises, which have the economic means to acquire licences), the PML system is open to Tanzanians only. Eligible for PMLs are individuals who are citizens of Tanzania, partnerships composed exclusively of citizens of Tanzania and body corporates, i.e. companies owned and controlled by Tanzanian citizens. Regarding gemstone mining, the Mining Act 2010 stipulates that

¹¹ <https://mem.go.tz/wp-content/uploads/2014/05/08.05.2014website-types-of-mineral-rights-sizes-duration-fees.pdf>
 footnote in document: ** for gold, kimberlitic diamonds or gemstones, * for all other minerals

licenses will not be issued to foreign firms, as part of an effort to empower local artisanal gemstone miners. (Spiegel, 2012)

Segmentation of small-scale and artisanal mining

The term ‘*small scale mining*’ covers everything from truly artisanal mining - which is often hazardous to miners’ health and the environment - to medium scale mines which make use of modern technology and proper disposal of chemicals (Lange, 2006). The Mining policy 2009 and the Mining Act 2010 continue along that line, not distinguishing between the small-scale and the artisanal segment of ASM.

In recent government documents, it appears that giving legal recognition to “artisanal miners” is being considered, though it is not yet clear what developments there may be in the licensing system and how the PML system might be adapted. In one policy document detailing future plans, the Ministry of Energy and Minerals indicates the possibility of considering a way “*to categorize legally artisanal miners and small-scale miners like in Ethiopia*”, but the idea has yet to be developed. (Spiegel, 2012)¹²

ASM’s options to obtain mining rights

The Mining Act of 1998 allowed small-scale miners to obtain Primary Prospecting Licences (PPLs) and Primary Mining Licences (PMLs). A PPL was granted for a period of 1 year with the possibility of renewal, authorizing the owner to prospect for minerals within one of Tanzania’s 8 mining zones and a PML was granted for 5 years providing the licence holder the right to mine an area of up to 10 hectares (5 ha for building materials). Under this system, a PML could be mortgaged, renewed, or transferred to another holder. Various changes were made in 2010. According to the 2010 Mining Act, “*A primary mining licence shall confer on the holder the right to prospect for and mine minerals as provided for in this Division of this Part*”¹³. Thus, a primary mining licence may now include prospecting activities for small-scale miners. In addition, the 2010 Mining Act stipulates, “*A primary mining licence granted under this section shall be valid for a period of seven years and may be renewed*”¹⁴. The Bomani Report (Bomani Committee, 2008) had suggested that the tenure period for PMLs should be extended to 10 years if the miners’ application can show the merits of this. Thus, the 2010 Mining Act, by extending the period to 7 years, appears to make it only marginally easier for licence holders to conduct long-term planning in their operations. (Spiegel, 2012)

Further characteristics are that the Ministry may declare reserved areas exclusively for PMLs, and PMLs can be merged (“amalgamated”) and be converted into ordinary mining licenses.

¹² Source [(Ministry of Energy and Minerals, 2010, p. 18)] cited by (Spiegel, 2012) could not be located.

¹³ 2010 Mining Act, Division C, Article 54

¹⁴ 2010 Mining At, Division C, Article 55

ASM's options to operate on licensed land

The lack of potential areas suitable for ASM is recognized by government officers as a problem for formalization of ASM. Co-existence of mineral rights is reportedly possible in Tanzania: Primary Mining Licences may be granted inside another mineral right. (Masanja, 2013)

Cost of obtaining rights to extract minerals

Fees for PML application costs are in the range of USD 50 and annual rent at about 40 USD per hectare for gold, gemstones and diamonds.

While the annually recurring cost of licences (e.g. USD 400 for a 10 ha license) may be high for some poorer artisanal miners¹⁵, the barriers to accessing licences have more to do with other factors such as the bureaucratic processes associated with the licence application and/or lack of knowledge of the legal requirements and institutional procedures, and lack of understanding of their rights. Some of these barriers have been addressed through recent reforms in the licensing process. Now the Zonal Mines Office can process PML applications, and this may be an important step towards making the licensing system more accessible to poorer ASM groups. (Spiegel, 2012)

4.2.3 Institutional framework for ASM

As the Ministry of Energy and Minerals is the principal agent managing the development and regulation of this sector, its responsibilities have increased in recent years. The MEM conducts a range of permitting and monitoring functions, and coordinates the activities of the 8 Zonal Mines Offices and Resident Mines Office). Zonal Mines Offices are located in:

- Eastern zone: Dar es Salaam
- Northern zone: Arusha
- Southern zone: Mtwara
- Central zone: Singida
- North western zone: Shinyanga
- Lake victoria zone: Mwanza
- Western zone: Mpanda
- South western zone: Mbeya

The mandate of the Ministry includes the provision of extension services to improve mining methods. The National Environmental Management Council (NEMC) deals with environmental issues. The Ministry of Finance oversees the allocation of the revenues collected by Tanzania Revenue Authority (TRA).

¹⁵ Particularly for diamond miners: while gold production is more predictable and setting aside a gram of gold per month corresponds to a manageable planning, diamond production is much more unpredictable. The find of one good stone can go along with several months without any revenues.

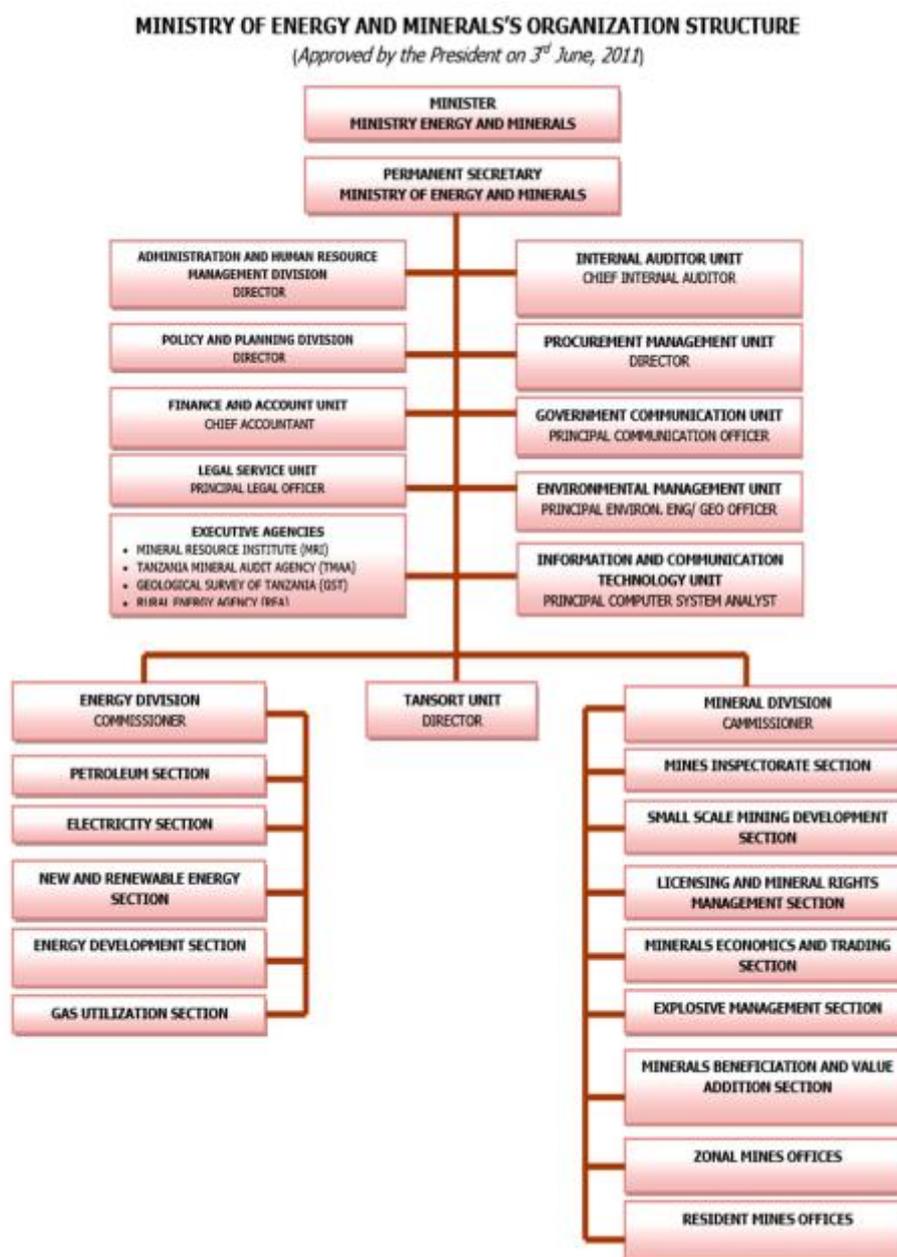


Figure 9: Ministry of Energy and Mines organization chart¹⁶

4.3 Interaction with ASM projects and initiatives

Between 2005 and 2008 much attention was focused on the **Mwadui Community Diamond Partnership**. Most artisanally mined diamonds were mined informally at and around the Mwadui mine, a 146 hectare site located in northern Tanzania. Artisanal mining has occurred here since the discovery of the kimberlite in the early 1900s. Supported by a large and well-developed financing and buying network, it was estimated that the amount of diamonds produced by ASM through primary

¹⁶ <https://mem.go.tz/wp-content/uploads/2014/02/organization-structure.jpg>

extraction from alluvial deposits belonging to DeBeers amounted to approx. 80,000 and 100,000 carats per annum. According to official exports of diamonds, the estimated per carat value for 2006 was US \$140. Based on this figure, ASM production of diamonds, and therefore the target diamond production to be formalized through the MCDP, was estimated to be worth approx. US\$14 million per annum.¹⁷ Artisanal mining was the most significant income source for 75% of area families; however, because it was informal, little revenue was reaching local government coffers and so it was making little impact on the area's development. The Williamson Diamond Mine at Mwadui was part of a joint venture between the Tanzanian government and De Beers, at the time although an estimated 20,000 artisanal miners were active. The process stalled in 2008 when De Beers' stake in the Williamson Diamond Mine was taken over by Petra Diamonds. Plans had included the creation of a digger cooperative to provide credit access for diggers as well as initiatives to introduce transparency in diamond prices and, in partnership with the Tanzania Ministry of Energy and Minerals, creation of a Diamond Valuation Centre. (Hinton & Levin, 2010) The status of artisanal diamond mining in Mwadui and Shinyanga at large is not presently clear.

In **2006** and within the **Global Mercury Project**, the government partnered with the United Nations Industrial Development Organization (UNIDO) to develop a "Manual for Training Artisanal Miners" and create training programs in selected ASM communities in Geita District. The initiative involved a "train-the-trainer" exercise in which a team of local mining engineers, nurses, environmental management specialists, and others worked together to implement a program of capacity-building at selected sites. Four booklets (in Swahili) conveyed some of the main themes of the training, including (i) Mercury and health; (ii) How to use and re-use mercury; (iii) How to protect your water; and (iv) How to get more gold. The government's work with UNIDO led to the development of a "Transportable Demonstration Unit" model whereby groups of trainers travelled to multiple mining sites and demonstrated technologies to improve mining and gold processing practices. Local miners' associations and local government authorities in the village council collaborated on the project. According to project evaluation reports, this led to notable improvements in gold extraction practices, including the uptake of retorts, the construction of safely protected amalgamation ponds, and related environmental management safeguards (Spiegel, 2012). The Global Mercury Project ended in 2008.

In parallel, since the mid 2000's, several projects supported by the World Bank and the Nordic Development Fund have sought to equip the Ministry with technical, managerial, and material support for implementing national policy objectives and regional coordination in mining affairs. The Ministry of Energy and Minerals has taken an important step in initiating the development of a Small-Scale Mining Development Division under the Commissioner for Minerals. This division acts as a national centre for small-scale mining management and includes the mandate of coordinating an expanded set of outreach programs at mining sites. The major focus of these projects, in terms of their budgets and their objectives, has however been to address issues related to the development of large and medium-scale mining nationally. Partly resulting from that project, there has been an increase in the issuance of Prospecting Licences and Primary Mining Licences (Spiegel, 2012). In 2009 these projects were up-scaled into the SMMRP project.

¹⁷ Internal report MCDP 2007.

The **Sustainable Management of Mineral Resources Project (SMMRP)** is a 5-year technical assistance project (**2009-2014**), jointly financed by IDA (USD 50M) and the Government of Tanzania (USD 5M) and coordinated by the Minerals Division and the Geological Survey of Tanzania (GST) (Massawe, 2010). USD 4M are budgeted for ASM support (Masanja, 2013). The development objective of the project is *“to strengthen the Government's capacity to manage the mineral sector to improve the socio-economic impacts of large and small-scale mining for Tanzania and Tanzanians and enhance private local and foreign investment”*. Component A (Improving the Benefits of the Mineral Sector for Tanzania: Artisanal and Small-Scale Mining, Local Economic Development and Skills Development) has the main objective *“to improve the benefits of mining for Tanzania and Tanzanians by implementing the national artisanal and small-scale mining development strategy, to strengthen links between the mineral sector and the local economy, with emphasis on skills development required for the mineral sector”*. (The World Bank, 2009)

As part of SMMRP, the Ministry of Energy and Minerals aims to develop institutional reforms and capacity-building measures to *“enable local governments to integrate mining into district economic and administration planning”*. Although local government authorities have often been limited in their capacities and involvement in mining issues in the past, local governments are responsible for working with the Ministry of Energy and Minerals, especially through the Zonal and Resident Mines Offices, when complaints or other concerns arise. Recent policy evaluations in Tanzania have highlighted the need for building the capacities of local government authorities, improving their ability to collect revenues at a standardized level and monitoring the sector, and responding to concerns about conflicting licensing claims. (Spiegel, 2012)

The Government has established a loan scheme under the Ministry to issue soft loans to small scale miners (The Small Scale Mining Development Revolving Fund). The aim is to provide loans on payments for geotechnical investigations and customer milling services. During 2010, the Government granted TZS 425 million to indigenous local companies to purchase ASM equipment and establish a *“hire purchase scheme centres”* of which the miners will access the equipment through hiring or purchasing them at a low non-commercial rate. In 2012/13 a total of TZS 2.5 billion was set aside for this purpose. (Masanja, 2013)

As part of the ongoing **Multi-Stakeholder Partnership Initiative (MSPI)**, a pilot project was launched in **2014** by the Government of Tanzania, World Bank, two major gold mining companies and an association of small-scale miners. The project aims to improve conditions and livelihoods for small-scale miners, decrease environmental degradation and facilitate peaceful co-existence between Artisanal and Small-scale mining (ASM) and large-scale mining companies (LSM). The MSPI further aims to ensure a fairer share of benefits from the mining boom for the ASM community through participation in government programs, and access to the expertise of the LSMs which are donating the time of technical employees to assist the ASM in the areas of mining, geology, metallurgy, health and safety issues. Small-scale miners will also have access to new bookkeeping and accounting skills. Special measures in the MSPI project will include strengthening *“no child labour”* and *“no mercury”*

policies. Improving conditions for miners in Tanzania is expected to positively impact the country's economic growth.¹⁸

4.4 Outcome and lessons to learn

4.4.1 Formalization rate and benefits

Researchers have examined the difficulty faced by many artisanal and small-scale miners in obtaining Primary Mining Licences. In part, these difficulties arise because much of the mining activity in Tanzania takes place in mineral-rich land areas where large mineral exploration and mining companies have been active in registering for licences as well, providing stiff competition between LSM and ASM. The PML system has apparently been unevenly applied across the country with different implications for poorer, marginalized artisanal miners and more established small-scale mining entrepreneurs. While legal integration can benefit certain wealthier categories of people, who fit into the model of an 'entrepreneurial small-scale miner', for others adverse incorporation contributes to socioeconomic dependence, exploitation and insecurity. For the issue of marginality to be addressed within an integration process, the existence of local forms of organization, institutions and relationships, which underpin inequalities and discrimination, need to be recognized". (Fisher, 2007; Lange, 2008; Spiegel, 2012)



Figure 10: Trend of Primary Mining Licenses issued (Masanja, 2013)

The Government is assisting ASM by identifying mineral rich areas and demarcating such areas exclusively for small-scale mining. Performance assessment reports in the mid 2000's however noted the MEM had been overstretched, finding it difficult to keep up with the number of license applications. As of 2009, 10,000 outstanding applications from 2007 had not yet been processed. (Spiegel, 2012). In recent years, issuing of Primary Mining Licences seems to have made good progress (Figure 10). In 2013, there were over 23,000 PMLs issued to small-scale miners within and

¹⁸ <http://www.worldbank.org/en/news/feature/2014/11/24/landmark-small-scale-mining-initiative-kicks-off-in-tanzania>

outside demarcated areas. Total demarcated land for ASM as of June, 2013 was 265,396 ha. Additionally, relinquished and/or expired areas under Prospecting Licences are held by the Commissioner for Minerals for a period of 4 months to allow ASM to apply for Primary Mining Licences. (Masanja, 2013)

Revenue from small-scale mining is allegedly not a priority for the Government, and allocation of resources for a proper management is limited. (Lange, 2006) reports that out of 153 quarterly reports to the mining office in Mererani, only five claim holders informed that they have had production, while all reported expenditures. The percentage reporting taxable profit was a little more than three percent.

4.4.2 Tanzania summary and lessons learnt

Tanzania has a long history on ASM formalization alongside LSM development. Access to formality is limited to the pathway of mining licenses (“primary mining licenses”), although the possibility to declare reserved areas for holders of PMLs provides an additional instrument. An important aspect is that ASM is addressed in national poverty reduction policy papers since 2005 and in consequence, ASM is reflected in the country’s Mining Policy 2009. Results are still uneven, as formalization strategies focus on higher-end ASM stakeholders (max. capital 100,000 USD) capable to acquire PMLs and provide little instruments and incentives for lower-end subsistence miners as well as for conditions where mining areas are already leased by large concession holders.

Although important reforms were passed in the Mining Act of 2010, the legislation still does not recognize fully the diversity of ASM in the field and the complexities of labour arrangements. Although the Government emphasizes the importance of licensing individuals, the reality is that landlords and licence holders often lease out land to unlicensed groups. Whereas the PML system has tended to be best suited for wealthier entrepreneurs, new policy adjustments and institutional innovation are needed to meet the needs and concerns of poorer mining communities, to make licences more accessible to artisanal miners, and to make regulation more effective. (Spiegel, 2012)

Experiences to date show that it is vital to ensure that administrative policies and institutional roles are designed in ways that improve the accessibility of licences in marginalized ASM communities. This can be done by pursuing a number of new strategies linking government planners with groups who rely on ASM. While it is too early to draw conclusions regarding the impact of recent reforms to decentralize the permitting process, it appears that decentralization of the process for issuing PMLs – to the Zonal Mines Office level rather than the Dar es Salaam office – has been an important step in developing a more regionally situated management system that can respond to local contextual needs. (Spiegel, 2012)

Main lessons learnt:

- **ASM formalization is a development issue.** Similar as Ghana, Tanzania was an early adopter of a legal framework for ASM, but through consistent integration of ASM in its development strategies, the country is making constant progress (with its ups and downs, of course).

- **ASM formalization strategies have to be periodically reviewed.** The Bomani Report was mission critical to re-orient Tanzania's ASM policy (as well as its mining policy in general). As the context for ASM is permanently changing, ASM strategies have to be adapted as well.
- **Differentiation between the segments of ASM (small- and artisanal-scale) is crucial.** Reportedly, the Government of Tanzania is already evaluating options to follow the Ethiopian approach, which is reported to be successful in addressing the artisanal sub-segment.
- **Unlicensed areas for ASM are scarce; innovative approaches are needed.** Governmental geo-scientific investigation for identifying "ASM areas" is costly and had failed in many countries. The approach of holding relinquished and/or expired areas under Prospecting Licences for a period of 4 months to allow ASM to apply for Primary Mining Licences is innovative. Such areas were already considered prospective by their former license holders, and the fact that they are not found to be economic for LSM does not exclude the possibility that they might be viable for ASM. Ideally, geological information from prior prospection should be accessible to ASM.
- **Organization of the ASM sector is of crucial importance.** In 1983, the government directed small-scale miners in each region to establish associations to link miners and government institutions. These organizations, despite eventual weaknesses have become an important driver for development.
- **Women miner organizations contributed to a more equitable access to and benefit from mineral resources.** An enabling environment for organization of the ASM sector also enabled women organizations to progress and achieve empowerment of their members. The proportion of female PML holder, pit owner and leader in ASM organizations is likely to be above African average.
- **The existence of local forms of organization, institutions and relationships need to be recognized.** As, in some cases, miners consider SACCOS their most appropriate form of organization, SACCOS were considered qualified to obtain PMLs.

5. Peru

5.1 Context

The mining sector is, and has always been very important to the national economy of Peru. In 2013 the mining sector accounted for 5% of the GDP, with mineral export revenues representing around 55% of the country's total exports. Its well-known mining tradition dates back to the pre-Inca times. As such, Artisanal and Small-scale Gold Mining is an ancestral activity, but experienced a great surge beginning in the 1980s, a decade marked by armed conflicts, economic crisis, abandonment of rural areas, and migrations.

5.1.1 Mineral production and employment

The mining sector is, and has always been very important to the national economy of Peru. Its well-known mining tradition dates back to the pre-Inca times, and goes on through the Inca, colonial and republican periods. In each of those stages, mining has been one of the major activities in the country's development. Traditionally it has contributed about half of the country's export revenues. Peru is one of the most extensively mineralized countries of the world. It currently plays host to some of the largest precious and base metals mines in the world. Most of the world's major mining companies have operations in the country. Currently, it is the world's third largest producer of copper and zinc, fifth largest in gold and fourth in silver, among other minerals (USGS, 2014). Peru has 13% of the world's copper reserves, 4% of its gold, 22% of its silver, 7.6% of zinc, 9% of lead and 6% of tin reserves, according to the most recent data of the Peru's Ministry of Energy and Mines. In 2013 export revenues reached USD 19 billion at the end of October of that year, representing around 55.2% of the country's total exports. In 2013, copper was the leading export metal, in terms of value, followed by gold, lead, zinc, iron, silver, tin and molybdenum. (EY, 2015)

Artisanal and small-scale mining is an ancestral activity that experienced a great surge beginning in the 1980s because of the political and social conditions endured in the country during that decade, marked by subversion and internal war, economic crisis, abandonment of rural areas, and migrations. ASM is mainly of gold, though occasionally there are small groups dedicated to copper, driven by high international prices for that metal, but who return to gold when copper prices drop. (Orozco & Gamarra, 2012)

Though there has not yet been a general census of the sector, official estimates in 2009 indicated 81,000 persons in artisanal gold mining and 4,000 persons in small-scale mining. This corresponded to approximately 300,000 people depending directly or indirectly on this activity. In 2009 ASM produced 28,700 kg of gold and small-scale mining produced 4,700 kg of gold (Orozco & Gamarra, 2012). Since then, and synchronized with the gold price, peaking in 2011-2012, ASM population increased significantly, with unofficial estimations in the range of 150,000-200,000.

5.1.2 Country definition of ASM

Small-scale mining producers are defined as those who:

1. Possess any title for up to two thousand (2,000) hectares.
2. Possess any title for an installed capacity of production and/or exploitation of 350 metric tons per day, with the exception of placer gravels of gold and detrital heavy metals in which the limit will be an installed capacity of production and/or exploitation of up to three thousand (3,000) cubic meters per day.

Artisanal mining producers are those who:

1. As an individual or set of individuals or legal entity is fully employed in the exploitation and/or direct production of minerals, performing their activities manually and/or with basic equipment.
2. Possess any title for up to one thousand (1,000) hectares or have signed agreements or contracts with mining title holders according to what the regulation in the Law establishes.
3. Possess any title with an installed production and/or processing capacity of 25 metric tons per day, placer gravels of gold, and detrital heavy metals in which the limit will be an installed capacity of production and/or processing of up to two hundred (200) cubic meters per day.

There are several limitations and conditions to become entitled to the ranking of small producer and/or artisanal mining producer. The most important are:

1. Adjacent provinces: artisanal mining may have up to 1,000 hectares as the Law stipulates, but these should be in a single province or in adjacent provinces.¹⁹
2. Minimum production: the artisanal miner is obliged to attain a minimum production by the tenth year of a value equivalent to 5% of the UIT (“Tax Imposition Unit” equal to 3,600 PEN, approximately USD 1,285) per year and per hectare. As an example: for a concession of 1,000 ha, the minimum production per year that must be accredited is 180,000 PEN (equivalent to USD 64,285).
3. Registration as an artisanal miner and a small-scale miner: “The condition of small-scale mining producer or artisanal mining producer will be accredited by the General Director of Mining through a biannual sworn declaration”.²⁰

5.1.3 Operational and organizational aspects of ASM

Current unofficial estimates in 2015²¹ indicate an ASM population in the range of above 150,000 people directly involved.

Mineral resources suitable for ASM

The departments of Madre de Dios and Puno host 42.74% of artisanal mining workers with a fine gold production equivalent to 44.04% of the total gold production of this sector. Likewise, the departments of Piura, La Libertad, and Arequipa have 25.93% of workers and 25.37% of gold production. Lima and Ayacucho have 10.52% of workers and 10.31% of gold production, and the remaining departments share the rest in smaller proportions. (Orozco & Gamarra, 2012)

¹⁹ Art. 10° of DS 013-2002. Regulation of Law 27651.

²⁰ Art. 10° of Law 27651

²¹ Personal communication from Peruvian experts

Figure 11: ASM areas in Peru²²

ASM mining methods

Conditions of ASM and types of operations vary significantly between arid coastal regions (vein type hard rock deposits), Amazon forests (alluvial placer deposits), and Andean highlands (hard rock and alluvial deposits). Mining methods still follow mainly those described by (McMahon, Evia, Pasco-Font, & Sanchez, 1999):

Alluvial mining: Mining operations can be divided into artisanal, semi-mechanized and mechanized. Artisanal operations have decreased dramatically in the area due to the reduction of the grade in the gravels after years of continuous exploitation. Semi-mechanized operations currently account for 80 percent of the total gold production in the area. The investment required increases with the degree of mechanization. It starts at USD 100 for an ingenio and goes up to USD 250,000 and more for the semi-mechanized operations.

There are four main types of alluvial artisanal operations:

- **“Ingenio”**. In this operation, one or two persons divert a water stream to build a small ditch whereby the water flow will be used to wash the gravel. A rug is placed at the end of the ditch where coarse gold particulates are deposited.

²² <http://www.larepublica.pe/infografias/situacion-actual-de-la-mineria-informal-25-08-2013>

- The use of **water monitors** is a common method of mining in the foothills. Miners shoot high pressure water to wash the material from the terraces and use the slope to eliminate the waste. The mineral is conducted to sluice ditches where the gold is deposited.
- “**Chupaderas**” work on beaches and in the piedmont. This method extracts gold by suctioning the mineral located underneath the water table with pumps and hoses four to six inches in diameter. The material thus extracted is conducted to platforms where the concentrate is deposited by use of gravimetric methods.
- Finally, **dredges** operate on rivers using suction ducts with a six-inch diameter and thirty-five horsepower pumps. Divers manipulate the ducts underwater. The equipment and the sluice boxes are located on the dredge.



Ingenio



Monitor



Chupadera



Dredge

Figure 12: Alluvial artisanal mining methods

Semi-mechanized small-scale operations typically use front-end loaders or dredges.

- **Dredges** operate similarly to those with six-inch diameter ducts but use ducts of up to 24-inch diameter. The dredges use iron ducts whose movements are directed by mechanical or hydraulic mechanisms. The concentrate (black gravel) is recovered by gravimetric methods.
- Operations that use **front-end loaders** (also called *chutes*) are located in the creeks in the foothills. Usually, these operations work during the rainy season and exploit the higher part

of the terraces where most of the gold is located. This is the predominant operation in the area. The operation consists in using front-end loaders and eventually trucks for extracting gold gravels and carrying the mineral to washing platforms. Front-end loaders are also used to clean the waste accumulated around platforms. Water is pumped to washing platforms to clean material that slides over an iron grid. The grid allows particles smaller than one third of an inch to fall into the sluice boxes.



Figure 13: Alluvial small-scale mining methods

Once the mineral is extracted, it is washed in a sluice box, mercury is added to the concentrate, the black gravel is separated from the amalgam, the excess mercury is removed and the amalgam is burned.

A study by the Ministry of the Environment (Brack, Ipenza, Alvarez, & Sotero, 2011) calculates that in the Madre de Dios region of the Amazon lowlands there are over 30,000 miners operating with increasingly heavy and more sophisticated equipment, such as front-end loaders, trucks and dredges of various sorts. Most of these operations have technically already outgrown the ASM sector and are in fact medium-scale mines; but operating with an ASM mind-set. It indicates that 99% of these mining operations are informal and that more than 1,546 mining claims overlap protected natural areas, in buffer zones and in indigenous peoples' lands. It is calculated that these operations have destroyed over 32,000 ha of forest and have seriously contaminated several rivers of the Madre de Dios region with mercury and other pollutants.

Vein-type hard rock mining: Artisanal miners focused initially on abandoned formal operations. However, over the past decades they discovered several new small deposits that would have been extremely costly to detect using conventional methods. Artisanal exploration is undertaken by groups of 200 to 300 persons, each one covering a different area, giving a high probability of success at a low investment (McMahon, Evia, Pasco-Font, & Sanchez, 1999).

Underground mining of the vein type deposits in mountainous terrain involves advancing of horizontal tunnels, following the vein. It is done using the *Circado* method (selective mining) which has three phases: (1) drilling, blasting, and waste rock removal, (2) cracking and extraction of the

vein, and (3) drilling and removal of the box rock above the vein in order to continue the operation. Waste rock disposal is done either outside the mine when it is not very deep or inside when the mine is deep or used to support a gallery.



Underground hard rock mine



Miners in old Sta. Filomena



Miners in Nazca



Quimbalete



Vat leaching (artisanal)



Agitation leaching (small-scale)

Figure 14: Typical Peruvian ASM hard-rock mining

Most miners use manual drilling, although electric drills and conventional pneumatic drilling are becoming increasingly popular. It has been estimated that more than half of the mines are less than 50 meters deep. Only 20 percent of miners exploit mines more than 150 meters below the surface. Going deeper requires additional investment in ventilation and waste rock removal. The processing of the mineral is done in the so-called *quimbaletes*. A quimbalete is a type of huge stone mortar in which the mineral is milled, using water, to a fine sand that then is mixed with mercury in order to recover the gold. The amalgam at the bottom of the quimbalete is then separated from the tailing. Excess mercury is removed by filtering, and the amalgam is burned to recover the gold (McMahon, Evia, Pasco-Font, & Sanchez, 1999).

Leaching of the mineral using cyanide is increasingly becoming common. However, in some areas, miners sell their mineral directly without milling it in the quimbaletes. This greatly reduces mercury use and avoids its toxic effects. Leaching of tailings is also quite common. It has been practiced for years in the southern region of the country, starting in Nasca where at one point up to 20 plants operated simultaneously. These were small, hand-fed artisanal plants, capable of processing between three and ten tons of tailings each day. Most of these operations collapsed when the demand for tailings from larger plants (such as Laitaruma and Belen) increased their price. Today most cyanidation plants of artisanal miners use vat leaching. The small-scale mining sector applies state-of-the-art agitation leaching with carbon in pulp.

Minimum investment for an informal miner is about USD 50 and/or in the range of USD 2,500 for a simple single quimbalete mill, but increases exponentially with the use of pneumatic drilling and transition to cyanide leaching. Some very artisanal operations, which started as informal “50 USD investment type” operations in the early 90’s (such as e.g. SOTRAMI²³) have managed to grow into the formal upper small-scale mining sector, with accumulated local investment of over a million USD.

Organizational setup of ASM

In the 1990s the ASM sector began to evolve towards associative production, with the advent of producer associations and community-based enterprises or cooperatives. Their major objectives were to defend and safeguard their mines and labourers against invasions and to meet the basic needs of miners’ settlements. Among the companies created in 1998 were the Sociedad de Trabajadores Mineros (SOTRAMI), the Comunidad Aurífera Relave (AURELSA) in Ayacucho, and the Victoria Mining Company in Arequipa. These pioneer ASM companies were formed under the general regime of the Mining Law of 1992. (Orozco & Gamarra, 2012)

Since 2002, when Law 27651 came into force, several second-degree associations – regional and national guilds of artisanal miners – have been created. The first important guild was the regional Association of Artisanal Miners of the Middle South and Center of Peru (AMASUC), which gathered local associations of producers from Ayacucho, Arequipa, and Ica in 2002. Later on the National Federation of Artisanal Miners (FENAMARPE) was created, mainly by miners of the Department of Ica; its directors are predominantly from Nazca. In Madre de Dios there is the Federation of Artisanal Miners of Madre de Dios (FEDEMIN). In 2009 a national guild was established, the Small-scale Mining

²³ <http://www.sotramisa.com.pe/>

National Association (SONAMIPE), which has AMASUC as its base. This guild is made up of ASM companies, either formal or in the process of formalization, and its orientation is towards the creation of mining companies. Its directors represent the interests of the different regions of Peru. (Orozco & Gamarra, 2012)

Miners' organizations, especially AMASUC, have played a pivotal role in lobbying political decision makers to approve in 2002 the Law 27651 of Formalisation and Promotion of Small-Scale and Artisanal Mining (Hruschka, 2003) and in facilitating ASM formalization through peer-to-peer training. Many first-degree organizations transformed into community-based organizations, small mining companies, and production cooperatives, in order to be able to confront the challenges that the process of formalization entails. They have acted as schools, training miners in new aspects of technology, environment, and production, in entrepreneurial management, commercialization, accounting, and taxes, among others, widening the scope of objectives, and serving as bridges to access the services that the State offers to this sector. Also importantly, second-degree organizations such as SONAMIPE continue to have a fundamental role, because they have direct knowledge of the concrete problems of artisanal miners, proposing to authorities at different levels public policy measures, devices, and initiatives that facilitate their formalization processes, the application of technologies, and the development of markets, expansion, and growth. (Orozco & Gamarra, 2012)

Women participation

Artisanal mining operations often involve women in different stages of the production process, such as supporting tasks related to ore transport from the inside to the outside of the mine, processing of the ore in *quimbaletes* for the amalgamation of gold with mercury, or ore sorting, or *pallaqueo*, conducted in vein mining. Valuable minerals are collected and mining waste is sorted for later processing and sale. For women in artisanal mining villages it represents an important income opportunity. In the southern coastal area, these *pallaquera* women have joined together with the initial aim of better organizing this work by groups, shifts and schedules. Standing out among these organizations are the Association of Ore Sorters or Pallaquera Women of Santa Filomena, "Nueva Esperanza" ("New Hope") in Sancos-Ayacucho, and the Association of Ore Sorters of Cuatro Horas in Chaparra, Arequipa with 150 members each. These associations have accomplished agreements with SOTRAMI and MACDESA companies respectively in facilitating the disposal of the ore and providing security during its sorting. (Orozco & Gamarra, 2012)



Figure 15: Women Ore sorters' Association of Sta. Filomena

5.2 Policy and legal and institutional framework

5.2.1 Evolution of the policy and legal framework

Though artisanal mining activity began to expand dramatically in the 1980s, driven by economic crisis, armed conflicts between the Government and the *Shining Path* revolutionary movement, and resulting internal migration, and actively promoted by the Government as a measure to mitigate the economic crisis²⁴, it was not until much later that authorities made their first attempts to regulate or control the sector. Under the Fujimori government (1990 - 2000) the issue had received little attention, with the president concentrating instead on increasing foreign investment in large-scale mining, as well as the other notable political and security challenges of the period. This attitude was reflected in the General Mining Law of 1992²⁵, which established the regulatory environment for big projects, but made no mention of ASM. (Gamarra & Rivas, 2009; Low, 2012)

“To vitalize the sector, the new Government initiated a privatization program for the sale of mining SOEs, and enacted a new mining law in November 1991 to deregulate mining and foster private investment and also an umbrella mining law --incorporating all mining related legislation-- in June 1992. In addition, a part of mining areas reserved for SOEs was released for private sector exploration, a 10% export tax was eliminated, and a process of reorganizing and streamlining the sector agencies in line with policy reforms has already started. The new Mining Law establishes an improved policy/regulatory environment for private investment and sector development, with its strong emphasis on policy stability, reduced bureaucracy, transparency, export competitiveness, discouragement of speculative holdings of exploration land, and the establishment of efficient sector institutions.” (World Bank, 1993). The “umbrella” General Mining Law of 1992 is structured as “Unified Ordered Text” (Texto Único Ordenado (TUO) de la Ley General de Minería), which means

²⁴ In the 1980's the Mining Development Bank “Banco Minero” promoted “colonialization” of the Amazon lowlands by gold miners and established gold buying offices in Pto. Maldonado and Huaypethue.

²⁵ DS 014-92 EM

that it is maintained as a living document incorporating all subsequent amendments or modifications.

However, political momentum for some regulation of the sector slowly grew until 2002 (Hruschka, 2003) when the Peruvian Congress passed and enacted the Law 27651 of Formalisation and Promotion of Small-Scale and Artisanal Mining. The legislation reflected a largely positive conceptualisation of ASM activities, describing them as “development hubs” and “a great source of employment and collateral benefits”. (Gamarra & Rivas, 2009; Low, 2012)

The law was highly significant as it defined, for the first time, what the government understood ASM operations to be, and set out plans for the formalisation of the sector. It set out an initial framework for relations between artisanal miners and the state in which (Gamarra & Rivas, 2009; Low, 2012):

- The MEM would produce a development plan for ASM operations and for assisting miners to establish land rights.
- The state would provide training and technical assistance in areas such as financial administration and contract law to the miners.
- The miners would obtain state authorisation for any physical or chemical process of extraction. This would only be forthcoming upon receipt of technical details of the project and an approved assessment of its environmental impact.
- ASM operations would be regulated by, and accountable to, the MEM. If deemed to have violated environmental or labour laws they would lose their license.

It outlines the norms and conditions for this sector, as well as its obligations and rights. Most importantly, it establishes objective parameters for ranking miners as small or artisanal producers. (Orozco & Gamarra, 2012)

In theory, the passing of Law 27651 put the promotion and protection of small-scale mining operations on equal footing with other government activities in support of large-scale extractive projects. In practice however, it never became a priority for Toledo's government. Though some ASM operations did take steps towards formalisation during this period, it rapidly became clear that registering and regulating all such activity would be both a costly and complicated exercise. Thus, it was with little regret that Toledo transferred some of these supervisory functions to regional authorities as part of the decentralisation programme, which aimed to reverse Fujimori era reforms, which had left political authority highly concentrated in the hands of the executive. In this first phase of decentralisation 2004-2005, regional governments gained powers to tax ASM operations and to grant concessions. As is typical in such exercises, transfer of capacities and resources for these activities were entirely neglected. (Low, 2012)

Shortly after Alan García assumed office in 2006 he announced a dramatic series of reforms, known as the *shock descentralista*, which saw numerous central government duties rapidly transferred to the remit of regional authorities. In 2006, all remaining responsibilities, functions and competencies related to the formalisation, regulation, supervision, environmental evaluation and monitoring of ASM operations were transferred from the Ministry of Energy and Mines to the Regional Governments and Regional Directors of Energy and Mines (DREMs). (Arguedas, Diez-Canseco, & Rodríguez, 2011; Low, 2012)

Despite the fact that this new area of work would be highly complicated and time consuming, the García administration failed to grant regional governments the necessary support to ease the transition. Regional officials received very little (or no) training in their new responsibilities from Lima-based authorities. Neither were additional funds provided to pay for extra staff or to cover additional travel expenses (important as the majority of non-formalised mining operations are located in remote areas). As a result, the regions struggled, even by the admission of a government-commissioned report, to adapt to their new responsibilities (Arguedas, Diez-Canseco, & Rodríguez, 2011; Low, 2012). Contributing to the situation is the absence of a development plan for artisanal mining, which was considered in Law 27651. All this made access to formality difficult for informal miners and slowed down the process (Orozco & Gamarra, 2012).

The creation of an Environmental Ministry in 2008 also did little to help, as this body never gained control of environmental monitoring procedures for mining activity, and thus was unable to ease the burden on local authorities. While some measure of assistance was eventually provided, the budgetary and capacity issues were never fully addressed during the remaining years of the García presidency. As he left office in mid-2011, regional governments still lacked the technical expertise and resources (and the Environmental Ministry still lacked the necessary powers) to oversee the effective formalisation of responsible and sustainable ASM. (Low, 2012)

In 2010 the Director of Mines still explained the policies and objectives of the MEM for the ASM sector in the following terms:²⁶

1. *Formalize the Small Mining Producer and the Artisanal Mining Producer (and progressively eradicate informal mining).*
2. *Encourage Small-scale Mining and especially Artisanal Mining to develop their activities with high technical standards in terms of safety and environmental stewardship.*
3. *Assist Small-scale Mining and Artisanal Mining to become instruments of social inclusion and of poverty reduction, by promoting their sustained development.*
4. *Insist that the activities of the Small Mining Producer and the Artisanal Mining Producer be performed in a rational manner and with techniques oriented to environmental stewardship, respecting the rights of communities and promoting well-being.*
5. *Modify the legal norms, orienting them to make feasible and strengthen the formalization process.*
6. *Optimize supervision procedures.*
7. *Propose and support discussions between the mining title holder and the informal miner in the cases in which this is feasible.*
8. *Support the strengthening of the technical, legal, social, and environmental management and training of the Directors of Mining of Regional Governments in these strata of mining activity.*
9. *Create awareness in Regional Governments about the importance of paying attention to the Small Mining Producer and the Artisanal Mining Producer in their respective regions.* (Orozco & Gamarra, 2012)

²⁶ Presentation by Engineer Víctor Vargas, General Director of Mining of the Ministry of Energy and Mining during the event called: "Proyecto Regional (Peru-Bolivia) en América del Sur sobre la minería de oro y de Pequeña Escala" (Peru-Bolivia Regional Project in South America on gold mining and Small-scale Mining). La Paz, August 10, 2010 – UNEP – SAICM Project. Cited in (Orozco & Gamarra, 2012) (source not verified)

Renewed attention was given in 2011 to ASM during the early months of the Humala administration. Under the new government, plans were drawn up for the formalisation of artisanal mining and for the incorporation of informal miners into the tax system. This appeared to reflect a recognition of the possible developmental benefits of (well-executed) ASM and an acknowledgement that not all non-formal miners were merely seeking profit at whatever cost. These developments occurred at the same time as then Environmental Minister Ricardo Giesecke and his deputy, José de Echave, made new efforts to expand their ministry's remit to include monitoring of the environmental impact of all mining operations. Taken together, such moves had the potential to bring about a distinct and more positive approach to ASM than that adopted under García. (Low, 2012)

However, as the political orientation of the government changed since Humala's inauguration, and in particular since the December 2011 cabinet reshuffle (in which Giesecke lost his post to Manuel Pulgar-Vidal), so has its policy towards such operations. The administration subsequently increased its focus on illegal mining, of both artisanal and medium scales, and mounted various operations against such activity.²⁷ Since that stage, there have been some indications that involvement in operations against illegal miners has influenced government thinking on the whole of the non-formal mining sector. Accordingly, less support has been given to those seeking to formalise and there has been greater focus on somewhat repressive measures. (Low, 2012)

Synchronized with an environmental assessment of the Madre de Dios region by the Ministry of the Environment (Brack, Ipenza, Alvarez, & Sotero, 2011), a series of international environmental NGOs and media deployed a massive advocacy campaign against illegal mining, showcasing (admittedly existing) environmental damage in the Peruvian Amazon, but targeting the entire ASM sector.

In December 2011 the Peruvian Congress approved the Law 29815, delegating legislative power on ASM from Congress to Government for the purpose of legislation on "illegal mining".

Immediately after, in mid-February 2012, a series of legislative decrees were enacted²⁸, which gave all miners 120 days to comply with relevant legislation or face up to ten year's imprisonment. This principally punitive initiative almost entirely overlooked the difficulties associated with the formalisation process and offered very little in the way of additional support to those seeking to legalise. This oversight seemed particularly perplexing in the domestic economic context, where as much as 80% of the population works in conditions of informality. (Low, 2012)

Following protests across the country the government changed the initial definition of illegal mining in DL-1100²⁹ (any exploration or mining activity without full compliance with all requirements, even within granted mining licenses) towards more differentiated definitions of illegal mining and informal mining in DL 1105³⁰, focusing on mining activities which by equipment capacity exceed the production limits of their segment (artisanal or small-scale) but distinguishing between areas in

²⁷ In November 2011, approximately 1,500 police and military officials were deployed to the Madre de Dios region to destroy dredges and other mining equipment primarily associated with medium-sized, illegal gold mining.

²⁸ Decreto Legislativo 1099, 1100, 1101, ..., 1107, all between February 2012 and April 2012

²⁹ Decreto Legislativo 1100, February 2012.

³⁰ Decreto Legislativo 1105, April 2012.

principle admissible for mining (informal) and areas where mining is generally prohibited (illegal), and between miners who commit to a process of formalization (informal) and those who do not (illegal). A stepwise formalization procedure was prescribed, by which informal miners had to:

1. present a declaration of commitment regarding formalization
2. obtain a mining concession or a formal exploitation contract with a concession owner
3. obtain proof of land property or a land use authorization by the land owner
4. obtain the authorization for water use
5. obtain approval of the environmental management plan
6. in order to finally obtain the authorization to initiate or re- initiate exploration, mining or processing activities.

The initial (and entirely unrealistic) timeframe of 120 days was extended to one year, from April 2013 (date of DL-1105) to April 19th 2014.



Figure 16: Formalization procedure³¹

The bundle of legislative decrees of 2012 required all not fully legal ASM operations to stop. This affected not only the (truly) illegal mines, but many former formal ASM operations which already had obtained their mining concession, but had some administrative processes still pending. The most critical issue for most ASM concession holders were the land usage rights: in many rural areas, land property rights are not yet resolved and publicly registered. Without a landowner in place, miners could not obtain a land usage authorization, and by missing the deadline for presenting the authorization became illegal.

As many artisanal miners continued operating, because they could not afford an entire year without income, the Government proceeded with the punitive sanctions provided in the legislative decrees of 2012, particularly the measures of interdiction established in DL-1100 of February 2012. For that purpose a special force of 1,500 police and military troops under the command of General Urresti

³¹ <http://www.minem.gob.pe/minem/archivos/file/Mineria/PUBLICACIONES/DGFM/FOLLETO.pdf>

was established and interdiction operations started massively in 2014, converting the province of Madre de Dios, but also parts of the highland of Puno and the coastal region of Arequipa, practically into war-zones.



Figure 17: ASM interdiction (screen capture of Google image search)³²

By end of 2014 approximately 50 operations had been carried out and the Government announced in December plans to duplicate the number of operations in 2015.³³ Also by end of 2014, the renowned Peruvian Economist Hernando de Soto entered into public policy discussion, contending that the government’s formalization approach requires 1,260 administrative workdays to complete and results in total formalization costs of more than 80,000 USD for a mine.³⁴

5.2.2 Legal parameters for ASM formalization

Organizational scope of ASM formalization

Peruvian ASM formalization focuses on groups of miners organized as entrepreneurial entities (as mining companies or productive cooperatives). Miners’ associations organized on a non-profit statute do not qualify for mining concessions.

³³ Andina (Agencia Peruana de Noticias) 21/12/2014: Policía cerrará el 2014 con la ejecución de 50 operativos de interdicción minera. <http://www.andina.com.pe/agencia/noticia-policia-cerrara-2014-con-ejecucion-50-operativos-interdicion-minera-536410.aspx>. (Page retrieved March 2015)

³⁴ <https://www.youtube.com/playlist?list=PLW0k64ZQOWlrRPGIX7pUXuG6zMaX1QeCG> Public discussions Hernando de Soto 2014.

The focus on legal entities with the purpose of becoming holders of a mining concession has provided a boost to the process of formalization, given that mining is a productive activity and it is necessary to undertake it from within a for-profit organization. Associations are different in that they are not-for-profit entities, generally created with the purpose of representation and defence, and are not appropriate for productive activities. The mining concession can be granted to an artisanal mining producer who can be: (Orozco & Gamarra, 2012)

- An individual.
- A set of individuals. In this case, when they can present a petition (request of a mining concession), the Ministry of Energy and Mines gives them a term to create a legal entity; if they do not accomplish that, the corresponding ministry defines them as a Mining Association of Limited Responsibility and continues with the titling process.
- Legal entities created by individuals. Legal entities can be constituted which are considered by the General Corporate Law, that is to say, associations by shares can be formed (closed corporations, or publicly traded corporations) and Associations of Limited Responsibility, the limitation being that they should be made up of individuals.³⁵
- Mining Cooperatives.³⁶

Segmentation of small-scale and artisanal mining

Small-scale mining and artisanal mining are clearly defined and differentiated

Sector category	Concession size	Production	Other parameters
Large-scale Mining	more than 2,000 ha	more than 5,000 ton/day	
Medium-scale Mining	more than 2,000 ha	up to 5,000 ton/day	
Small-scale Mining	up to 2,000 ha	hard rock metallic up to: 350 ton/day hard rock non-metallic up to: 1,200 ton/day placer mining up to: 3,000 m ³ /day	
Artisanal Mining	up to 1,000 ha (total areas of concessions and exploitation contracts)	hard rock metallic up to: 25 ton/day hard rock non-metallic up to: 100 ton/day placer mining up to: 200 m ³ /day	Performing mining activities manually and/or with basic equipment

³⁵ This latest limitation was introduced in the LD 1040

³⁶ Art. 3° of the Legislative Decree 1040 of 06-25-2008

ASM's options to obtain mining rights

Mining concessions in general are granted as blocks of 100 ha minimum on a first come first serve basis, which applies for all segments. First-time ASM applicants have to apply for a mining concession under the same conditions as medium- or large-scale mining companies.

Once ASM miners are concession holders (or contractors in an exploitation contract), they may apply for artisanal or small-scale status, according to the size of mineral rights and production capacity.

If ASM companies or cooperatives outgrow their category, they become “automatically” part of the next higher segment. I.e. if artisanal miners produce more than 25 ton/day or wish to hold more than 1,000 ha mining rights, they become small-scale miners. Similar for small-scale miners to become medium-scale miners. By ascending to the next higher category, miners have to comply with the correspondingly higher requirements (fees, environmental, fiscal, labour, etc.).

For the development of a mining activity it is necessary to apply for an Environmental Licence, for which approval is received from the Regional Government in the case of small miners and artisanal miners. Initially, the appropriate authority classifies the project according to its magnitude and establishes the category to which it belongs and the corresponding environmental study which should be presented. These categories for ASM are the following:³⁷

- Category I – Declaration of the Environmental Impact (DIA) (completed by a competent professional) for projects which do not generate negative environmental impacts of a significant nature. The majority of studies for artisanal mining fall into this category.
- Category II – Semi-detailed Environmental Impact (EIA) (carried out by a team of multidisciplinary professionals) for projects with moderate environmental impact, the effects of which can be controlled easily. Some small-scale mining projects and artisanal mining projects are in this category.

Regional Directors of Mining are in the charge of the approval the environmental impact studies, and that is where some difficulties are found. There are considerable differences between regions and in the rates that they charge for the right to legal processing (from 360 PEN in Arequipa to 1,600 PEN in Ayacucho). In addition, there are no objective criteria to determine into which category of study it should be submitted; relying on the subjective criterion of the officer leaves the process open to wrongdoing. Afterwards it undergoes a series of objections, which in many cases are arbitrary. Finally, the bureaucratic process is slow and tedious. (Orozco & Gamarra, 2012)

ASM's options to operate on licensed land

The exploitation contract is a new form of mining contract that the Law 27651 introduced, which establishes the contractual modality as one of the formalization alternatives for the artisanal miner.³⁸ It consists of the agreement between the holder of a mining title (provided that such individual is not

³⁷ Law 27446 and modifiers. Art. 4°

³⁸ Art. 11° of Law 27651

an artisanal miner)³⁹ that authorizes individuals or legal entities to perform artisanal mining in all or part of their mining concession, in exchange for compensation in money or in mineral.⁴⁰ These contracts need to be registered in public mining registries and the environmental responsibility is shared between the title holder and the artisanal miners. (Orozco & Gamarra, 2012)

For the concession holders, production from contract miners can be accounted for as “minimum required production”. By meeting minimum production thresholds, long-term concession holders can avoid penalties on license fees.

Cost of obtaining rights to extract minerals

Annual license fees for mining concessions are staggered according to categories of scale:

Sector category	Annual license fee	Penalty if minimum production is not met		Administrative fines (up to)
		Y 7	Y 12	
Large-scale Mining	3 USD/ha	+ 6 USD	+20 USD	15 UIT ⁴¹
Medium-scale Mining	3 USD/ha	+ 6 USD	+20 USD	15 UIT
Small-scale Mining	1 USD/ha	+ 1 USD	+ 5 USD	2 UIT
Artisanal Mining	0.5 USD/ha	+0.5 USD	+ 3 USD	1 UIT

License fees, as well as application fees for accreditation as artisanal miner (0.025 UIT) or Operation permit (0.025 UIT) were intentionally set low in law 27561, to serve as incentive for formalization.

In practice, under current legal requirements and procedures (since start of the “battle against illegal mining”⁴² costs of legalization for artisanal miners ascend to more than 80,000 USD according to Hernan de Soto; or as recently admitted by a high ranked government officer, in the range of “only” 10,000 USD⁴³.

Fiscal regime

Formal organizations, including mining companies of all strata, are subject to the general corporate income tax regime (3rd category) which levies a 30% tax on annual net income. This tax payment is made at the end of every fiscal year. In addition, mining companies, again from all strata, must discount 8% of pre-tax income annually to distribute as profit-sharing among their workers. On the other hand, Peru’s VAT or General Sales Tax of 18% on all commercial transactions exempts gold

³⁹ Art. 24° of DS 013-2002. Regulation of Law 27651

⁴⁰ Art. 18° of DS 013-2002. Regulation of Law 27651

⁴¹ 1 UIT = 3,850 PEN in 2015 (= approx. 1,250 USD)

⁴² “El Estado peruano se encuentra en una **lucha frontal contra la informalidad minera** ... ” Webpage of the Ministry of Environment <http://www.minam.gob.pe/mineriailegal/> retrieved 02. April 2015.

⁴³ America economia, 12.03.2015: <http://www.americaeconomia.com/negocios-industrias/peru-destacan-balance-favorable-en-proceso-de-formalizacion-minera-0> (retrieved 02 April 2015). In the same newspaper article, the officer Antonio Fernández Jerí (Alto comisionado en asuntos de Formalización de la Minería, Interdicción de la Minería Ilegal y Remediación Ambiental) is cited to consider 600 (!) formalized miners out of 62,000 informal miners a success.

(Comment by autor: These numbers speak for themselves!)

commercialization, both for sales within the country and for exports. Gold exports are granted tax relief in the form of a tax reimbursement to the miner, administered by the National Superintendence of Tax Administration (SUNAT), equivalent to the VAT on expenses incurred to produce the exported gold. Medium-sized and large mining companies also have to pay royalties, but the royalty does not apply to ASM. One of the points of debate in the country is the possibility of legislating a tax on mining profits (windfall tax), resulting from the elevated prices of metals, especially of copper and gold. In response to this debate, upon the initiative of companies an agreement with the Government was signed, called the Mining Program of Solidarity with the People (Voluntary Contribution) through which they pledged to contribute 5 thousand million soles (USD 1,785 million) within a 5-year term; this contribution is equivalent to a 2% tax, but it only applies to 39 companies that have signed this agreement and does not include ASM. (Orozco & Gamarra, 2012)

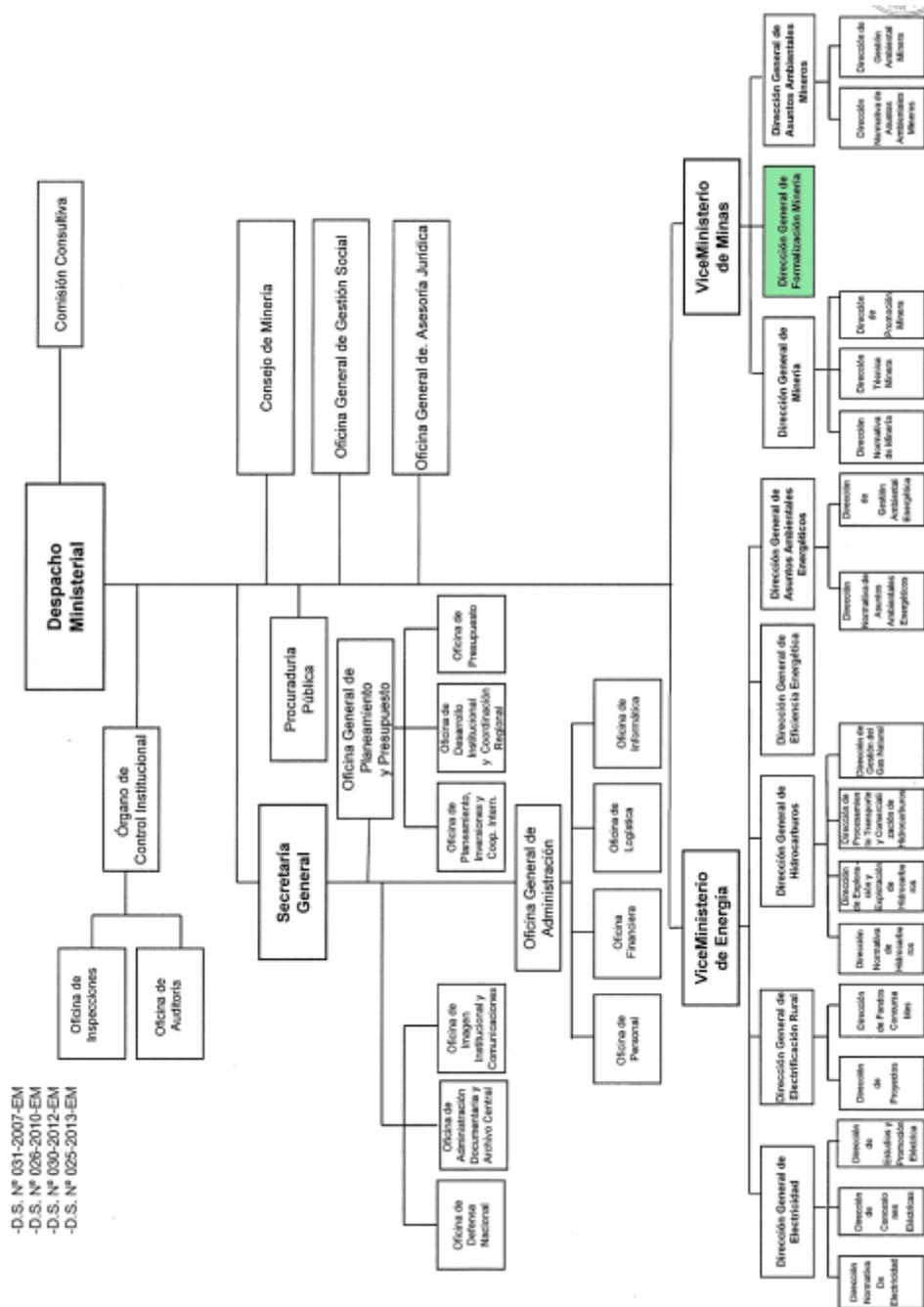
5.2.3 Institutional framework for ASM

The Ministry of Energy and Mines is the executive power organ, which regulates and promotes the mining investment in the country. It is in charge of granting titles to exercise mining activity and of establishing an adequate legal framework for this activity to develop legally and productively. Until 2002, the Ministry did not develop any policy for ASM, which has contributed to its informality. (Orozco & Gamarra, 2012)

As outlined in chapter 5.2.1, a first step of transfer of responsibilities to Regional Governments occurred in 2004-2005 under President Toledo. Delegation of responsibilities to Regional Governments at that stage corresponded, according to (Arguedas, Diez-Canseco, & Rodríguez, 2011), rather to a process of “de-concentration” than to proper decentralization. In practice, that meant that the Regional Mining Directorates (Dirección Regional de Minería – DREM) operated under the regional governments’ administration and budget, but received orders from the central government through the Ministry of Energy and Mines. Still, for miners it was helpful to be entitled to perform certain administrative task at the local government’s offices instead of being required to travel to Lima constantly.

President García brought decentralization an important step further. Practically all responsibilities related to ASM formalization were delegated to regional government, whereby, according to (Arguedas, Diez-Canseco, & Rodríguez, 2011), assignation of human and financial resources were insufficient for the task. Due to a sharply rising gold price, the number of artisanal miners grew faster than regional governments were able to address the issue. Additionally, many regional governments held a much more favourable position regarding ASM (even informal ASM), as they experienced local economic growth first-hand, and applied a laissez-faire approach on artisanal miners with slow progress towards formalization.

ORGANIGRAMA ESTRUCTURAL VIGENTE DEL MINISTERIO DE ENERGÍA Y MINAS



-D.S. Nº 031-2007-EM
 -D.S. Nº 028-2010-EM
 -D.S. Nº 030-2012-EM
 -D.S. Nº 025-2013-EM

Figure 18: Organization chart of MEM⁴⁴ with Directorate for ASM formalization highlighted

5.3 Interaction with ASM projects and initiatives

To accomplish its objectives the **Ministry of Energy and Mines** has established International Cooperation agreements for ASM through the following projects:

⁴⁴ <http://www.minem.gob.pe/minem/archivos/OrganigramaMEM%281%29.pdf>

- **MAPEM / EMTAL** (World Bank, MEM, 1993 - 1999) Under the World Bank Project EMTAL (Energy and Mining Technical Assistance Loan⁴⁵) the MEM implemented the MAPEM (Minería Artesanal y Pequeña Minería) project, addressing mainly environmental issues of ASM. MAPEM achieved to established good working relations and a certain level of confidence and trust between the Ministry and the (at that time entirely informal) ASM sector
- **GAMA / MAPEM, PEMIN** (Peru – Switzerland, 1999 – 2008). As bilateral project, implemented by MEM (being the former MAPEM project – later renamed to PEMIN – the operational counterpart) with support from SDC, GAMA was the first major ASM project in Peru. The “Environmental Management for Artisanal Mining” (Gestion Ambiental en la Minería Artesanal - GAMA) Project addressed legal, organizational, environmental, health and community related aspects of ASM, following a bottom-up empowerment approach. As such, it strongly supported artisanal miners in their lobbying efforts for a legal framework for ASM in the years 2001 to 2002. At certain moments this created operational contradictions: when the MEM objected the first approval of the ASM law by the Congress in 2001, the GAMA project implemented by MEM supported ASM miners’ protests against the MEM. Most of the major ASM companies in the southern coastal region and in Puno were accompanied by GAMA in their formalization process. All currently Fairmined or Fairtrade certified ASM communities were former GAMA project sites. The project was geographically limited to the southern coastal area and the Puno highlands, and did not intervene in the Amazon lowlands (Madre de Dios).
- **IPEC**: ILO project funded by the Spanish Government between 2001 and 2005, focussing on eradication of child labour in ASM. The project pursued a very pragmatic and successful approach, supporting ASM miners in improving their technologies and income opportunities, to make child labour obsolete. In several cases, IPEC and GAMA cooperated closely addressing child labour and environmental issues in a coordinated approach.
- **PERCAN**: (Peru – Canada Agreement) “Project of Reform of the Mining Resources Sector of Peru” signed in 2003, in effect until the year 2011; its objective was to strengthen competencies within the Regional Governments. (Orozco & Gamarra, 2012)
- **APOGORE**: (Support to Regional Governments). Signed in 2009, APOGORE started to operate in 2010 and was intended for a period of four years, in association with the United Nations Development Program (UNDP) and the Swiss Cooperation (SDC). The project consisted of supporting the Regional Governments in the formalization of artisanal mining and small-scale mining, giving priority to the regions of Arequipa, Madre de Dios, Piura and Puno. From another angle, it aimed to strengthen the capacities of artisanal and small-scale miners so they may develop their mining activity in a sustainable manner, in addition to contributing to the process of State decentralization. (Orozco & Gamarra, 2012)

The Peruvian **Ministry of Environment** is the counterpart in the following project following up to the UNIDO Global Mercury Project:

⁴⁵ <http://documents.worldbank.org/curated/en/1993/05/733105/peru-energy-mining-technical-assistance-loan-ental-project>

Implementing Integrated Measures for Minimizing Mercury Releases from Artisanal Gold Mining

Duration: Three years (October 2012–September 2015)

Budget/donor:

GEF: USD 999,900

Co-financing: USD 2,676,764

Co-financers: UNIDO, National Geologic, Mining & Metallurgy Research Institute, INIGEMM (Ecuador), the Peruvian Ministry of Environment and U.S. Department of State

Main objective and key expected outputs

- The project aims to reduce the use and emissions of mercury in ASM by promoting low-mercury and mercury free technologies at local pilot sites. It will also promote innovative financial tools, support the formalization of ASM miners and provide relevant information on the health risks posed by mercury.
- A monitoring programme will be conducted in the Puyango-Tumbes river basin which will contribute to the understanding of the environmental impacts posed by ASM activities in southern Ecuador and northern Peru.

(UNIDO, 2013)

5.4 Outcome and lessons to learn

5.4.1 Formalization rate and benefits

After decades of ignoring the ASM sector, the 2002 ASM law was a step-change. Given the number of ASM miners at that time of approx. 35,000, and the current number of 57,000 registered ASM miners, formalization could be seen as a success. However, administrative difficulties to cope with the continuously increasing number of people entering the ASM sector (currently 150,000 to 200,000) created public pressure on the Government to improve “control” of the sector. “Over-regulation” through an avalanche of (to date ascending to about 80!) legal dispositions triggers increasing (passive or active) resistance from informal miners and led to a series of crack-down operations and (partly armed) conflicts in 2014.

5.4.2 Peru summary and lessons learnt

Lack of proper consultation with women and men miners and other ASM stakeholders (i.e. sole reliance on top down approaches) can easily lead to failures in formalization. During the legislative process in 2001-2002, Peru avoided this pitfall successfully in its Law 27651 “Formalization and Promotion of Small Scale and Artisanal Mining”, a remarkable example of constructive consultation and engagement where formal proposals for reforms of both laws and regulations were received from ASM associations and were largely enshrined in legislation. (Hinton & Levin, 2010)

The Law 27651, in force since 2002, has been used to gradually formalize ASM, with 66,622 concession titles existing as of March 2011, many of which involve large numbers of individual miners organized as legal entities. Successful formalization experiences have occurred precisely in situations in which miners were able to organize in companies, production cooperatives, mining associations,

or any other form of productive organization permitted by the General Corporate Law. Miners' organizations, especially AMASUC, have played a pivotal role in lobbying political decision makers to approve in 2002 the Law 27651 of Formalisation and Promotion of Small-Scale and Artisanal Mining (Hruschka, 2003) and in facilitating ASM formalization through peer-to-peer training. Many first-degree organizations transformed into community-based organizations, small mining companies, and production cooperatives, in order to be able to confront the challenges that the process of formalization entails. (Orozco & Gamarra, 2012)

(Hinton & Levin, 2010) consider that the success of the Peru experience was based in a number of factors

- Strong political will to support formalization.
- A receptive environment and the desire of artisanal miners to be formal, as well as the establishment of a Swiss-funded development intervention, Proyecto GAMA, which was designed to formalize the sector.
- Efforts to identify similar interests among otherwise polarized parties.
- Organizing talent and initiative of artisanal mining leaders; and a close connection between traditional leaders and their base, who were also willing to include women miners as leaders.
- A constructive multi-stakeholder environment and the presence of impartial external stakeholders who could act as mediators and facilitators, and provide funding and other resources for advocacy activities.

Another success factor were the (in international comparison) large maximum concession areas for artisanal mining (up to 1,000 ha). This promoted the creation of community-based entrepreneurial organizations, where – in some cases – entire villages organized in one single mining company or cooperative (e.g. Village of Cuatro Horas as company MACDESA). **Economy of scale also works for ASM!** Miners' organizations could afford tasking a sub-group with the learning and pursuing of administrative procedures, while the rest of the miners could concentrate on mineral production. For the Government administration, it was easier to deal with one single organization than with hundreds of individual miners or dozens of small groups. Finally, a solid resource base provides room for long-term planning, continuous investment and progressive improvement of the artisanal mines.

Unfortunately, after this very promising start, the Government lacked the capacity and political will to address formalization as a process and, in the period of 2005-2010 lost interest and track in the sector for different reasons, as described in chapter 5.2.1. However in this period of rising gold prices the ASM sector developed faster than the public administration was able to follow up, and the percentage of informal miners rose again. Particularly in regions where miners' organizations were weak and good practice examples to follow were scarce (e.g. Made de Dios), the mining operations grew in an uncontrolled manner towards illegal medium-scale mining⁴⁶ with high environmental impacts, but still claiming to be artisanal.

The government's response in 2012 of heavy-handed policing of the entire ASM sector has proved a wholly inadequate solution to these issues. (Low, 2012) concludes that an important first step in

⁴⁶ Using large numbers of excavators and an entire fleet of trucks.

efforts to formulate a coherent policy to ASM would be for the government to fully recognise the diversity of the sector. Its recent tendency to apply a ‘one-size-fits-all’ policy to the sector, which is anyway one largely based on a negative conceptualisation of ASM, is undermining all informal ASM operations before they have even been given adequate opportunity to formalise and to make a more positive economic and social contribution to the country.

Main lessons learnt from Peru cover the entire spectrum from best practice to attempt prone to fail:

- **Legal frameworks for ASM need to reflect the needs of all involved stakeholders.** The legal framework of Law 27651 was developed in a multi-stakeholder process between Government, ASM, the conventional mining sector and NGOs.
- **Formalization and organization of the ASM sector are mutually reinforcing.** The early success of Law 27651 was largely based on the commitment of gremial ASM organization to apply “peer pressure” on communities to organize and formalize. Their self-chosen mandate to promote formalization in turn contributed to the strengthening and empowerment of regional and national ASM organizations like AMASUC and SONAMIPE.
- **Decentralization of government’s ASM administration is vital but dependent on proper resourcing.** Half-hearted “de-concentration” and decentralization efforts appear largely as attempts of the central Government to delegate a nuisance. Uptake by regional governments and by miners was enthusiastic, but without resources allocated, the efforts were prone to considerable difficulties of delivering on objectives.
- **ASM development can be a very fast process. The ASM administration needs the capacity to address new challenges at a similar fast pace.** Particularly in times of high commodity prices, the entire sector can enter a rush situation. The number of ASM miners increased from 35,000 in year 2000 to up to 200,000 when the gold price peaked and may still be in the range of 150,000 today. This exceeded the capacity of the ASM administration.
- **Before resorting to penalising all non-formal ASM operations, it would be prudent to first increase the level of support given to those seeking to formalise.** Thus far, the provision of assistance has been extremely limited. Commitments from the central government to supply regional authorities with the necessary finance and personnel to effectively perform the tasks delegated to them in this area would be a crucial advance. (Low, 2012)
- **Formalization must start with an incentive.** Experience in the early days of Law 27651 and from all over the world has shown that ASM will formalize, if the overall cost (including all intangible benefits) of being formal is lower than the cost of being informal. Starting a formalization approach with taxes in mind⁴⁷ is in most cases counterproductive.

⁴⁷ See chapter 5.2.1: “Renewed attention was given in 2011 to ASM during the early months of the Humala administration. Under the new government, plans were drawn up for the formalisation of artisanal mining and for the incorporation of informal miners into the tax system.”

- **Legal requirements must be realistic, measuring not only the miners' possibilities but also the Government's own resources.** The legal decrees 1099 – 1107, providing 120 days for formalization of 150,000-200,000 under new, modified requirements were impossible to comply with, not only for the miners but also for the Government itself. Formalization costs between 10,000 USD (according to Government officials) and 80,000 USD (according to economist Hernan de Soto) for an artisanal mine are far beyond realistically feasible thresholds. This jeopardizes the Government's credibility and does more harm than good.
- **Clearer concepts are needed to differentiate between illegal mining and ASM which is operating in the informal economy.** Authorities need to be able to distinguish far more easily between those ASM operations which genuinely want to formalise (but have just not yet been able to do so) and with no interest in becoming legal and sustainable enterprises. It would then be possible to formulate differentiated policies which target illegal mining, whilst providing support to informal miners. By jumping straight in with efforts to criminalise the sector, the government has essentially tried to skip this vital first phase. This is highly unlikely to provide a beneficial long-term resolution to the issue. (Low, 2012)

6. Philippines

6.1 Context

6.1.1 Mineral production and employment

The Philippines is endowed with rich mineral resources. About 30 percent of its territory has been identified to have high potential of mineral deposits. Gold is one of the most important (Ban Toxics, 2010). Mining in the Philippines plays a crucial role in the pursuit of industrial development. The sector both induces and supports economic growth by providing mineral resources for the manufacturing, construction, and utilities sectors, as well as through the exports and employment generation. In addition, it is also a source of both direct and indirect tax revenues for government. Although the Philippines has USD 840 billion worth of untapped mineral wealth which includes copper, gold, nickel, chromite, limestone, clays, feldspar and semi-precious stones, the growth of mining investments in the country have been slow over the past several years. (Raymundo, 2014)

In 2012, nickel was one of the most valuable mineral commodities produced in the Philippines. The mining and quarrying sector contributed about 1.14% of the Philippines' gross domestic product (GDP) (at constant 2000 prices) in 2012 compared with 1.19% in 2011. The value of metallic mineral production was USD 2.386 billion, which was a decrease of 16% from the value of USD 2.839 billion in 2011. The value of gold produced in 2012 amounted to USD 831.9 million (0.6% of the GDP). In 2012, an estimated 252,000 people⁴⁸, or 0.6% of the total number of people employed in the country, worked in the mining and quarrying industry. (USGS, 2012)

Gold mining is said to be an ancient industry in the Philippines. Even before and during the Spanish colonization, gold used to be an important barter and trade commodity. Gold mining in the Philippines can be traced back in the 3rd century when Chinese traders referred to Luzon as the Isles of Gold. Currently, ASM activities take place in more than 30 provinces (Figure 19). The average annual gold production of the years 2000-2010 was reported at 36 tons. About 28 tonnes or close to 80 percent of the country's annual gold supply comes from the artisanal and small-scale gold mining sector. In the years 2007 to 2011, the gross production value of small-scale gold mining ranged from PHP 32.2 billion to PHP 36.8 billion, except in 2010 when it hit PHP 42.9 billion (UNDP & GoP, 2012). There is no authoritative estimate as to the actual number of people engaged in small-scale gold mining in the Philippines. Studies however suggest that there are about 200,000 to 300,000 small-scale gold miners nationwide, which include close to 18,000 women and children. ASM supports directly and indirectly the livelihood of about two million people. (Ban Toxics, 2010)

⁴⁸ The number apparently includes ASM. Employment statistics of the Philippine Department of Environment and Natural Resources in the large-scale mining sector indicate for 2010 18,082 work places (16,731 male, 1,351 female). Source: http://www.denr.gov.ph/images/stories/DENR/RSD/compendium_GAD/table%203%20number%20of%20employment%20of%20large%20scale%20metallic%20mines%20by%20company%20and%20gender%202008%20-%202011.ods

6.1.2 Country definition of ASM

The first legal definition of ASM dates back to the Presidential Decree No. 1899 (*Establishing Small-scale as a New Dimension in Mineral Development*) from 1984 (**PD 1899**):

Section 1. Small-scale mining refers to any single unit mining operation having an annual production of not more than 50,000 metric tons of ore and satisfying the following requisites:

1. *The working is artisanal, whether open cast or shallow underground mining, without the use of sophisticated mining equipment;*
2. *Minimal investment on infrastructures and processing plant;*
3. *Heavy reliance on manual labor; and*
4. *Owned, managed or controlled by an individual or entity qualified under existing mining laws, rules and regulations.*

The People's Small-Scale Mining Act of 1991 (Republic Act No. 7076: *An Act Creating a People's Small-Scale Mining Program and For Other Purposes*) introduced additional definitions (**RA 7076**):

Section 3 ...

- (b) *"Small-scale mining" refers to mining activities which rely heavily on manual labor using simple implements and methods and do not use explosives or heavy mining equipment;*
- (c) *"Small-scale miners" refer to Filipino citizens who, individually or in the company of other Filipino citizens, voluntarily form a cooperative duly licensed by the Department of Environment and Natural Resources to engage, under the terms and conditions of a contract, in the extraction or removal of minerals or ore-bearing materials from the ground;*
- (d) *"Small-scale mining contract" refers to co-production, joint venture or mineral production sharing agreement between the State and a small-scale mining contractor for the small-scale utilization of a plot of mineral land;*
- (e) *"Small-scale mining contractor" refers to an individual or a cooperative of small-scale miners, registered with the Securities and Exchange Commission or other appropriate government agency, which has entered into an agreement with the State for the small-scale utilization of a plot of mineral land within a people's small-scale mining area;*

As the co-existence of two definitions created certain confusion, the Department of Environment and Natural Resources issued a clarification guide in 2007⁴⁹: *For areas not declared as Peoples' Small-Scale Mining Area (PSSMA) under RA 7076, the pertinent rules and regulations of PD 1899 shall apply.*

The guide further set other relevant parameter for ASM, such as:

- For metallic minerals, the maximum **annual production** ... shall be 50,000 dry metric tons (DMT) of ore, while for non-metallic minerals, the maximum annual production shall be 50,000 DMT of the material itself, e.g., 50,000 DMT of limestone, 50,000 DMT of silica, or 50,000 DMT of perlite
- The **maximum capital investment** for a single unit small-scale mining operation ... shall be PHP 10 Million. This shall cover raw, additional and existing capital, such as processing plants, mine and hauling equipment, tools, infrastructures, capitalized exploration and development costs, support facilities and working capital.

⁴⁹ Memorandum Circular No. 2007-07: <http://www.mgb.gov.ph/Files/Policies/dmc-2007-07.pdf>

- Small-scale mining operations ... shall be largely artisanal with heavy reliance on manual labor ... Use of sophisticated and/or heavy equipment i.e. excavators, loaders, backhoes, dozers is prohibited ... In case non-sophisticated and non-heavy equipment shall be used, the **ratio of labor cost to equipment utilization cost** of the small-scale mining operations, including the extraction, processing and/or marketing activity(ies), shall not exceed one (1).

6.1.3 Operational and organizational aspects of ASM

Mineral resources suitable for ASM

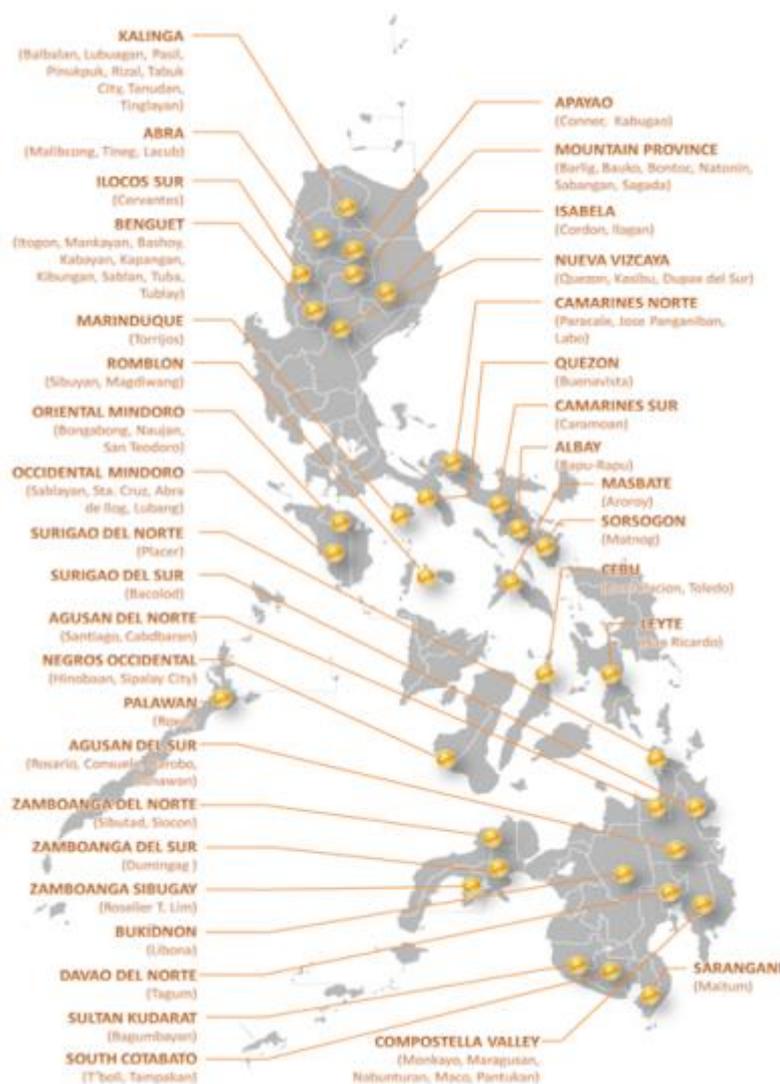


Figure 19: ASM locations in The Philippines (Gutierrez, 2013)

ASM mining methods

ASM gold mining in the Philippines takes several forms: surface, underground and underwater. Surface mining is done along riverbeds and streams while underground mining requires digging up of tunnels to extract gold-bearing ores. In some mining districts in Camarines Norte, gold-bearing

alluvial deposits are extracted through compressor mining where the miners descend in mucky waters using a plastic hose attached to a compressor and tucked inside their mouth for artificial air. (Bugnosen, 2001; Ban Toxics, 2010)



Figure 20: ASM in the Philippines. Photos: (Gutierrez, 2013)

There are also notable shifts both in the source of gold ores and in the technology employed to extract them. In the early 70s, the primary target of small-scale miners was alluvial placer gold. Recovery was mainly through direct panning or by crude sluice boxes. In the 80s, high-grade veins were discovered triggering series of gold rushes. Miners then shifted from surface mining to underground mining where vein ores are accessed through timbered adits, tunnels or stopes. The use of mechanized rod mills or ball mills, mechanical crushers, electric drills and cyanide processing

plants became prevalent. It is also said that miners use explosives inside the tunnels. Amalgamation in rod- or ball-mills is common, either as whole-ore amalgamation or as amalgamation of sluice- or panning-concentrates. Cyanide leaching is also becoming increasingly popular, both for processing gold ores, mainly by agitation leaching, or tailings, mainly by heap leaching. (Bugnosen, 2001; Ban Toxics, 2010)

Organizational setup of ASM

Most small-scale gold miners are working casually and informally. They often come from communities that have a long tradition of small-scale mining. Some of them work full-time while others are seasonal. They go into mining to augment their income from farming or fishing. Most of them are drawn into mining due to economic hardships. They do not have fixed salaries. Their income depends on the quantity of gold deposit they are able to extract. The typical income of a mine worker ranges from USD 6 - 15 a day. Local financiers, most of whom are mine owners and processors, earn USD 370 – 2,500 a month. (Ban Toxics, 2010; Gutierrez, 2013)

Gold extraction and processing can be carried out collectively where two to ten miners agree to pool their resources together to cover all their expenses during gold mining operations. They deduct all their expenses and divide the profits in accordance with their pre-arranged scheme. Miners in Runruno, Quezon, Nueva Vizcaya who are party to these arrangements are called *compañeros*. This system of cooperation is also locally known in Camarines Norte as *korporasyon*. In case the miners are unable to raise the funds needed for their gold mining operations, they look for financiers. The financiers, who are mostly local gold dealers and processors themselves, provide the miners with the necessary capital, which may be in the form of cash or equipment. Cash advances from financiers are also given to the miners for their family's subsistence while the mines are not yet productive. Once gold production starts, expenses of financiers are deducted before profits are divided. Division of income varies. In some *korporasyon*, the financier gets either two or three times more than those received by the miners. (Ban Toxics, 2010)

In some sites, miners organize themselves into associations or cooperatives. In Mt. Diwata, 53 mining cooperatives have been organized although only 10 are said to be active at present. Miners in the Barangay are required to form cooperatives before they can be granted service contracts by the Natural Resources Development Council (NRDC), a government corporation under the DENR, tasked to run and manage the operation of the mineral reservation. In Benguet province, a total of 64 associations of small-scale miners have been formed. These associations comprise the Benguet Federation of Small-scale Gold Miners. (Ban Toxics, 2010)

Since the 1980s, ASM has expanded tremendously, particularly on the southern island of Mindanao. At the time of PD 1899, rural livelihoods were in crisis, with debt-driven growth hindering socioeconomic development and creating a pool of unemployed semi-skilled miners. When these miners started digging for gold, their initial tunnelling activities were truly artisanal, involving rudimentary extraction and processing, and equal revenue sharing among the miners and usually the landowner. Throughout the 1980s, 1990s and 2000s, the ASM sector became increasingly dominated by a varied group of mining financiers. They expanded promising tunnels and invested in more sophisticated processing facilities. This group included former miners who had struck it rich, local

merchant and agricultural elites, army and rebel commanders, and engineers (often previously employed in large-scale mining). Over time, some gained key positions in the local state, giving them more control over the ASM sector. Injecting capital and professional skills into ASM led to an increasingly complex and multi-tiered labour structure, which endures today (see Figure 21). (Verbrugge, Besmanos, & Buxton, 2014)

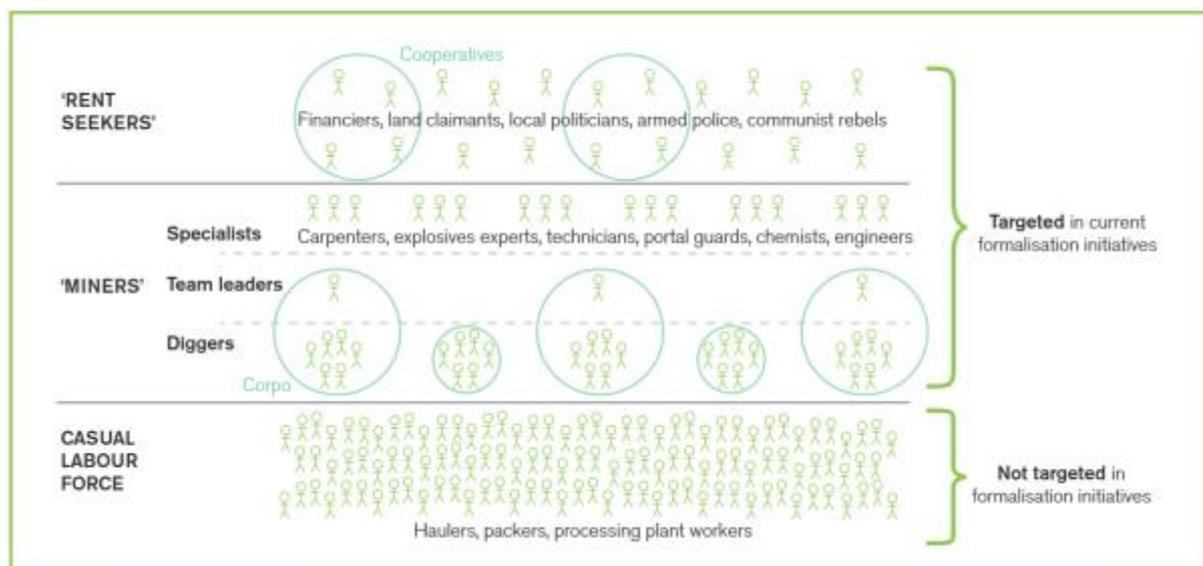


Figure 21: Complex and multi-tiered labour structure in the Philippines' ASM sector (Verbrugge, Besmanos, & Buxton, 2014)

At the lower levels, unskilled haulers, packers and processing plant workers work as day labourers for low wages, are often underage, and are exposed to hazardous working conditions. The actual diggers (abanteros) are organised in a “Corpo” headed by a team leader, usually an experienced miner. They receive a percentage share, either in cash or in ore. Bigger tunnels also employ semi-skilled workers such as carpenters, explosives experts, technicians, portal guards, and in some cases even chemists and engineers. These workers often receive higher wages or shares, while being exempted from the truly dirty and dangerous work. Overall, revenue sharing is skewed in favour of financiers, who often retain between 40 and 60 per cent of the revenues. They also control the processing facilities, through which they accumulate more income. A broad range of ‘rent-seekers’, including land claimants, local politicians, but also armed soldiers, police and communist rebels put further downward pressures on labour’s share. This situation does not necessarily mean the ASM labour force is destitute. Instead, various informal social security mechanisms provide some security. Financiers may provide food and shelter, cash advances or even weekly stipends. But these are later deducted from the worker’s share. And financiers favour miners whose skills and experience put them in a good negotiating position. Such arrangements can be understood as a form of debt bondage, a way for financiers to immobilise a reliable supply of semi-skilled labour, which is otherwise continually looking for opportunities elsewhere. These protections are not accessible to unskilled haulers and packers, who are casual ‘day labour’. (Verbrugge, Besmanos, & Buxton, 2014)

Women participation

Despite the mushrooming mineral extractions dotting the Philippines, the roles and the plights of women and children actively participating in this economic activity oftentimes failed to attract attention of the academic community and policy makers. As a result, the contributions of women and children miners directly working in mining sites scattered throughout the country are neither well researched nor understood. (Huesca, 2013)

The study of (Huesca, 2013) attempts to provide baseline data on from a magnesite ASM operation in Banaybanay, Davao Otiental, Southem Philippines. As physically advantaged than, women and children, men do the hardest works. Men are the aballferos (frontliners) and do the digging, participate in sacking, breaking the rocks into fist-size pieces, and carry the mineral bags. Generally, women engage in picking, collecting and sacking or bagging, but carry in in parallel the responsibility for household chores. The table below, shows that total daily workload for women is higher than for men.

Gender	Direct Participation	Indirect Participation (mainly household chores)
Men	10 hours	less than 1 hour
Women	5 hours	7 hours
Children (Male)	2 hours (during school days)	2 hours
	10 hours (weekends & holidays)	2 hours
Children (Female)	2 hours (during school days)	4 hours
	5 hours (weekends & holidays)	5 hours

Source: (Huesca, 2013)

Where mercury is used for gold recovery, much of the amalgam decomposition takes place in the home using the kitchen stove. Where woman are responsible for this work, there are reports of kidney pain, respiratory problems, and dizziness in women. (Eftimie, et al., 2012)

6.2 Policy and legal and institutional framework

6.2.1 Evolution of the policy and legal framework

Artisanal and Small-scale Gold Mining is principally governed by Presidential Decree 1899 (*PD 1899*) and Republic Act 7076 (*RA 7076*), also known as the People's Small-scale Mining Act. Other laws such as Republic Act 7942 or the Philippine Mining Act of 1995, however, also carry provisions that have relevance to ASM. (Ban Toxics, 2010)

PD 1899, the first known law to govern small-scale mining in the Philippines was issued in 1984, prompted by the government's recognition of the increasing economic impact of the small-scale mining sector. The decree was intended to develop small mineral deposits, generate income for the poor and alleviate the living conditions in the rural area. It requires the holders of mining rights to secure small-scale mining permits/licenses, which are valid for two years and renewable for like periods. Holders of permits/licenses are exempt from the payment of all taxes, except income tax. Under PD 1899, applications of small-scale miners are processed with the Director of the Mines and Geo-sciences Bureau. PD 1899 also provides a licensing system, which includes provision for issuing

small-scale mining permits within existing mining claims subject to the consent of the claim holders. (Bugnosen, 2001; Ban Toxics, 2010)

To further promote, develop, protect and rationalize small-scale mining activities, the Philippine Congress passed **RA 7076** in 1991. RA 7076 did not repeal PD 1899. Necessary clarifications regarding the co-existence of both laws were issued in 2007.⁵⁰ RA 7076 requires, among others, the establishment and implementation of a *People's Small-Scale Mining Program* to achieve an orderly, systematic and rational scheme for the small-scale development and utilization of mineral resources in certain mineral areas and address the social, economic, technical, and environmental concerns connected with small-scale mining activities. RA 7076 recognized the role of *Bangko Sentral ng Pilipinas* in strengthening the small-scale gold mining industry by mandating it to establish offices to buy gold produced by small-scale miners at competitive prices. Other salient features of the law include:

- a. Creation of a Provincial/City Mining Regulatory Board which shall be composed of the Department of Environment and Natural Resources (DENR) representative as Chairman; and the representative of the governor or city mayor, as the representative of the governor or city mayor, as the case may be, one (1) small scale mining representative, one (1) large-scale mining representative, and the representative from a non-government organization who shall come from an environmental group, as members. The Board has the following powers and functions, subject to review by the DENR Secretary:
 - Declare and segregate existing gold-rush areas for small-scale mining;
 - Reserve future gold and other mining areas for small-scale mining;
 - Award contracts to small-scale miners;
 - Formulate and implement rules and regulations related to small-scale mining;
 - Settle disputes, conflicts or litigations over conflicting claims within a people's small-scale mining area; and
 - Perform such other functions as may be necessary to achieve the goals and objectives of this Act.
- b. Declaration of People's Small-scale Mining Areas and awarding of Small-scale mining contracts by the Board subject to certain criteria and conditions.
- c. Registration with the Board of all persons undertaking small-scale mining activities.
- d. Securing the consent of the cultural communities concerned and giving priority to cultural communities in the award of small-scale mining contracts.
- e. Prohibition on the transfer, subcontracting or assigning of small-scale contract
- f. Establishment of a small-scale mining protection fund, which is equivalent to 15 percent of the national government's share of the internal revenue tax or production share due the government.

A Small-Scale Mining Contract (SSMC) may be awarded by the Board to small-scale miners who have duly registered with the Board as an individual miner or as a cooperative. Contracts have a term of two years, renewable for like periods as long as the contractor complies with the provisions of RA

⁵⁰ Memorandum Circular No. 2007-07

7076. The contract area is not to exceed 20 hectares per contractor and the depth and length of the tunnel are subject to the following considerations:

- a) Size of membership and capitalization of the cooperative;
- b) Size of mineralized area;
- c) Quantity of mineral deposits;
- d) Safety of miners;
- e) Environmental impact and other considerations; and
- f) Other related circumstances.

Small miners are required to pay all taxes, royalties or government production shares to the Government. The custom mills that process minerals or ore-bearing materials are constituted as withholding agents for the royalties, production share or other taxes due the Government. The revenues to be derived by the Government from the operation of the small-scale mining program are subject to the sharing provided in the LGC. Small-scale gold miners are also required to sell all the gold they produce to the Bangko Sentral ng Pilipinas (Central Bank) or its duly authorized representatives (for gold weighing below 300 grams) at prices competitive with those prevailing in the world market regardless of volume or weight. (Bugnosen, 2001; Bugnosen, 2004; Ban Toxics, 2010; UNDP & GoP, 2012)

The ASM policy of the Philippines is declared in the People's Small-Scale Mining Act of 1991 (RA 7076): *It is hereby declared the policy of the State to promote, develop, protect and rationalize viable small-scale mining activities in order to generate more employment opportunities and provide an equitable sharing of the nation's wealth and natural resources, giving due regard to existing rights as herein provided.*

In March 1995, President Fidel Ramos signed into law the Philippine Mining Act (Republic Act No. 7942 – **RA 7942**) which was designed to revive the mining industry and attract more foreign investment by defining the agreements for mineral exploitation, and to provide the requirements for acquiring mining rights. It governs the exploration, development, processing and utilization of mineral resources in the Philippines. It is expected to protect the national interest by ensuring that the benefits from mining are shared with the government through Mineral Production Sharing Agreements (MPSA). The law allows 100 percent foreign ownership of mining projects through the Financial or Technical Assistance Agreements (FTAAs) and provides several incentives to encourage mining such as a four year income tax holiday, tax and duty free capital equipment imports, value added tax exemptions, income tax deductions (when operations are posting losses) and accelerated depreciation. The constitutional basis for the law was challenged in the courts by anti-mining groups, the Catholic Church, indigenous people's organizations and environmental protection groups and for seven years led to the decline of investor interest in the mining industry. In December 2004, the Supreme Court of the Philippines declared the Mining Act to be constitutional. (Raymundo, 2014)

RA 7942 carries provisions, which have direct and indirect effect on the operations of small-scale miners. RA 7942 requires small-scale mining permit holders and contractors to secure an environmental impact report, a final mine rehabilitation/decommissioning plan, compliance certificate from the regional offices of the DENR's Environmental Management Bureau and submit a potential environmental and a community development and management programme (CDMP) duly

approved by DENR's Mines and Geosciences Bureau. RA 7942 also lists down areas where mineral agreement or financial or technical assistance agreement applications are not allowed. This includes areas already covered by small-scale miners unless prior consent of the small-scale miners is obtained. (Ban Toxics, 2010)

In January 2011, President Aquino imposed a moratorium on the processing of all new mining agreements, for the purpose of formulating a new mining regime that would better stimulate investment, increase the government's share of revenues from mining operations address the problem of illegal mining and protect environmentally sensitive areas. On July 6, 2012, Executive Order No. 79 (EO 79)⁵¹ was issued by the President, which sought to strengthen the protection of the environment, promote responsible mining and provide a more equitable revenue sharing scheme between government and private firms. It should harmonize mining policies and require firms to be more transparent and accountable for their actions as well as strengthen coordination among stakeholders to ensure strict compliance by mining operators to existing laws and regulations. (Raymundo, 2014)

EO 79 prescribes in section 11 "**Measures to Improve Small-Scale Mining Activities**". To improve and address issues on small-scale mining, the following measures shall be undertaken, such as:

- Small-scale mining activities shall comply with RA 7076 and the Environmental Impact Statement System requirements under PD 1586
- Small-scale mining operations shall be undertaken only within the declared People's Small-Scale Mining Areas (PSSMA, or "*Minahang Bayan*")
- In provinces and cities where they have not been constituted P/CMRBs shall be operationalized within three (3) months
- Small-scale mining shall not be applicable for metallic minerals except gold, silver, and chromite
- The use of mercury in small-scale mining shall be strictly prohibited
- Training and capacity building measures in the form of technical assistance for small-scale mining cooperatives and associations shall be conducted by the concerned government agencies.

On 16 March 2015, DENR published by administrative order 2015-03 the **Revised implementing rules and regulations (IRR)** of RA 7076⁵², based on EO 79. As until to date the number of PSSMAs declared since 1991 is limited⁵³ and EO 79 confines small-scale mining to such People's Small-Scale Mining Areas, Section 8 "Areas Open for Declaration as Minahang Bayan" is highly relevant:

- a. Areas already occupied and actively mined by small-scale miners before August 1, 1987; provided that the areas are not active mining areas, technically and commercially suitable for small-scale, and not covered by existing forest rights or reservations
- b. Public lands covered by mining applications, such as:

⁵¹ <http://www.gov.ph/2012/07/06/executive-order-no-79-s-2012/>

⁵² <http://server2.denr.gov.ph/uploads/rmdd/dao-2015-03.pdf>

⁵³ according to (UNDP & GoP, 2012), at time of publication of their report it was even zero.

1. Areas covered by pending mining applications wherein the minerals intended to be mined are different from the minerals intended for small-scale mining
 2. Areas covered by denied mining applications but with pending appeal
- c. Public lands covered by existing mining permit(s)/contract(s) which are not active mining areas, such as:
1. Areas previously covered by mining permit(s)/contract(s) that have been cancelled or revoked notwithstanding any pending appeal
 2. Areas covered by valid and existing mining permits/contracts: Provided, That
 - i. For vein type or alluvial gold and/or silver or chromite deposits having a mineralized area(s) exceeding 500 hectares, a maximum of 25% of the area above 500 hectares may be declared as Minahang Bayan: Provided, That the minimum area to be declared as Minahang Bayan is twenty (20) hectares
 - ii. For non-metallic mineral deposits having mineralized areas exceeding 1,000 hectares, a maximum of 25% of the area above 1,000 hectares may be declared as Minahang Bayan: Provided, That the minimum area to be declared as Minahang Bayan is twenty (20) hectares
 - iii. The holder of the mining permit/contract consents to the declaration of his/her/its permit/contract area or parts thereof as a Minahang Bayan.
- The holder of mining permit/contract shall be entitled to royalty payment as agreed upon by the parties concerned or in an amount based on the prevailing standard royalty rate in the locality. Where there is no prevailing standard royalty, the royalty payment shall be equivalent to an amount not less than one and one half percent (1.5%) of the gross value
- d. Private lands, subject to the consent of the landowner(s) and a royalty payment that shall in no case exceed one percent (1%) of the gross value of the minerals recovered and payment of actual damages as determined by the Board due to the declaration of the Minahang Bayan, among other rights and conditions
 - e. Ancestral Lands/Ancestral Domains, subject of Certificates of Ancestral Domains/Ancestral Land Title (CADT/CALT) or in areas verified by the Regional Office and/or other office or agency of the government authorized by law for such purpose as actually occupied by ICC under a claim of time immemorial possession, with Free and Prior Informed Consent (FPIC) from the said ICC obtained in accordance with the procedures prescribed by the National Commission on Indigenous Peoples (NCIP)

Section 9 establishes the Procedure in the Declaration of a Minahang Bayan, contained in fourteen steps. Once a PSSMA is declared, according to section 10, small-scale miners shall present an application to enter into a small-scale mining contract; section 10 mentions thirteen mandatory requirements, to be presented in five copies. Depending on applications, areas between 1.25 to 20 ha may be allocated per contract (section 11).

The following chapters of the IRR cover: (iv) Mineral Processing, (v) Supervision, (vi) Rights (no subcontracting or transference), (vii) Environmental, protection, social development, safety and health,

(viii) Fiscal and regulatory provisions (National and local taxes as provided for in the National Internal Revenue Code, 5% royalty on gross output, Government production share, Reversion of a Minahang Bayan if it can no longer be economically and efficiently operated on a small-scale mining basis⁵⁴), (ix) Assistance to small-scale miners, (x) Other provisions (all gold to be sold to BSP), (xi - xiii) Penal, transitory and final provisions.

Given the fact that the IRR were published during the preparation of this report, feedback from stakeholders is still limited.

6.2.2 Legal parameters for ASM formalization

Organizational scope of ASM formalization

The 2007 guideline for interpreting the co-existing ASM legislations from 2007⁵⁵ clarify:

- For PD 1899, any Qualified Person may apply for an SSMP. For this purpose, a Qualified Person shall mean a Filipino citizen, of legal age, and with capacity to contract, or a corporation or partnership authorized to engage in mining, registered with the Securities and Exchange Commission, at least 60% of the capital of which is owned at all times by Filipino citizens.
- For RA 7076, only a Filipino small-scale mining cooperative organized by licensed and registered small-scale miners may apply.

Segmentation of small-scale and artisanal mining

No distinction is made between artisanal and small-scale mining.

ASM's options to obtain mining rights

All persons undertaking small-scale mining activities are required to register as miners with the corresponding authorities. Individually or as cooperative, they may then apply for a Small Scale Mining Contract (SSMC), whereby "Small-scale mining contract" refers to co-production, joint venture or mineral production sharing agreement between the State and a small-scale mining contractor for the small-scale utilization of a plot of mineral land, or Small-Scale Mining Permits (SSMPs). SSMCs and SSMPs can extend to up to 20 ha, are issued for periods of 2 years renewable for like periods. SSMPs are transferable, SSMCs not. Mineral processing requires an additional license.

New procedures were enacted in March 2015 through IRR to RA 7076.

ASM's options to operate on licensed land

Much ASM happens inside large-scale mining concessions, making formalisation impossible without the explicit consent from the concession holder (Verbrugge, Besmanos, & Buxton, 2014).

⁵⁴ i.e. if large-scale mining is interested in the area

⁵⁵ Memorandum Circular No. 2007-07: <http://www.mgb.gov.ph/Files/Policies/dmc-2007-07.pdf>

Prior to PD 1899 (issued in 1984), presidential decree **PD 1150** issued in 1977 was in place, regulating panning or sluicing for gold inside mining claims or in public or private lands. Individuals could apply for a permit to pan or sluice with the Mines Regional Officer within an area of 2,000 m² for a period of 3 months upon payment of PHP 30. The permit was subject to consent by the claim owner, landowner or government agency as applicable. Opinions differ whether this law was repealed by PD 1899 or not; in any case superposition of rights has proven to create difficulties (Bugnosen, 2001).

The recent IRR for RA 7076 provides for PSSMAs (“Minahang Bayan” areas) in areas covered by valid and existing mining permits/contracts, subject to consent of the license holder.

Cost of obtaining rights to extract minerals

Application fee for SSMPs is 2,000 PHP for individuals and 5,000 PHP for cooperatives. Application fee for Mineral Processing permits are 10,000 to 50,000 PHP according to scale.⁵⁶ Total cost of application are however disproportional to these moderate fees. According to (Ban Toxics, 2010): *The prohibitive cost and the demanding procedures to gain formal operation have dissuaded small-scale gold miners to apply for permits.*

With five copies of thirteen mandatory requirements to be presented for the application for a contract covering eventually only 1.25 ha in a PSSMA area (according to section 10 of the IRR), it remains to see whether the new regulations contribute to make the cost of obtaining mining rights more affordable for ASM miners.

6.2.3 Institutional framework for ASM

Sector ministry:

The history of the **Department of Environment and Natural Resources** goes back as far as 1863 when by virtue of a Spanish Royal Decree an office known as Inspección General de Montes was created in the Philippines, focused on forest administration. Since 1974, the Department is responsible for the mining sector. In 1987 the former Department of Energy, Environment and Natural Resources was reorganized and the Department of Environment and Natural Resources (DENR) created, mainly in its present structure.⁵⁷

Agency:

The **Mines and Geosciences Bureau** (MGB) is the government agency primarily responsible for the implementation of Mining Act of 1995. It has direct charge in the administration and disposition of mineral lands and mineral resources. It undertakes geological researches, as well as mineral exploration surveys. The Mines and Geosciences Bureau dates back to Spanish colonial times, known as the “Inspección General de Minas.” In 1974 the Bureau of Mines was transferred to the Department of Natural Resources, and in 1978 renamed to Bureau of Mines and Geosciences. The

⁵⁶ Administrative Order DAO 2005-08

⁵⁷ <http://www.denr.gov.ph/about-us/history.html>

passage of RA 7942 (Philippine Mining Act of 1995) transformed the MGB into a line bureau of the DENR. The staff bureau became the Central Office of the MGB, while Mines and Geosciences Development Service became the 14 Regional Offices.⁵⁸

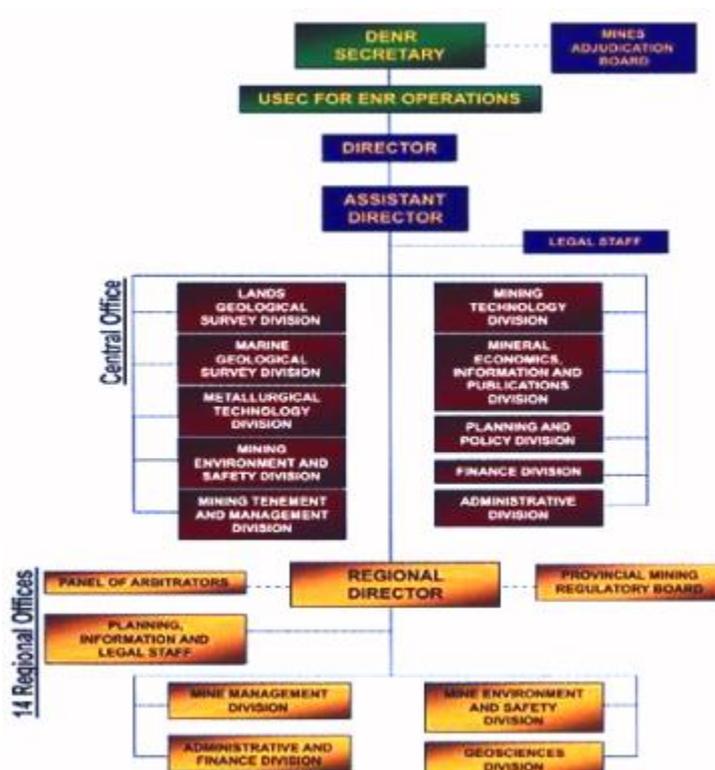


Figure 22: Organizational Chart of MGB⁵⁹

PROVINCIAL MINING REGULATORY BOARDS (PMRB, 1991)

- Composed of representatives from all stakeholders (national and local government, NGO sector, SSM community, large mining companies)
- Main functions
 - Identify, segregate and declare peoples small scale mining areas
 - Management and regulation of declared peoples' SSM mining areas
 - Settle disputes and conflicts that may arise

SMALL-SCALE MINING OFFICES (Mines & Geo-sciences Bureau)

- Regulatory functions (processing permits, enforcement of safety rules and regulations)
- Provide technical assistance and training to small-scale miners
- Assist PMRB (secretariat, leg work)

NATURAL RESOURCES DEVELOPMENT CORPORATION (NRDC,1982)

- Government company, corporate arm of DENR

⁵⁸ <http://mgb.gov.ph/aboutus.aspx>

⁵⁹ http://mgb.gov.ph/App_Themes/SkinProfile/Images/mgbchart.jpg

- Control and manage gold-rush area (via service contract with SSM)

(Bugnosen, 2004)

6.3 Interaction with ASM projects and initiatives

UNIDO Phase 1: Assistance in Reducing Mercury Emissions in Highly Contaminated Gold-mining Areas in Mindanao, Philippines, 1999

Ban Toxics, Dialogos and other Danish partners launched in 2011 – Mercury Reduction in Artisanal and Small-scale Gold Mining in the Philippines 2011-2014

- Training miners with the help of other miners who have stopped using mercury
- Teaching rural healthcare workers on the proper screening of mercury poisoning cases
- Raising awareness on the dangers of mercury

Improving ASM awareness and developing National Strategic Plans

Partners: United Nations Environmental Program (UNEP), Strategic Approach to International Chemicals Management (SAICM), Global Mercury Partnership (GMP)

January 2009 - 2011⁶⁰

Improve the Health and Environment of Artisanal Gold Mining Communities in the Philippines by Reducing Mercury Emissions

Duration: Two years (August 2013–August 2015)

Budget/donor:

GEF: USD 550,000

Co-financing: USD 1,081,070

Co-financers: The Department of Environment and Natural Resources (DENR), the U.S. Department of State, Ban Toxics, Dialogos, and UNIDO

Main objective and key expected outputs:

- The project aims to promote sound chemical management of mercury by strengthening national capacity and reducing mercury use, emissions and exposure at pilot demonstration sites.
- In addition to the transfer of techniques and technology, training programmes on the health risks of mercury will also be developed and delivered for miners.
- The project will seek to reduce at least 50% of mercury use, emissions and exposure at local pilot sites by introducing low-mercury or mercury free technologies.

(UNIDO, 2013)

⁶⁰ <http://www.artisanalgold.org/our-projects>

6.4 Outcome and lessons to learn

6.4.1 Formalization rate and benefits

People's Small-scale Mining Protection Fund: In 1991, Section 20 of RA 7076 created a People's Small-scale Mining Protection Fund out of the fifteen percent (15%) production share of the National Government. This shall be used primarily for information dissemination and training of small-scale miners on safety, health and environmental protection, and the establishment of mine rescue and recovery teams including the procurement of rescue equipment necessary in cases of emergencies such as landslides, tunnel collapse, or the like. The fund shall also be made available to address other needs of small-scale miners brought about by accidents and/or fortuitous events. The P/CMRB is designated as trustee of the fund. According to MGB, the Fund has not yet been created to date due to problems in establishing the *Minahang Bayans* representing the associations of small miners in the communities. (UNDP & GoP, 2012)

With regards to small-scale mining, the following **problems** have been cited in newspapers and confirmed by MGB officials:

- 1) Lack of adequate supervision by Local Government Units (LGUs)
- 2) Abuses by so-called “small-scale” miners
- 3) Degradation of the environment

The following problems with the collection of taxes from small-scale miners were cited by the BIR:

- 1) Traders who sell gold to the BSP do not give information on where the gold came from. BIR is unable to identify the beneficiary LGUs.
- 2) Government share is supposed to be collected by LGUs. If ever they are collected, it is not clear that National Government gets its share.

(UNDP & GoP, 2012)

Small-scale mines pay no **royalty** or other charges to DENR and instead pay taxes directly to LGUs that are not shared with the national government. In contrast, only a portion of taxes, royalties and fees paid by large mines to the national government go to LGUs; the amount is small; and there are long lags between the payment by the mining companies and the distribution to the LGUs. This difference in the fiscal regimes for small-scale and larger mines provides an incentive for local governments to issue many small-scale mining permits and to oppose large-scale mining. (IMF, 2012)

The requirement for small miners to secure permit or license before they operate has practically rendered most small-scale mining operations in the Philippines illegal. The prohibitive cost and the demanding procedures to gain formal operation have dissuaded small-scale gold miners to apply for permits. Other miners are not simply aware of existing laws governing small-scale mining. Data obtained from the MGB shows that as of December 2007, there were only about 33 permits issued to small-scale gold miners covering more than 400 hectares gold mining areas. (Ban Toxics, 2010)

6.4.2 Philippines summary and lessons learnt

The foundation of the Philippine legal framework for ASM (**PD 1899**: “*Establishing Small-scale as a New Dimension in Mineral Development*”) was established 1984, towards the end of the era of President Marcos (1965–1986). The second milestone in ASM legislation was **RA 7076** “*An Act Creating a People’s Small-Scale Mining Program and For Other Purposes*”, enacted in 1991, towards the end of the Presidency of Corazon Aquino (1986–1992).

Both legislations, although partly overlapping and lacking clarification of applicability until 2007 were rather favourable for ASM, but were never implemented in their entirety. Declaration of *People’s Small-Scale Mining Areas* (“Minahang Bayan”) lacked behind, and the *People’s Small-scale Mining Protection Fund* never received the envisaged funding (UNDP & GoP, 2012). Despite not much progress in formalization, the ASM sector succeeded to grow into about 200,000 to 300,000 small-scale gold miners nationwide (Ban Toxics, 2010) and producing about 28 tonnes or close to 80 percent of the country’s annual gold supply.

In 2012, **EO 79** was issued in order to strengthen the protection of the environment, promote responsible mining and provide a more equitable revenue sharing scheme between government and the private sector. EO 79 aims at restricting ASM in several ways, such as limiting ASM to PSSMAs, requiring Environmental Impact Statement, strictly prohibiting mercury use, and extensive administrative requirements. The recently (in March 2015) published *Revised Implementing Rules and Regulations* of RA 7076 based on EO 79 appear tighten the grip even more (e.g. requiring five copies of thirteen mandatory requirements to be presented for the application for a contract covering eventually only 1.25 ha in a PSSMA area). In compensation, EO 79 promises training and capacity building and technical assistance for ASM cooperatives and associations by the Government.

It remains to see, whether the Government will be able to deliver on its promises (capacity building and training) and on its self-imposed duties (massive declaration of PSSMAs). The current situation (ASM only allowed in PSSMAs, but only very few PSSMAs declared) renders most ASM in the Philippines practically illegal. In principle, this could represent the ideal starting point for an auto-destructive crackdown approach, similar to the Peruvian case. In case of the Philippines, which does not have major LSM gold mines like Peru, it would put 80% of the country’s gold production at risk.

Main lessons learnt:

- Many lessons learnt maintain similarity with the other countries covered in this analysis, such as the need to see **ASM formalization as a continuous process** and to **adapt ASM strategies to ever changing circumstances** (with Philippines continuing on strategies introduced in the 1980/1990s such as the PSSMAs).
- **Formalization strategies need to be long-term, progressive and consistent.** A laissez-faire approach to ASM, as apparently applied over the past decades by not fully implementing the existing legal framework, allows the ASM sector to grow successfully, but bears the risk of uncontrolled growth. Shock-type strategy changes (such as eventually resulting from IRR of EO 79) bear a high risk of rendering a large portion of ASM illegal, squandering efforts of years.

- **Research from** (Verbrugge, Besmanos, & Buxton, 2014) **suggests raising the question: Who is, or should be the object of formalization?** With raised requirements, like the recent IRR, it is likely that access to formalization will be further limited to the group of “rent seekers” in Figure 21, who count on the means to comply with the administrative procedures. This leads to the question whether this stakeholder group are the “people” corresponding to the political intention of a “People’s Small-Scale Mining Program”?

7. Analysis of the research questions

7.1 Macro-economic models guiding the strategies regarding ASM

Analysis regarding the research question: *“The underpinning macro-economic model which guides the strategy regarding ASM”, and “Strategies that support this macroeconomic vision, for example poverty reduction, employment generation, implications for investment promotion, creation of social peace and value addition in country”.*

All four countries are currently among the world’s most important producers of gold (2012: Peru #5, Ghana #9, Tanzania #20, Philippines #26 after a sharp drop) (Reichl, Schatz, & Zsak, 2014), the globally most important ASM commodity, with deposits suitable for ASM in open access conditions (i.e. easily extractable without extensive prior prospecting and exploration). Gold mining since long before the industrial age is reported from all four countries, particular from Ghana (former “Gold Coast”) and Peru (famous for pre-colonial gold treasures).

All four countries went through **economically and politically difficult times**. Ghana’s economy had collapsed during the series of military regimes in the 1960s and 70s. Tanzania’s economy took a turn for the worse after nationalization of the industry in the 1970s. Peru suffered in the 1980s from hyperinflation and terrorism. The Philippines underwent a martial law regime from 1972-81 under President Marcos. By coincidence, it was during this time, when the gold price hit a historic peak in the early 1980s. It is therefore no surprise that ASM surged in most countries exactly during this period, in response to economic and political turmoil, as an opportunity to escape poverty, and re-activating traditional mining.

The Small-scale Gold Mining Law of Ghana (PNDCL 218) dates from 1989. The 1979 Mining Act of Tanzania created opportunities for small-scale mining. The Philippine Presidential Decree 1899 on *“Establishing Small-scale as a New Dimension in Mineral Development”* dates from 1984 and the Republic Act 7076 from 1991 (i.e. end of the same era). All these **early laws have in common that small-scale mining was seen as an economic opportunity** to be regulated under an ASM promotion approach. Even Peru, although not passing an ASM legislation, engaged in active promotion of ASM in the Madre de Dios region through its Mining Development Bank (Banco Minero). The laws from that time have also in common that they mostly **address economic growth and technical upscaling** of the small-scale mining sector but **ignore the poverty reduction and employment generation potential** of the artisanal sector.

With legal frameworks mostly in place, the Sustainable Development Agenda of the 1990s brought environmental concerns to the ASM agenda and generated some corresponding legal add-ons. The core development strategies for ASM shifted only slightly from technical upscaling to introducing and improving environmentally friendly technologies.

The next real shift in ASM occurred in the 2000s, with the global political agenda focusing on the Millennium Development Goal of reducing poverty by 50% until 2015. Particularly in Africa, the **“Yaoundé Vision Statement” of 2003 nurtured expectation of a step-change** of ASM policies.

Beatrice Labonne from UNDESA describes this as follows: *“In 2003, in Yaoundé, Cameroon, ASM had been snatched from the domination of mining experts. Debates had been opened to a larger group of stakeholders including those concerned with poverty reduction, community development, gender, child labour, human rights and pollution. Selected donors, intergovernmental organizations (IGOs), and developing country governments were taking a fresh interest in the sector”* (Labonne, 2014).

In supposedly direct consequence, ASM became part of PRSPs such as in Ghana’s 2003 “Agenda for Growth and Prosperity” or Tanzania’s 2005 “National Strategy for Growth and Reduction of Poverty”. Ghana abandoned ASM in its PRSPs shortly after. Its second PRSP fails to mention ASM and the 2010 “Ghana Shared Growth and Development Agenda” switched focus on illegal mining.

In Tanzania, thanks to the extensive findings of the Bomani Commission on ASM, the Mineral Policy of 2009 indicates among its objectives to support and promote development of small-scale mining so as to increase its contribution to the economy; and to facilitate, support and promote increased participation of Tanzanians in gemstone mining; and gave way to further inclusion of small-scale mining into the 2010 Mining Act.

In Peru, political momentum for some regulation of the sector slowly grew until when the Peruvian Congress passed and enacted the Law 27651 of Formalisation and Promotion of Small-Scale and Artisanal Mining. The legislation reflected a largely positive conceptualisation of ASM activities, describing them as “development hubs” and “a great source of employment and collateral benefits”. This bottom-up approach however never found a true “buy in” by the Central Government, was later diverted to regional governments, and in recent years increasingly replaced by a focus on “illegal mining”. As “bottom-up” law, enacted by Congress and not by the President, it perhaps failed to take root in the Central Government’s broader mining policy.

The Philippines maintained their ASM legal framework from the 1980s practically until recently without major adjustments, although an increasingly negative perception of ASM could be perceived over the past years. The Executive Order 79 from 2012 constitutes a certain official turning point from former People’s Mining, as *“Measures to Improve Small-Scale Mining Activities”* focus mainly on confining ASM in declared small-scale mining areas, and focussing on prohibitions (mercury, metallic minerals). The recently published revised implementing rules and regulations appear to be even more restrictive, and it would not surprise if (barriers to formalization being interpreted in the future as unwillingness of ASM miners to formalize), the Philippines would join the league of countries engaged in “battle on illegal mining” in the near future.

What can be observed is that **since the establishment of the Millennium Development Goals, ASM strategies took a brief positive upturn recognizing its positive contribution to poverty alleviation and employment generation**. A few countries like Tanzania (and also Ethiopia) follow up along this line with good progress, while many countries like Ghana, Peru, potentially also Philippines take a new negative approach focussing on illegal mining.

The approach of a **crackdown strategy on illegal mining**, spearheaded currently by Peru, but also earlier applied by Ghana is hardly sustainable. It criminalizes those miners, who achieved by their own effort the technical upscaling predicated in early ASM promotion programs and outgrew the artisanal or small category to which they are supposed to belong. **As “collateral damage”, it**

criminalizes the entire sector, including the most vulnerable who are engaged in ASM as the result of poverty. While admittedly, like in Ghana, mining attracts migrant foreign investors unwilling to follow existing laws, such operations, even if camouflaged as ASM, are not ASM. By driving the entire ASM sector into illegality, it makes it even easier for truly illegal mine operators to disguise themselves.

7.2 Institutional frameworks, roles and responsibilities for ASM administration

Analysis regarding the research question: *“Institutional framework, roles and responsibilities, especially decentralised responsibilities regarding administration of ASM and/or services provided to the ASM sector”*.

Central Government

To deliver the support needed to artisanal miners, many countries such as Ghana, Philippines, and the DRC, have **small- scale mining units or departments** but, in all cases, implementation of what appears to be good policy has been hindered by a **lack of resources to these units and limited accountability for their performance** (Hinton & Levin, 2010). Peru has recently followed the example of Colombia, to establish a dedicated Directorate of Formalization under the Vice-minister of Mining. However, while in Colombia that Directorate operates at eye-level with the Directorate for entrepreneurial mining, the Peruvian Directorate remained a **niche office** (see Figure 18).

Decentralization

All four countries have sought to **delegate roles and responsibilities regarding ASM to regional and/or local governments**, or at least maintain regional offices of the central agencies.

In Ghana the Minerals Commission has established seven (7) District Offices located at Tarkwa, Dunkwa-on-Offin, Bibiani, Asankrangwa, Assin Fosu, Akim Oda and Bolgatanga

In Tanzania, the Ministry of Energy and Minerals maintains eight (8) Zonal Mines Offices and additionally a few Resident Mines Office. Zonal Mines Offices are located in:

- Eastern zone: Dar es Salaam
- Northern zone: Arusha
- Southern zone: Mtwara
- Central zone: Singida
- North western zone: Shinyanga
- Lake victoria zone: Mwanza
- Western zone: Mpanda
- South western zone: Mbeya

In Peru, the Ministry of Energy and Mines initially de-concentrated ASM administration at the Regional Mining Directorates under the Regional Governments’ administration but maintained them under the line of command of the Ministry. In a second decentralization effort, all responsibilities

regarding ASM were transferred to the 22 Regional Governments. Partly reverting decentralization, interdiction operations against illegal mining are again centrally steered.

In the Philippines, the Mines and Geosciences Bureau maintains 14 regional offices. These regional offices are in charge of issuing permits, enforcement and technical assistance to ASM but also interact with the Provincial Mining Regulatory Boards in charge of declaring and administrating Small-scale mining areas.

In all countries, **local administrative structures are seen important to facilitate interaction with ASM miners**. Initial attempts to administrate ASM from central government offices were rapidly abandoned in Tanzania and Peru. However, from all countries' perspectives the weakness of decentralized structures for ASM administrations (particularly regarding human and financial resources) are reported and a key impediment to the advancement of the sector.

Mostly all countries have **“technical assistance and training of ASM miners”** included in the task list of local/regional ASM administrations. Very little is reported about training programs carried out by these offices. This may be due to a **conflict of roles between coaching of ASM miners and enforcing compliance**, or just due to a lack of resources.

7.3 Legal status of ASM and approaches to formalization

Analysis regarding the research question: *“Legal status of ASM and approaches to formalisation such as (i) areas reserved for ASM, (ii) types of licenses for ASM in unlicensed areas, (iii) contractual arrangements with license holders in already licensed areas, (iv) etc.”.*

In all four countries, ASM is a “legal” activity, if carried out in accordance with existing legislation and regulation. As only country, Peru has introduced in 2012 a specific legislation governing illegal mining. Peru **distinguishes between “informal” and “illegal” mining**, whereby – summarized – illegal mining refers to ASM in areas not allowed for mining, not complying with all legal requirements and by operators not demonstrating willingness to formalize. Informal mining in contrast refers to ASM in permitted areas, by operators having engaged into a formalization process, but not yet complying with all legal requirements. The problem in Peru is that many formerly formal ASM miners have become illegal through additional legal requirements impossible to fulfil (e.g. land use authorization for land where the land owner is not defined). The Philippines are at risk of following the Peruvian example (e.g. ASM only allowed in PSSMAs, while only a marginal number of PSSMAs exist).

i. Reserved areas

A strict policy of reserved areas for ASM is applied under RA 7076 (and particularly under the recent IRR) in the Philippines. According to the recent rules and regulation, ASM can only be carried out in declared Peoples Small-scale Mining Areas (PSSMA). As such PSSMAs exist in the legislation since

1991 and not many⁶¹ of them have been declared until now, it is still to be seen whether the regulations will prove feasible in practice.

In part, such as e.g. under the “Prestea Plan” in 2006 Ghana also attempted to relocate ASM miners to **government-assigned small-scale mining areas. The attempt failed**, as the proposed sites were unattractive to miners and migration to these sites would have disrupted families.

Tanzania follows a mixed approach, declaring certain areas of exclusive use for Primary Mining Licenses and excluding medium- and large-scale mining from these areas. Within such demarcated areas, small-scale miners are free to choose a prospective site and apply for a PML. This however does **not restrict ASM from applying for a license in any other non-licensed area**.

Peru never considered reserved areas for ASM. With a focus on entrepreneurial mining, the same principle of *first come first served* applies to all strata of the mining sector. As ASM miners are very effective local prospectors, a series of small deposits have been identified in the past years, and some ASM organizations in the southern coastal region (like SOTRAMI, AURELSA) which were early adopters of ASM formalization and converted into mining companies, have by today obtained considerable licence tenements.

ii. Type of licenses

Peru is one of the few countries, where the type of license is independent of scale. The entire national territory consists – for mining purpose – of a square 100 ha grid, and any operator, regardless of large or artisanal can apply for any grid unit. It is only after granted application of the first license area that a miner can apply for being recognized as artisanal or small-scale. Granted ASM status does not alter the rights associated with the license, such as being **transferable**, etc. Aligned with this non-discrimination approach, licenses (also for ASM) are only granted to natural or juridical persons acting as entrepreneur. This had the positive consequence that all miners’ associations (NGOs) that aspired to acquire a mining license, reorganized into formally constituted mining companies.

Tanzania and Ghana opted for introducing a different category of licenses for ASM, such as the *Primary Mining License* in Tanzania or the *Small-scale Mining License* in Ghana. Both license types have in common that their duration of tenure is less than for regular mining licenses, that their area is limited (10 ha in Tanzania, between 1.2 ha and 10 ha in Ghana), and limitation regarding transferability of rights apply.

Philippines is now going towards limiting ASM to PSSMAs, whereby within a PSSMA contracts for up to 20 ha can be awarded to ASM. Such non-transferable contracts are not mining licenses.

Fully qualified concessions such as in Peru allow for growth by seamless transition to higher mining categories. Many initially artisanal mining companies have already ascended to small-scale. The

⁶¹ GMA NEWS December 31, 2013: “*Mines and Geosciences Bureau (MGB) director Leo Jasareno told GMA News Online ... the Philippines currently has **three** Minahang Bayan sites in Quezon province, Dinagat Island, and Agusan del Norte.*” <http://www.gmanetwork.com/news/story/341937/economy/agricultureandmining/phl-eyes-15-minahang-bayan-sites-off-limits-to-big-miners-in-2014>

ability to pledge the mining concession as collateral has allowed many ASM companies to obtain financing for investment. Many of the small-scale have in practice also already progressed towards medium-scale, but that is to some extent where the current problem originates: Technical, environmental, labour and social requirements for medium-scale mining are much stricter than for small-scale mining. Consequently, when a fully formal and compliant small-scale mining company passes the small-scale production limit, it becomes automatically informal (or even illegal!), due to lack of full legal compliance with medium-scale requirements. Mechanisms for smooth transition are missing.

Tanzania also has a mechanism in place to amalgamate several PML into one regular mining license.

Where ASM licenses are not upgradeable to general mining licenses ASM is “convicted” to stay permanently ASM, perpetuating the shortcomings of the sector.

iii. Arrangements with license holders in already licensed areas

In practically all ASM countries, including the 4 countries covered in this study, **lack of unlicensed land for ASM is a major issue**. Most prospective areas are covered by LSM mining contracts, sometimes with tenure periods of 30 years and longer. This leaves no room for ASM.

To some extent, the Peruvian licensing scheme appears favourable. All concessions are annually renewable, with **right for renewal as long as the license fee is paid**. As license fees increase if an area is idle, every year a certain percentage of concessions is returned to the state, particularly those found to be unattractive for conventional mechanized mining. This permanently opens new opportunities for ASM.

Another interesting approach is that of Tanzania, where increasingly **expired or devolved license areas are evaluated regarding their suitability for small-scale mining**, and eventually declared as exclusive zones for PMLs.

Both approaches however do not solve the core problem, of a lack of unlicensed land for ASM. From the 4 countries covered in this study, Peru and Philippines have legal provisions to address this issue.

In Peru the Law 27561 introduced **“exploitation contracts” between concession holders and artisanal miners**, with corresponding incentives. Production from contracted ASM can be accounted for as part of the “minimum required production”, allowing the concession holder to maintain the concession at non-incremented cost. More attractive for the concession holder is that, under a formal contract with artisanal miners, environmental and social liabilities for the contacted area are passed to the ASM-contractor. All other conditions are freely negotiable,

The RA 7076 of the Philippines includes the option to declare areas covered by valid and existing mining permits/contracts as PSSMAs (“minahang bayan areas”). Procedures are laid out in detail in the recently published revised implementing rules and regulations IRR. Declaration of a PSSMA is subject to the consent of the license holder and the license holder is entitled to royalty payments.

7.4 Role of miners' organizations at local and national level

Analysis regarding the research question: *“The role of miners’ organizations at local and national level, particularly regarding their relationship with the government with regards to their potential to support the government's efforts toward formalizing the ASM sector as well as required support from the government to fulfil their role of promoting responsible mining”.*

Strong and representative miners’ organizations play an important role, both for the miners themselves as for the Government. National ASM miners organizations can be a similarly **strong partner for Governments** as Chambers of mines in the conventional mining sector.

The strongest ASM organizations among the 4 countries can probably be found in Peru. At national level 2 organizations are competing, SONAMIPE and FENAMARPE. SONAMIPE represents more the early adopters of ASM formalization, which in the meantime have mostly grown into well-consolidated ASM companies. FENAMARPE represents more the still informal ASM sector.

SONAMIPE and one of its constituting regional organizations (AMASUC) have been instrumental for the adoption of the ASM law 27561 in 2002. The law was the result of their lobbying efforts with the Ministry and foremost the Congress. No law for artisanal mining had existed before and without their insistence at the most appropriate moment when the Fujimori regime had ended it is unlikely that this would ever have happened. In order to increase their member base of formalized ASM companies, AMASUC is still an important partner to the Government promoting formalization.

FENAMARPE on the other hand plays an important role in defending informal miners and ASM mine workers. Crackdowns on illegal mining target the owners of the illegal mines, but leave thousands of ASM mine workers unemployed.

No evidence of similarly strong national ASM organizations was found in the African study countries or in the Philippines. The only similarly strong national ASM organization known to the author is the Mongolian ASM Federation. The Federation similarly plays an important **interlocutor role between ASM miners and the Government, lobbying for an improved ASM legal framework, but supporting the Government in its formalization efforts.**

Several local and regional ASM organizations exist in every of the study countries. Their usual objectives are to defend ASM miners’ interests and they play an important role in organizing miners. As such, they are important also for local and regional authorities, as a **pathway for communication with miners**. For any local or regional government it is impossible to communicate with hundreds, thousands or ten thousands of individual miners individually.

Legitimate ASM **organizations cannot be “created” top-down, they have to emerge from “bottom-up”**. Typical examples are the SACCOS (Savings and Credit Cooperative Societies) in Tanzania. They are an important example of how miners have mobilized to create organizational structures that allow access to credit.

By being a key pathway for bi-directional communication, ASM organizations are always at risk of being instrumentalized. A typical example, which raises doubts about miners’ NGOs being

instrumentalized are several Philippine miners' associations, which reportedly lobby for a tightened mercury ban.⁶² If these organizations were legitimately backed up by their members, they would have sufficient convening power to stop mercury use by their members on their own and would not need to call on the Government to tighten laws.

What Governments can do to strengthen local miners' organizations, is to **provide an enabling or incentivizing legal framework**. For example: the comparatively large concession areas for artisanal mining in Peru (up to 1,000 ha), allows for a large group of miners to work for years or even decades. This inherently requires miners to organize in their own interest, and due to the prolonged time span allows organizations to mature. **Granting small individual licenses, such as up to 1.2 ha in Ghana for "groups of persons not exceeding four in number" eliminates organizational potential from the outset**: every miner will work individually on his/her own in perpetuity and move on afterwards.

7.5 Situation of mine workers in ASM

Analysis regarding the research question: *"The situation of mine workers in ASM (both self-employed, hired labour and mixed forms of employment) with regards to legal status, inclusion in social security country systems, health and safety, etc."*.

In all countries, the ASM sector is internally organized as a **complex and multi-layered hierarchical structure**. This is well illustrated in Figure 21 for the case of the Philippines. Similar structures apply for the plot owner / tributer / worker system in Ghana, the PML owner / pit owner / digger scheme in Tanzania, and the structures of mine owners, workers and pallaqueras in Peru. The common simplification of referring to all persons involved in ASM as "ASM miners" is valid for the purpose of covering the sector as a whole, but **it needs a much more fine-grained view when addressing roles and responsibilities**, or as (Barreto, 2012a) puts it: "poorly understood structural issues are often reflected in a confused relationship between the mining legal framework and the socioeconomic relations that drive the sector".

From a **workers' perspective** for example it is rather irrelevant to know whether his direct superior (e.g. the tributer or pit owner) made an agreement with a plot or PML owner who has all legal documents in order or not. This is not different to the large-scale mining sector, where a haulpak driver or a driller hardly ever inquires the details and level of compliance of a mining contract of e.g. Anglo Gold or Rio Tinto with the Government.

Thus, as **licensing is out of reach and a irrelevant topic for most workers**, for the purpose of formalization or legalization of mining rights, the target group for Governments is not 200,000 or a million of ASM miners, but a few 100 potential license owners.⁶³ As (Hilson & McQuilken, 2014) emphasize, lack of information about internal ASM stakeholder structures have also led several donor projects to address the wrong beneficiaries. Improvement of the situation of workers, their

⁶² No link is provided to prevent eventual erroneous allegations. Examples can easily be found on Google.

⁶³ This makes "battles against illegal mining", like interdiction operations in Peru targeting approx. 40,000 "illegal miners" in Madre de Dios, even more absurd. To nobody it would occur to burn down the houses of all workers of a LSM mining corporation, if such corporation would be found guilty of tax fraud or environmental pollution.

inclusion in social security and improvement of workers' health and safety require a sound baseline assessment.

Most **ASM workers need to be understood in their rural context**, which often consists of a combination of multiple livelihood options and subsistence strategies⁶⁴. ASM workers are everything less than a uniform mass of labourers. One group, which can be found in all four countries are permanent ASM workers (galamsey, digger, trabajadores, etc.) whose livelihood depends exclusively on ASM mining. This group further subdivides into local community miners and migrant miners; into hired labour, self-employed miners and mixed forms of work based on risk-sharing agreements; etc. The other (and in some countries eventually even larger) group consists of seasonal miners, relying on ASM as part of a diversified livelihoods strategy, combining mining, farming, herding, small businesses and other activities. Such **diversification is typical** for many Tanzanian SACCOS, for Peruvian ASM in the Andean highlands, in rural Ghana outside the major ASM centres or in the Philippines, i.e. practically in all regions where mining is an ancestral and traditional activity.

General Mining Laws in contrast, where focusing on conventional mining, only need to deal with hired labour, predominant in the industrial sector. For that purpose, Laws can easily refer to applicable labour laws. Such a **“one size fits all” approach is – due to the diversification of work related arrangements – impossible in ASM.**

The key question is, how to ensure that ASM workers (of all different forms) can gain a legal status ensuring fundamental human and constitutional rights of access to healthcare, social security, etc., without restricting their choices and livelihoods strategies and without creating additional entry barriers for ASM formalization?

An approach can be found in the Ghana Shared Growth and Development Agenda “ (GoG, 2010, p. 111): *“The Social Security and National Insurance Trust (SSNIT) will be supported to expand the Informal Sector Fund to cover the risks and pension requirements of informal sector workers. The implementation of these initiatives will be monitored to ascertain the progress of coverage for the informal economy.”* No report was however found on whether SSNIT reached out to galamsey miners.

In Peru, all companies are subject to **compliance with labour laws**. There is no special regime for artisanal mining. ASM companies that have advanced in their formalization and development are required to adopt the general systems required by law. The social security system entitles miners and their families to access healthcare services and to accumulate contributions to their pension fund. Initially the paperwork and the social security enrolment fees were seen as burdensome and unnecessary, however, the number of community mining organizations (where the workers are shareholders) now seeing this as a reasonable requirement is growing (Orozco & Gamarra, 2012). For Financier/Worker setups the requirement is rather a barrier to formalization; **many financiers are not**

⁶⁴ E.g. relying on mining as “cash crop”, in parallel to subsistence farming or herding on small plots, with family members running informal micro-businesses like selling food, etc. Rural economies are often extremely diversified, as only the combination of all options allow for subsistence.

willing to cover the social security expenses and opt for informal agreements or occasional workers.

An interesting (although isolated) case is reported from the Philippines: *“The ASM-area in Kematu in the South Cotabato province, began in the 1970s and has currently about 6,000 workers. In the 1990s–2000s, local and provincial government tried to increase control over ASM in Kematu by creating a Minahang Bayan, but government efforts were uncoordinated and failed to stabilise the situation. In 2011 the Provincial Environmental Management Office (PEMO) initiated a programme that requires ASM operators to apply for individual mining contracts, while still operating within the cooperative. The province combined this individualised mineral tenure with efforts to regulate employment relations. Financiers are now expected to secure IDs for diggers and motorcycle drivers for a fee collected by the local government. In the future, there will also be labour contracts between the financier and the diggers. Finally, the PEMO proposes to make financiers responsible for basic health and social insurance for the labour force. Benefits: (1.) Workers have increased access to welfare benefits such as the municipal hospital, and official social security schemes. They are trained on key issues such as health and safety, waste management and the social benefits available through registration. (2.) Employers/financiers expect a more reliable and disciplined workforce due to the contractual employer-employee relationship. (3.) Local governments increase their revenues (through fees paid by cooperatives and individual operators) and regulatory control over mining settlements.”*

In Tanzania, social security is also addressed in the PRSP II, but without reference to ASM or the informal sector in general. National coverage of social security in Tanzania is reportedly below 1%.⁶⁵

7.6 Role, rights, status, challenges and potential of women in ASM

Analysis regarding the research question: *“The role, rights, status, challenges and potential of women in the ASM sector and how equitable access to resources and their benefits can be promoted”.*

In many African countries, a large percentage (45–65%) of the ASM workforce is made up of **women** who **face even greater barriers** (e.g. literacy, funds, autonomy) to licensing. **Expensive and bureaucratic licensing systems run the risk of widening gender gaps** at local levels, as men will find it easier to register than women. (Hinton & Levin, 2010)

In Ghana women constitute some 15 per cent of the legalized segment of Ghanaian small-scale mining labour force. Women account for 6 per cent of licensed buyers, 10 per cent of concession holders and 15–20 per cent of the sponsors of work groups, members of cooperatives or mining groups. 75 per cent of the Ghanaian small-scale salt-mining workforce is female as well as 50 per cent of the illegal galamsey industry (Hilson, 2001; Yakovleva, 2007). The difference between 50% women in the informal workforce and 15 % in the formal workforce demonstrate clearly the disadvantage, women face in the formalization process. Basic activities like scratching, panning,

⁶⁵ http://www.businesstimes.co.tz/index.php?option=com_content&id=1174:why-social-security-in-tanzania-is-vastly-inadequate-&Itemid=60

transport and washing, often carried out by women, are less likely to be established as formal tasks. Due to traditional cultural values, African women also experience difficulties in securing bank loans for small-scale mining equipment, which more often than not, discourages female involvement

A differentiation of “typical” roles of women and men occurs similarly in Tanzania. In addition to being involved in mining itself, women are often heavily involved in indirect labour related to mining. In Tanzania, it is estimated that women constitute about 25 percent of the total ASM workforce. Additionally it was observed that 2.5 times as many women are engaged in indirect roles (such as hauling and food and water provision) than in direct mineral production (Eftimie, et al., 2012). Similar as in Ghana, **a minority of women manages to break through the barriers of culture and move up the ladder in the ASM hierarchy** to become pit owners and mineral rights owners. Some women became powerful service providers in these communities. Being able to diversify activities, capitalizing on the different needs in such communities and accumulate capital, these women can compete side by side with men, and command much respect in the mining areas. (Mwaipopo, Mutagwaba, Nyange, & Fisher, 2004)

No gender-disaggregated numbers of ASM miners were found for Peru. Based on previous work in Peru, the author considers the following geographically segregated percentages as realistic: The highest participation of women is found in the Altiplano highland (Puno), with above 25% participation of women, mainly dedicated to mineral processing and services. Women participation in the coastal region is probably slightly lower, maybe in the range of 15-20%. The lowest participation of women was seen in the Amazon lowlands with a percentage in the range of approx. 10%. Participation in leading roles of productive ASM organizations is in general low; this is partly compensated by rather strong local women miners’ associations.

Despite the mushrooming mineral extractions dotting the Philippines, the roles and the plights of women and children actively participating in this economic activity oftentimes failed to attract attention of the academic community and policy makers. As a result, the contributions of women and child miners directly working in mining sites scattered throughout the country are neither well researched nor understood. (Huesca, 2013)

Similar as the conventional industrial mining sector, ASM is a male dominated sector. However, the figures from Ghana (*10 per cent of concession holders and 15–20 per cent of the sponsors of work groups, members of cooperatives or mining groups*) are remarkable. **In terms of gender balance in leading roles, ASM outperforms LSM by a factor of 2.** The recent Mining for Talent report by Women for Mining indicates that *“Of the 500 mining companies surveyed in connection with this report, 7.9% of boards are female; an improvement of 3.0% over three years.”* (PWC, 2015)

How can equitable access to resources and their benefits be promoted? ... is one of the research questions. “Difficult!” would be a spontaneous answer. Governments can hardly influence the gender of a licence applicant, and even less the autonomous decisions of community mining organizations with regards to the composition of their boards. Quotas do not work in the formal sector (PWC, 2015) and will work even less in formalization of the informal sector.

The answer may come from a completely different and unexpected angle. Two publications drew recently the attention of the author:

1. Beatrice Labonne, the former UNDESA senior advisor who was instrumental in convening the first ASM conference in Harare in 1993, in twisting World Bank's envisaged "Consultative Advisory group on Small-scale Mining" (CASM) into the "Communities And Small-scale Mining" initiative (CASM) in 2001, and in facilitating the Yaoundé Vision Statement in 2003, raised her visionary voice again in 2014, publishing an extremely critical article on ASM titled "**Who is afraid of artisanal and small-scale mining (ASM)?**" (Labonne, 2014). She summarized her article as follows:

"Ten years ago when the author retired from the United Nations, the mood was upbeat: many ASM experts believed that policy makers had finally grasped the economic importance of the sector for rural poverty reduction. But in 2014, the world over, it is evident that ASM, despite having since expanded considerably, regrettably remains outside of the poverty reduction policy mainstream. There is a gap between the flurry of actions promoted by the international community and the laissez-faire status quo position of many developing country governments.

This author is now pessimistic. Ultimately, ASM formalization will result not from direct assistance but on the contrary, from a government success in combating poverty in the non-mining rural communities. The improvement of the rural economy will reduce population pressure and lower the cost of living in ASM communities, enabling them to retain more earnings and invest in up-scaling or sector diversification. Only then will ASM become a viable agent of growth."

2. The second article from Deborah Bryceson, entirely unrelated with Labonne's policy perception, deals with "**Prostitution or partnership? Wifetypes in Tanzanian artisanal gold-mining settlements**". This article challenges the stereotype that female prostitution is widespread in ASM mining sites. Based on interviews with women migrants, the paper elaborates, how in contrast to traditional bridewealth, relations in mining settlements involve men and women making self-determined liaisons and co-habitation arrangements directly between each other without third-party intervention, creating eventually economic interdependences and mutual material support to their partners. In these relations, it not uncommon that female partners support their male partner during times of low production or mine development. (Bryceson, Jønsson, & Verbrugge, 2013)

Both completely unrelated articles come together under the common assumption and experience that **women perform better in terms of saving, ensuring household budgets and running businesses in the informal and formal sector.**⁶⁶ If poverty reduction, improvement of the rural economy, cost of living in ASM communities, and ability to retain more earnings are related to success of formalization, as Labonne postulates, **women's position will be strengthened and women will benefit from more equitable access to resources through formalization.** In terms of gender balance, women entrepreneurs in the ASM sector already outperform the industry.

⁶⁶ see (Mwaipopo, Mutagwaba, Nyange, & Fisher, 2004) above: "*Some women became powerful service providers*"

7.7 Lessons learnt from projects implemented in the selected countries

Analysis regarding the research question: “*Successful projects implemented in the selected countries and in close collaboration with the mining authorities that have contributed effectively in improving the national strategies that aim at improving the formalisation of ASM as well as their revenues, efficiency at work, good social and environmental practices*”.

The **1980s** were characterized as a decade in which significant **technical support projects** were provided to operators, particularly in sub-Saharan Africa. Most of the interventions made would fail to have a lasting impact, targeting the higher end small-scale entrepreneur sector. Little had changed by the early-1990s: the bulk of sectoral support remained technical in its orientation, focusing mainly on **improving the efficiency of operations themselves**. By the early-1990s, the German Technical Cooperation (GTZ) had quickly become the ‘face’ of bilateral aid for ASM – at least in sub-Saharan Africa. The organization was actively involved in significant project work in Zimbabwe and Ghana, two countries with lengthy and very dynamic artisanal gold mining histories. In Ghana, GTZ monies were used to help finance the Small Scale Mining Project (SSMP), under which a series of local ASM administrative centres were established in areas of the country where activity was most heavily concentrated. One significant move made with GTZ monies was the installation of an assaying facility and an accompanying technological demonstration centre in Tarkwa. Its ineffectiveness was a direct result of policymakers and donors failing to collect the requisite baseline data – specifically, detailed ethnographic information. These data would have shown that, the group of **miners being targeted were not entrepreneurs as was believed but rather individuals crippled by hardship who were trying to sustain their livelihoods**. The assaying lab, which is more suitable for a medium-scale mining sector populated by skilled professionals (a group that had not yet emerged in Ghana by this time), was, not surprisingly, underutilized. For the same reason (lack of clarity regarding the target group) an attempt to deliver financial and technical assistance to small-scale gold miners failed. The government eventually abandoned the scheme, and was forced to sell all equipment it had purchased for lease at discounted prices. (Hilson & McQuilken, 2014)

By the early-**1990s**, many African countries, in the spirit of **structural adjustment programmes**, had opened up their mineral economies to foreign investment. A *Strategy for African Mining* (World Bank, 1992), called on African governments to transition toward an export-based large-scale mining sector populated by foreign multinationals. A main issue highlighted in the document is the ‘Ghana miracle’ of gold production. A number of other African countries, including Tanzania, Mali, the DR Congo, Mozambique and Uganda, have since followed Ghana’s lead, implementing equally-sweeping reforms in an attempt to attract foreign interests to develop their large-scale gold exploration and mining economies. But **many of these changes were made at the expense of ASM**, consequently impeding its establishment and growth in the formal economy of sub-Saharan Africa (Hilson & McQuilken, 2014).

The authors (Hilson & McQuilken, 2014) however argue that by implementing SAPs and sweeping reforms, host African governments have created an ‘enabling policy environment’ for large-scale gold mining, but have, at the same time, **created the ideal policy conditions for the growth of illegal ASM**

activity. By the end of 1995, 36 African countries had implemented rigid policy frameworks and legislation with the aim of legalizing the industry and/or had established sector-specific administrative and technical institutions to facilitate this, or were in the process of doing so. But the hasty enactment of licensing systems, often with very little consideration for the people being targeted, **suddenly made ‘unregistered’ artisanal and small-scale miners ‘illegal’**. Toward the late-1990s, it had become apparent that, across sub-Saharan Africa, **superimposed ASM regulations were impeding the formalization of activities**, rather than encouraging individuals to obtain licenses and legitimize their operations in the eyes of the law (Hilson & McQuilken, 2014). This position is supported by (ILO [N.Jennings], 1999): *“Small-scale mining is bedevilled with too many regulations that are mostly designed to constrain it and too few inspectors to ensure that they do. There is therefore little incentive for small-scale mines to conform, particularly if the risks of being caught and of sanctions being applied are minimal. If small-scale mining is to be encouraged to operate legally, legislation must be (at least) even-handed in allowing small-scale miners access to suitable land for prospecting and mining activities. It must be “user friendly” as far as the issuing of permits and the granting of licences are concerned – permits that provide clear security of tenure for a reasonable period so that small-scale mining can become established.”*

Similar with many African countries Peru had undergone a structural adjustment programme in the mining sector (EMTAL, supported by World Bank) in the 1990s and created an ‘enabling policy environment’ for large-scale mining, and, at the same time, experienced the uncontrolled growth of what was called “informal mining”. Drawing on their organizational strengths and counting on support of the Swiss funded GAMA project of the Ministry of Energy and Mines (MEM), artisanal miners, Peruvian artisanal miners managed in 2001-2002 to lobby the Peruvian Congress into the enactment of an amendment of the Mining Law, opening formalization for artisanal mining. It is probably one of very few examples of a bottom-up legislative approach (Hruschka, 2003). The evolution from a very promising initial wave of artisanal miners proactively seeking formalization towards a “battle against illegal mining” of the Ministry against artisanal miners a decade later, requires an attempt to draw some lessons learnt:

- The bottom-up effort of artisanal miners lobbying for an ASM legal framework was successful under a particular political constellation, when the Fujimori Regime had ended, and the democratization process was in full flow. Most state policies were under revision at that time, and the MEM had no clear policy regarding ASM at that time.
- Once the MEM had regained political orientation, administration of the ASM sector was rapidly outsourced (“de-concentrated”, decentralized) to the Regional Governments. It is still not entirely clear, whether this occurred with intentions to move administration closer to miners, or to *“get rid of the nuisance to have to deal with ASM”*⁶⁷ at the central administration. The fact that responsibilities were delegated, but the required resources were not provided, is an indicator for a weak political will to pursue ASM formalization at that time. That weak political will (or lack of an enabling broader ASM policy) led to the deterioration of the formalization process in the following years.

⁶⁷ Opinion sustained by some Peruvian key informants

- The avalanche of ten (10) legislative decrees and laws and nineteen (19) regulations in 2012, by which the Government attempted to regain control over the ASM sector which had supposedly converted into “illegal mining”, proves that Normal Jennings’ findings from 1999 are still true: “**Small-scale mining is bedevilled with too many regulations that are mostly designed to constrain it ...**” (ILO [N.Jennings], 1999).
- The lesson learnt is that an **isolated positive ASM legislation is of limited benefit, if it is not built upon a solid long-term policy**. The failure of the Peruvian experience is probably that, after the law was passed, miners and their political allies focused down at regulation level, instead of stepping up at policy level.

7.8 Integration of the national strategies into wider initiatives

Analysis regarding the research question: “*The integration of the national strategies into wider initiatives, for instance in interregional community legal frameworks (such as the International Conference on the Great Lakes Region, ICGLR), directives, and how these tools have been able to influence or support the emergence of the National ASM Strategy*”.

Conflict minerals initiatives

While the Securities and Exchange Commission’s Final Rule on Dodd-Frank Act Section 1502⁶⁸ expressly refers to Tanzania as an “adjoining country” sharing an internationally recognized border with the DRC, little can be found on national strategy adjustments of Tanzania corresponding to potential conflict minerals.⁶⁹

Minamata Convention on Mercury

The Minamata Convention on Mercury is a global treaty to protect human health and the environment from the adverse effects of mercury. It was agreed at the fifth session of the Intergovernmental Negotiating Committee in Geneva, Switzerland at 7 a.m. on the morning of Saturday, 19 January 2013⁷⁰. The major highlights of the Minamata Convention on Mercury include a ban on new mercury mines, the phase-out of existing ones, control measures on air emissions, and the international regulation of the informal sector for artisanal and small-scale gold mining. (UNEP, 2015)

Ghana (24/09/2014), Tanzania (10/10/2013), Peru (10/10/2013) and the Philippines (10/10/2013) are signatories of the Minamata Convention. Notwithstanding, none of the four countries covered in this study, which all have significant ASM gold mining activities, had ratified the Convention at closure of this report in April 2015 (550 days after launching the Minamata Convention) .

⁶⁸ <http://www.sec.gov/rules/final/2012/34-67716.pdf>

⁶⁹ A search of the following separate terms on the Website of the Tanzanian Ministry of Energy and Minerals (<http://mem.go.tz>) returned zero related results: conflict, icglr, dodd, frank, due, diligence

⁷⁰ and opened for signature during the Conference of Plenipotentiaries held on 10 and 11 October 2013 in Japan.

7.9 Additional findings from similar previous studies

In recent years **two major studies on ASM formalization strategies** were published, which are **similarly based on a comparison of legal frameworks for ASM** in different countries and covering artisanal diamond and gold mining.

The “*Comparative study: legal and fiscal regimes for artisanal diamond mining*”, carried out within the PRADD (Property rights and artisanal diamond development) project (Hinton & Levin, 2010) had the primary objective to compare fiscal regimes for artisanal diamond mining for decision making by the Government of the Central African Republic. The study covered DRC, Guyana, Liberia, Sierra Leone, Tanzania, Madagascar, Uganda, Ghana, Peru and the Philippines.

The study “*Analysis of formalization approaches in the artisanal and small-scale gold mining sector based on experiences in Ecuador, Mongolia, Peru, Tanzania and Uganda*” was commissioned by UNEP in 2011, as supporting document for the intergovernmental negotiations leading to the Minamata Convention on Mercury. The final report (Barreto, 2012b) synthesizes six individual country studies, as well as a previous broader systematization of the findings of the country reports. (Barreto, 2011).

Both studies are referenced in different parts of this report, in the contexts of country characterizations as well as in the analysis of the research questions. Additionally, a summary of key findings of both studies is provided in: Annex 1: Summary of findings from similar previous studies.

8. Conclusion and Recommendation

Artisanal and Small-scale Mining (ASM) is highly relevant in all four countries. The preceding scoping exercise of 9 countries provided the below statistical data about the population involved in ASM in each of the 4 countries. With exception of the Philippines, the percentage of ASM miners compared to the total rural population is in all compared countries in the range of 2.5% or higher. Given average family sizes of above 4 heads, it is fair to assume that ASM contributes significantly to family income and livelihoods of more than 10% of the rural population.

Country	Estimated No. of miners	Rural popul. ⁷¹ [Million]	%	GDP per capita ⁷² [USD]
Ghana	500,000	12.2	4.1 %	1,860
Tanzania	1'000,000	34.4	2.9 %	690
Peru	150,000	6.7	2.2 %	6,660
Philippines	250,000	54.5	0.5 %	2,770

Additionally, mineral production of ASM is contributing significantly to GDP, export volumes and consequently, particularly in case of gold, to foreign exchange earnings of all four countries. At individual level, ASM is attractive for the population, because it provides income opportunities superior to most alternative livelihoods.

For an objective observer it should therefore be surprising that ASM is not occupying a more prominent role in national development agendas and poverty reduction strategies. Even worse, after a short-lived uptake of ASM in poverty reduction strategies following the “Yaoundé Vision Statement” of 2003, recent political trends appear to be adverse to ASM. Beatrice Labonne, a former high ranked UN officer and one of the pioneers in recognizing ASM’s development potential puts this into one sentence when she asks “*Who is afraid of artisanal and small-scale mining?*” (Labonne, 2014).

For people with working experience in the ASM sector this comes as not entirely surprising. Mostly always has ASM been either ignored or marginalized. A new trend is however the increasing “criminalization” of the sector through an enhanced focus on “illegal mining”. The “problems” of ASM have been being researched for almost 5 decades, and many of the challenges, such as environmental and social impacts, limited contribution to government revenues, etc. are inherent to any economic activity in the informal sector. However, serious attempts to integrate ASM into the formal sector are rather isolated cases, and criminalization drives ASM only deeper into illegality working against the development ambitions of nation-states.

The political discourse on “illegal mining”, such as in Ghana and particularly strong in Peru, however cannot simply be ignored. Some aspects of the context are in fact changing. In a global political climate of conflicts, conflict players achieved in a short timeframe what governments failed to

⁷¹ <http://data.worldbank.org/indicator/SP.RUR.TOTL>

⁷² <http://data.worldbank.org/indicator/NY.GDP.PCAP.CD>

accomplish during decades: to capitalize on the opportunities of ASM. Issues like conflict minerals are a topic that surged only approximately a decade ago (after Africa, now also in Latin America). ASM, as the victim, is in the political discourse often portrayed as the victimizer.

Particularly the term “artisanal” is – despite better knowledge – still often used interchangeably with “illegal” and “informal” to refer to all mining activities not carried out by internationally-recognised commercial entities. For the most part, they are denounced either for their detrimental environmental effects, their perceived links to criminal syndicates or for allegedly encouraging social ills such as gambling, alcoholism and prostitution.⁷³ However, this largely negative portrayal overlooks the great diversity, which exists within the sector. Some artisanal miners are undoubtedly irresponsible and uninterested in formalising (as indeed are many medium-scale operations), but equally there are others who comply fully with all local legislation and make use of cleaner technologies, dramatically reducing their environmental impact. Operating somewhere between these two extremes are many miners actively seeking to formalise their operations, but who have not yet proved able to overcome the significant challenges involved. Recognition of this diversity will be a key first step in allowing Governments to develop adequate policies to effectively interact with the sector. (Low, 2012)

But there are also other causes. Technical upscaling of artisanal miners was, during decades, one of the declared objectives of governments and development agencies. Finance for the ASM sector for that purpose was always demanded by miners, but never delivered. The period of rising gold prices of the past decade finally allowed many artisanal operators to invest in mechanization and to up-scale their mines. “Rudimentary manual tools” became replaced by compressors, frontend loader, backhoe excavators, hydraulic dredges, etc. like in the Peruvian Madre de Dios region. New actors entered, seeking quick profits, like Chinese illegal miners in Ghana. ASM definitions started to fail. With the up-scaling of ASM operations, the ecological footprint also increased, when some former ASM operations suddenly converted into mechanized industrial mineral extraction sites. By outgrowing their category, and not conforming with terms of larger scale mining according to the general mining law, some of these mines have in fact become “illegal”.

As (Low, 2012) puts it: At its best, ASM can provide a much needed source of income for impoverished groups in the country, contribute to improved labour conditions and boost local development, all without producing serious negative impacts for the surrounding area. At its worst, artisanal mining - and even more so in the case of illegal medium-scale mining - can cause serious environmental and health problems, without providing much in the way of benefit for the wider community. Between these two extremes, there are many shades of grey and it is these operations, which present the most serious policy challenges.

With most ASM legislations dating back to the period of the 1980s to early 2000s, entire legal frameworks for ASM became outdated and virtually “collapsed” under the gold-rush of the 2000s, when the global number of ASM miners increased from 13 million in 1999 (ILO [N.Jennings], 1999) to currently probably more than 30 million. Under these circumstances, it is even understandable that

⁷³ During more than two decades of work in different ASM countries, the author has observed that such social ills are mostly always more omnipresent in urban areas like Capital cities than in rural ASM villages and communities.

political decision makers started to “panic”, responding e.g. with 29 legal and regulatory decrees in 2012 in Peru. Similar symptoms and trends can be observed in Ghana or in the Philippines. Peru was “piloting” an interdiction approach with 1,500 troops in 2014. Chances that this approach leads to sustainable results are considered minimal. An ASM policy that is measured by numbers of destroyed mining equipment can hardly be seen as a development policy.

Among the four countries compared in this paper, Tanzania appears to be the only country with a relatively “calm” ASM policy, not driven by a battle against illegal mining or by exaggerated government revenue expectations. Instead, the country pursues to improve conditions and livelihoods for small-scale miners, decrease environmental degradation and facilitate peaceful co-existence between Artisanal and Small-scale mining (ASM) and large-scale mining companies (LSM). Revenue from small-scale mining is allegedly not a priority for the Government. Results are visible in a relatively constantly increasing number of PML license holders (Figure 10), reaching over 23,000 licenses for small-scale mining in 2013.

Similarly calm and positively proactive was the Peruvian ASM policy in the early 2000’s, after enactment of the Law 27651. ASM miners’ organizations had lobbied for “their law”, and even substituted in the early years the government’s duty to promote formalization. The process only stalled because of lack of interest of the central government, delegating responsibilities to regional governments without assigning the corresponding resources.

The latter (delegation without adequate resourcing) is however not a particular Peruvian problem. All four countries have opted to decentralize attention to the ASM sector through regional offices. This is a very rational option, as ASM in rural areas cannot be administrated from the central government’s office. Not only that remote oversight over the sector is impossible, also for ASM miners, it is a huge barrier to travel to the Capital for every administrative task. However, it is also reported from all four countries that human and financial resources are inadequate to attend the ASM sector to satisfaction. This might be related with the issue of supposed low government revenues from the ASM sector. In fact, from a perspective of administrative efficiency there is a difference; large taxpayer LSM corporations can be attended with relatively few government officers, while attending the large number of ASM miners, which are marginal taxpayers, requires significant resources. Such departmental budgeting however does not take into account the macroeconomic benefit of ASM, such as employment generation or value generation in benefit of foreign exchange balance.

Relevance of ASM gold mining comes particularly into play in relation to foreign exchange balance and monetary policy in general. For several decades gold was a “tabu” for Central Banks, even Switzerland’s Central Bank sold thousands of tons of gold at the end of the 1990 and in the early 2000s, and most Central Banks of ASM countries stopped the gold buying programs from ASM they had developed in the 1980s. Against that, it is trivial that ASM gold can be bought with national currency and exchanged into foreign currency at any time. Buying ASM gold is for Central Banks virtually printing money; but real money! Not surprising, with a renewed focus on gold as an asset, Central Banks of most countries are reconsidering their position and re-establishing their ASM gold businesses. Even Peru, which had the most liberal internal gold market, reverted to strictly controlled gold trading under trading licenses. Some countries had never ceased to do so, such as Ghana, where

PMMC always bought gold, regardless of legal or informal provenance. Similarly, BSP of the Philippines and the Central Bank of Tanzania have started to intensify their gold buying programs. Key to successful acquisition of ASM gold is a competitive market price. Effectiveness of punitive approaches against “gold smuggling” is very limited. If the price offered is too low, gold is smuggled out, if it is too high, gold will be smuggled in. Both is counterproductive and detrimental. Good estimates of domestic ASM gold production are therefore crucial for pitching the price right.

These conclusions allow for drawing a few but fundamental **recommendations**:

- **The ASM sector is extremely diverse.** Many ASM legislations fail to define their subject appropriately. A national ASM definition needs to reflect the different realities on the ground. Wrong legal ASM definitions lead to “illegal mining”. One single “small-scale” definition can hardly cover the entire spectrum of realities. To capture these different realities, the regulator needs to be in close dialogue with the miners living their reality. This requires a bottom-up approach to define what is legitimately “small”, what is “artisanal” and what is already “medium”. It must also take into account the demographic and economic realities of the artisanal miners to ensure being legal is compatible with the diverse groups’ livelihood situations.
- **ASM operations are governed by clear rules, even where ASM develops in alleged total informality.** The ASM sector in its interior does not “need” laws and regulations to develop; miners have and strictly adhere to their own customary rules. The society needs that ASM integrates into the formal legal system and the formal economy. The closer the formal legal system assembles the pre-existing customary legal system, the more likely is compliance through self-regulation.
- **The ASM sector is in constant evolution.** Successful miners outgrow their segment, new person start to seek a livelihood in mining, rushes occur that attract new groups, disasters may happen, which drive people into mining, etc. All these people need to be accommodated in the formal economy. ASM Formalization is therefore an inherently permanent process and task.
- **New ASM always starts in the informal sector.** ASM does not follow the conventional mining cycle starting with identifying a prospective area, obtaining prospection and exploration licenses, to finally construct a mine and operate it. ASM miners simply find a deposit and start mining it. The sector is extremely competitive: if the one, who discovers a deposit, does not mine it instantly, others will do. Formalization of such “informal” operations is therefore a permanent task, similarly important as negotiating contracts for the LSM sector. There are good reasons, why the Colombian Mining Ministry recently established a Directorate of Formalization, attending ASM, at eye level with the Directorate of Entrepreneurial Mining, attending LSM.
- **Transition between the different strata or categories must be possible.** Artisanal miners may become small-scale and small-scale miners may become industrial medium scale miners. This is only possible if ASM legislation is an integral part of the general mining legislation. For each category, rights and obligations need to be balanced. Transition

between categories needs transition periods to adapt to the next higher category. Even more, downscaling of mining operations should equally be possible. In hard rock mines, ASM often continues for decades after industrial mining has come to an end. Such ASM activities do not necessarily have to start from scratch in the informal sector, if options for smooth transition and handover to formal ASM are provided in the legal framework.

- **At the lowest category, entry barriers need to be eliminated.** Informality has a cost. Miners will only formalize, if being formal provides an advantage, i.e. if the cost of being formal is lower than the cost of being informal.
- **Mining administrations are different to public health administrations that count on an institutional infrastructure to attend hundred thousands of individual people.** Mining administrations are usually designed to deal with a few companies. Formalization of ASM is only reasonably feasible if it addresses the sector at an organized group- or at individual entrepreneurial level. The larger the groups, the easier the task for the mining administration. Incentivising and enabling ASM to organise is therefore a recipe for improved oversight and control, good governance, and greater legality.
- **Organization of the ASM sector is as important as its formalization.** Organization of the ASM sector is important at first level (community) where larger organized groups of miners drastically reduce the administrative burden of formality (both for the Government as for the miners) if local forms of organization are fully integrated. It is also important at second level (regional), where gremial ASM organizations are valuable partners of decentralized administrations for maintaining fluid and meaningful communications with the sector, and at third (national) level, for consensus building on ASM policies.
- **Legitimate Organizations cannot be created top-down, they have to emerge from bottom-up.** In an enabling environment, where organizations (at all levels) perceive support and are given a chance to achieve their goals, such organizations will emerge almost “automatically”. The Government’s role is that of a facilitator.
- **The closer the ASM administration is to the mines, the better the officials know “their miners”, and the less barriers exist for miners to approach “their officer”.** This reduces entry barriers for miners and access barriers for the administration. Decentralization of ASM administration can almost be seen as a “must”. With regards to license areas this poses a challenge: Information on mining licenses must be accessible at all levels simultaneously, to avoid delays and eventual superposition of granted areas to LSM at central level and ASM at local level. Modern mobile broadband, increasingly available in rural areas, contributes to close this gap.
- **Institutional responsibility for ASM must be clearly defined and to some degree segregated from institutional responsibility for LSM.** The Peruvian approach to create a dedicated directorate directly under the Vice-minister is in principle an appropriate approach. Independent agencies are another viable option. Hosting institutional responsibility for ASM in the same department as responsibility for LSM creates always conflicts of interests.

- **Large groups of miners require suitably sized mining areas to sustain production during an extended period.** Too small mining areas cause an ASM sector that is unorganized, temporary, and highly migratory. This generates negative social and environmental, as well as economic consequences. Large areas allow miners' organizations to mature, stability to establish and development to take root.
- **Security of tenure is for ASM as important as it is for large mining corporations.** Without security of tenure, operations will always stay improvised, rudimentary, and precarious in relation to safety and environment. Security of tenure creates property – property creates responsibility! Security of tenure includes transferability of mining areas (to other miners of the same category, in order to avoid abuse)
- **Local artisanal miners are excellent and efficient prospectors.** No geologic survey in the world has a comparable capacity to identify deposits for hundred thousands of possible workplaces in the mining sector. Attempts and efforts to identify and designate reserve areas for ASM are therefore in most cases futile exercises, which may cost millions of taxpayer money. ASM miners are fully qualified to identify deposits suitable to their technological capacity.
- **Many areas of interest for ASM are usually already licensed to larger mining companies for exploration.** Instead of treating ASM miners as invaders, mining companies need to be encouraged to enter into agreements with artisanal miners. This requires an appropriate legal framework for such contracts, based on incentives for the license holder.
- **Regulations and requirements at each level – and particularly at entry level – need to be as simple as possible.** For many ASM miners at entry level the biggest barrier may be literacy or numeracy! Regulations need to be short, straight forward, logical, and understandable. Obligations need to be clear, realistic and enforceable.
- **One of the most important points to consider is however the capacity of the mining administrations themselves.** *“Well intentioned is often the opposite of well done”.* Unprocessed applications, pending administrative processes, administrative delays, as documented not only from the 4 countries covered in this paper but from almost all countries are a clear indicator that the legal and regulatory frameworks are often too demanding for the mining administration itself. If an administration is not in capacity to timely issue 100 licenses of 1 ha, then the legal framework probably needs to promote the issuing of 1 licence of 100 hectares; if miners do not “stay” in reserved areas, then probably the institutional and technical capacity for allocation of appropriate areas was insufficient and the approach of such areas should be abandoned; if EIAs cannot be timely approved, then probably too much information was requested and a standardized Environmental Declaration would do the job; if Central Banks offices do not have the liquidity to buy any amount of gold at the spot, then legal gold trading should be allowed to private traders; etc.

None of these recommendations is something fundamentally new. Further details and recommendations to follow are also contained in previous similar reports (Chapter 7.9). Norman Jennings already wrote in 1999, *“Small-scale mining is bedevilled with too many regulations that are*

mostly designed to constrain it and too few inspectors to ensure that they do.” (ILO [N.Jennings], 1999). Although widely applauded and referred to as key milestone report, not many decision makers seem to have read the report. Any ASM policy and strategy, which reduces barriers for ASM formalization, facilitates compliance by ASM miners, and enables inspectors to comply with their task, will be a step change.

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Annex 1: Summary of findings from similar previous studies

In recent years two major studies on ASM formalization strategies were published, which are similarly based on a comparison of legal frameworks for ASM in different countries and covering artisanal diamond and gold mining. This Annex attempts to summarize their key findings.⁷⁴

Importance of a fiscal and legal regime for ASM

(Hinton & Levin, 2010)

The business case for governments to support formalization of ASM through conducive fiscal, legal, and institutional frameworks is clear: *“Countries that create a legal and economic environment that supports integration of extra-legal enterprises almost invariably prosper more quickly than those that do not. Furthermore, costs of imposing top-down authority over the extra-legal economy are prohibitive, particularly when existing informal systems are viewed as legitimate at the grassroots level”*.

Important lessons can be learned from the experiences of countries such as Brazil, Colombia, **Ghana**, Indonesia, Laos PDR, **Tanzania**, and many more that have, at one time or other, battled and failed to stop illegal ASM at great financial and reputational costs. As demonstrated in the PRADD case study countries, recent approaches *now* recognize the importance of incentive-based legislation and institutional support coupled with practical regulation and enforcement mechanisms.

For *any* business to operate for any length of time, it must generate more profits than the costs of operation. This principle is no different for artisanal miners. The benefits of legal operation *must* be greater than costs of licenses, rents, taxes, and royalties. However, not only must artisanal miners see advantages from operating legally, they must have the *financial, personal, and technical capacity* to fulfill associated bureaucratic and legal obligations.

While tax and non-tax revenues from ASM can provide some motivation to government, it is important to recognize that the primary intent of formalization is to unleash its overall development potential to expand revenue potential from wider economic sources. In the past, many countries (e.g. Brazil, Lao PDR, Ghana) have, via heavy handed regulation and enforcement in the interest of state revenues, led only to further marginalization of ASM, driving miners “deeper into the jungle.” In effect, overzealous attention to state revenue generation alone often results in continued losses in terms of taxes, fees, and royalties and limited improvements to the ASM subsector and its development contributions.

(Hinton & Levin, 2010)

⁷⁴ The commodity specific abbreviations ADM (artisanal diamond mining) and ASGM (artisanal and small-scale gold mining) used in these studies are not maintained in this report. These terms are substituted by the generic term ASM, as the validity of the findings is independent from the commodity.

Critical components of a conducive fiscal and legal regime

(Hinton & Levin, 2010)

The PRADD study (Hinton & Levin, 2010) considers that many countries now seem to recognize the potential fiscal and broader development potential of ASM and have adopted a number of related measures in order to support legalization. Important fiscal provisions that seem to support formalization include:

- (i) **Low-cost licensing of producers as well as buyers/traders.** A number of case study countries investigated by PRADD have instituted low-cost licensing of artisanal miners, which, when combined with other legal and institutional mechanisms, have resulted in comparatively high rates of legality. Guyana has reportedly formalized almost 100% of its sector (in terms of production units), largely due to low-cost licenses for both miners and buyers. Almost 80% of gemstone miners in Sri Lanka operate legally at a fee of only US\$10 per license, which is typically issued within only two to three weeks of application.
- (ii) **Regional harmonization of taxes.** As shown in Mano River countries, harmonizing the export tax can help discourage smuggling. However, it may not discourage illegal mining as informal miners are able to sell to formal miners and dealers.
- (iii) **Payment of royalties and taxes by mineral dealers rather than miners.** Some countries (e.g. Liberia, Ghana, Uganda, CAR) require payment of royalties on production by artisanal miners themselves, adding an additional level of bureaucracy that few miners manage to fulfil. In the Philippines, Sierra Leone and Uganda, the law obligates a dealer (exporter) to pay royalties on production from informal miners before export. In Madagascar, local gold buyers pay royalties based on the purchase price while export taxes are paid by exporters. Although a practical mechanism, low literacy and numeracy levels of both buyers and sellers often prevent declaration of sales.
- (iv) **Other fiscal incentives for legalization and advancement of ASM.** A number of countries have identified other fiscal incentives to promote legalization as well as progressive improvements to the performance of ASM, such as exempting all licensed small scale miners are exempted from payment of taxes and royalties for the first three years of operation (Ghana), establishing a zero import duty is charged for importation of mining equipment (Uganda), or discretionary powers for temporary or one-time waiving of certain types of taxes, typically royalties. A number of governments have instituted financing schemes for ASM with varying results.
- (v) **Returning a portion of revenues to ASM affected communities.** Revenue sharing describes arrangements whereby minerals taxes and other revenues are collected by the central government, with a certain portion of the revenues take being directed back to the areas in which mining occurs. The main instruments are Royalty Sharing for Local Development, and Funding Artisanal Mining Formalization and Development.

(Hinton & Levin, 2010)

The PRADD study (Hinton & Levin, 2010) identified the following key success factors for effective legal and institutional models:

- (i) **The Diversity and Different Categories of Miners.** Different types of miners have different reasons for choosing (or being obliged) to mine legally or illegally. Legal frameworks may require more than one category of ASM license to account for the diversity *and* provide a step-up opportunity as activities become more formal.
- (ii) **Legislate Institutional Mandates.** Many countries outline ambitious and well-crafted policy objectives related to ASM yet do not provide a legal mandate for mining institutions to execute them. ASM support must be formally enshrined in mining authorities' work programs and budgets.
- (iii) **Reconciling International, National, and Local Priorities.** Institution of policy measures without sufficient attention to context and consequence can have negative repercussions, potentially exacerbating poverty and marginalization of ASM and driving the sector deeper underground. Consideration to the impacts at the village level is essential. What is logical for government may not be logical for miners and may actually impede development.
- (iv) **Making Artisanal Mining Laws Realistic to the Existing Structures of Production and Trade.** Various examples point to the importance of formalizing existing structures, rather than attempting to reconfigure artisanal mining into a legal model which may be ideal from a governance perspective, but unachievable for artisanal miners.
- (v) **The Right Institutional Arrangements.** Quasi-independent "authorities" or "commissions" that partially or wholly generate operating funds through their activities are, in principle, more likely to fulfil their functions. However, these typically require well-established revenue generation systems to "get off the ground" and effective means to ensure proper use of funds.
- (vi) **Regional versus Central Management.** Regional management makes sense in large countries especially, or where there is a lot of artisanal mining activity. However, good management can be hindered by a lack of institutional capacity and resources at the local level. Mechanisms which ensure capacity and good governance at this level are therefore important.
- (vii) **Administration, Regulation, and Enforcement.** Offices to manage exports and collect royalties from ASM have helped to formalize the export phase but do not induce the legalization of mining activity. Effective, simple mechanisms to report production and track it through to export are needed to promote official reporting, payment of royalties and taxes, and evaluate the effectiveness of changes to fiscal and legal provisions.

(Hinton & Levin, 2010)

ASM formalization has to be understood as a process

(Barreto, 2012b)

Formalization is a process that seeks to integrate ASM into the formal economy. This process includes the development or adaptation of mining (and other) laws or policies to address the challenges of ASM. A well-designed formalization process generates the enabling conditions for accountability within the sector so that it can ultimately be integrated into the formal economy.

Formalization can only be successfully achieved if programmes and public policy deal with the different dimensions of ASM activities simultaneously and in an integrated way. Legalization is just one dimension of the process of formalization. (Barreto, 2012b)

Key strategies and approaches in developing mining titles and related obligations

(Barreto, 2012b)

In designing mining titles, it is important to consider how to:

- **Balance** rights and responsibilities in mining titles according to the size of the operation and its classification;
- **Adjust** mining title regimes to fit ASM conditions and not just medium and large-scale operations;
- **Attribute** mining titles with a specific area to the title holder, as opposed to a generalized right to operate;
- **Avoid** designating broader reserve areas for community mining (costs related to geological exploration that are necessary to ensure adequacy of the deposit area are too burdensome for governments);
- **Simplify** licensing procedures and keep cost to comply low for ASM operations.

Considerations for Designing Mining Titles or Licences for ASM

(Barreto, 2012b)

- **Criteria for defining ASM:** The recommendation is to establish two main criteria in order for a mining project to be entitled to an artisanal or small-scale mining title, including: (i) maximum area that may be covered and (ii) maximum extraction capacity. Sometimes other criteria are also applied, such as the maximum amount that can be invested and the technology that is permitted, but these can impose counterproductive restrictions.
- **Duration and renewal of the title:** Licences that have a long duration help ensure stability of the mining because they allow miners to operate with a longer term perspective in mind – promoting a willingness to invest in the mining operation and improving options to access to credit. This can be used as an incentive by government in its function to promote best practices in extraction of mineral resources. In addition, facilitated renewal of mining titles allows mining operators to invest and continue work in an area until the deposits “ends”.
- **Transfer and upgrade of titles:** The ability to transfer mining rights and upgrade mining titles provides necessary business flexibility to miners and again can be applied as an incentive by government in its function to promote best practices in extraction of mineral resources.
- **Types of entities allowed to operate under an ASM mining title:** Titles or licences should allow artisanal and small-scale miners to be organized into cooperatives and other legal entities. Organized operations have broader capacity to support social and economic benefits for the miners and the community. Whereas ASM activities conducted by individuals

generally only provide subsistence income. As a result, Governments may wish to promote organized cooperatives and other legal entities through the title and licencing system, where appropriate and relevant.

- **Environmental considerations:** Obtaining an environmental licence is generally part of the process of obtaining a mining title for ASM. Environmental licences should aim to create the enabling conditions for both environmental protection and economic development of the ASM sector:
 - Environmental licences for ASM should build, to the extent possible, on established environmental legislation and policy instruments. In many cases, licences may need to be adapted to the unique conditions of ASM.
 - Evaluation of the impacts of ASM and specific guidelines for addressing the impacts should be required for all categories of ASM. Given that this is not practical or efficient for individual small-scale miners, the local authority should develop a simple process for the evaluation of environmental impacts and a management plan for the designated ASM mining and processing area, given that it is to deliver these independently.
 - Environmental requirements should be simplified to the extent possible (e.g., Environmental Impact Assessments and management plans based on the size of the operation) without reducing the quality of environmental management.
- **Safety:** Safety considerations are usually described in a general law. It is, however, recommended to design specific safety regulations for ASM.

In (Barreto, 2011), specific recommendations are provided:

- **Considerations for ASM mining titles**
 - 1) The objective of an ASM definition in public policy is to be able to identify and distinguish it from other mining activities.
 - 2) Any general definition should proceed to a specific categorization of ASM activities.
 - 3) It is important that the definition does not create any obstacle to the evolution and progress of the activity, which means words like “illegal”, “primitive”, or “rudimentary” should be avoided.
 - 4) Different mining titles for different categories of ASM allows for simplification of the administrative and technical procedures.
 - 5) Within each category there should be one mining title for all phases of the mining cycle.
 - 6) Commercialization and processing licences should only be required in cases where these are independent businesses from the extraction mining activities.
 - 7) Title holders are the ones ultimately responsible for the mining activities in the area. The people (e.g., labourers, operators, manager, etc.) that work in the mining title area should have contractual relationships with the holder of the title.
- **Considerations for mining title areas**
 - 1) The definition of size of mining area should be treated as an instrument of public policy that can have positive or negative economic impacts on the operations, on the stability of the people that work in the operations, and on the social fabric of the local community

- 2) The size of the mining area may be defined based on the categories of the mining titles, type of deposits, data about ASM operation in the country, and other land use factors
 - 3) Opportunity for renewal of the title is very important for mining operations because it allows them to invest and continue work until the deposit is exhausted and for the government in its function of promoting the best practices in extraction of mineral resources
 - 4) Reserves or dedicated areas for ASM in most cases are generally difficult to implement because they can be costly and demanding for governments to enforce
 - 5) In cases where this concept is used, incorporating the knowledge of the ASM sector to help in the demarcation is essential
 - 6) This approach may prove effective to implement and enforce in communities that have special territorial rights (e.g., indigenous communities). Participation of the community in the demarcation of the area is essential, as is the concept of exclusivity for ASM to operate in the area
- **Considerations for rights associated with mining title**
 - 1) Restricting ASM mining titles to nationals may be important to fully realize the role of the sector in poverty alleviation
 - 2) Diverse forms of business entities could be allowed to be holders of artisanal and small scale mining titles
 - 3) Association promotes a formalized and entrepreneurial sector and should be encouraged with clear concrete measures: economic incentives, simplified legal requirements for associations and partnerships, and allowing different business models (e.g., consortium, joint venture, and old concepts like the “comandita” company)
 - 4) Allow the transfer and upgrade of mining titles through the regulatory framework with the objective of creating the legal conditions for better management of mining operations
 - **Considerations for environmental licences**
 - 1) It is crucial to have a specific environmental regulatory framework for ASM
 - 2) This specific framework aims to create the conditions for both environmental protection and economic development of the sector
 - 3) Evaluation of the environmental impacts and specific guidelines for addressing them should be required for all categories of ASM
 - 4) The environmental instruments such as EIA, management plans, and requirements for attribution of environmental licences should take into consideration the negative impacts that different sizes of the mining project generate
 - 5) Simplification of environmental requirements (e.g., one title that includes the environmental licence and management plan), without reducing the environmental controls, is valuable for the mining operations but also for the government in dealing with its capacity to meet regulatory demands

Common Pollution Control, Bans, Restriction and Safety Measures in ASM

(Barreto, 2012b)

- **Restriction of mining in river-beds and environmentally sensitive areas:** Specific mining and environmental regulation, and where appropriate restriction, should apply to small-scale

mining in river beds and environmentally sensitive areas to prevent and minimize the environmental impacts.

- **Restrictions on technology use:** Any legal ban or restriction on the use of technology, methods or processes should be evaluated carefully in terms of the impacts of such restrictions on the sector, including the cost of monitoring and enforcement and likely effectiveness of such a ban/restriction.
- (ii) Any ban/restriction should be accompanied by accessible alternatives in terms of the performance, cost, availability, and technical complexity in use. Alternatives should likewise be supported through subsidies, promotion, or other means to facilitate the migration of miners to the alternatives.
- (iii) Measures to eliminate the practice of whole ore amalgamation (which is widely considered to be one of the worst practices to extract gold given its significant use of mercury) should be incorporated into regulatory guidelines.
- **Mercury and cyanide environmental emissions and contamination limits:** Knowledge of the use of mercury and cyanide, and other toxic substances should be incorporated into regulatory guidelines applied to ASM.
- **Explosives:** The regulatory framework should clearly address the requirements for buying, using, and storing explosives in the context of ASM. Capacity building in explosives use and storage

In (Barreto, 2011), specific recommendations are provided:

- **Considerations for pollution control**
 - 1) Limitation of technical capacities of the ASM operations suggests that environmental regulation should be prescriptive and descriptive; a combination of legal instrument, guidelines, and educational material
 - 2) Knowledge of the use of mercury and cyanide should be incorporated into regulatory guidelines applied to the ASM context
 - 3) Specific mining and environmental framework should apply for ASM mining in river beds to prevent and minimize the environmental impacts that today are a reality in these very important ecosystems
 - 4) Further research should be done to identify the best way to address this reality in legal terms
 - 5) The regulatory framework should clearly address the requirements for buying, using, and storing explosives in the context of ASM
 - 6) Capacity building in explosives use and storage (including construction for storage) is very important and should be adapted to the reality of ASM
 - 7) Consultation and mining closure are relatively new areas for the mining sector but should be part of the legal framework of the ASM sector in accordance with ASM reality
 - 8) Comprehensive regulatory guidelines should be provided in these two areas based on different categories of mining titles
 - 9) Corporate social responsibility (CSR) is a reality in some segments of the ASM and ASM public policy should address this
 - 10) CSR research should address the particular socio-economic situation of the sector and the relationship between this sector and the surrounding communities

- 11) Any legal restriction on the use of technology, methods, or processes should be evaluated carefully in terms of impacts of such restrictions in the sector
- 12) Any restriction should be accompanied by accessible alternatives in terms of the performance, cost, availability, and technical complexity in use

Considerations for Institutional Aspects of Formalizing ASM

(Barreto, 2012b)

- **Responsibility:** Formalizing ASM is a shared responsibility between various stakeholders that needs to be adapted to the national context. It requires the designation of responsibility, the integration of policies and strong coordination between institutions and other stakeholders. Miner's associations, large-scale mining representatives and academia should all be positively engaged if formalization is to be successful.
- **Financing:** The earliest phases of financing are likely to be sourced from public budgets at the national level.
- **Revenue generation:** Taxation schemes for ASM need to take into consideration the actual economic capacity of the mining operation to pay the taxes in setting the tax rates.
- **Monitoring and Enforcement:** Monitoring and enforcement is an important responsibility of the government in order to ensure that mining operations are abiding by environmental or social requirements. (including safe storage) is very important and should be adapted for ASM.

In (Barreto, 2011), specific recommendations are provided:

- **Considerations for the role of government institutions and decentralization**
 - 1) Consider engaging a parliamentary mining commission on ASM public policy
 - 2) The results of implementation of the public policy should be monitored. Consider creating a multistakeholder forum at the parliamentary level to address it
 - 3) The situation of decentralization and capacity of the government institutions needs to be addressed with a clear strategy, this may include:
 - a) Multidimensional programs of capacity building for the government related to the ASM sector
 - b) Participation of the miners' organizations and other stakeholders in development of policies or regulatory frameworks
 - c) Development of "smart regulations" in the sense that they do not constitute an administrative burden for the government institutions (e.g., in attribution of licences or titles; create simple but efficient, integrated and decentralized licensing systems)
 - d) Where possible a command and control approach (such as licensing system or enforcement system) should be substituted by economic instruments and community management approaches
 - e) Decentralization of the resources in terms of personal and financial resources. Economic incentives may be put in place to attract professionals to work with ASM at local and provincial levels
 - f) Use royalties, fees, and penalties to create an ASM fund for use in ASM government programs
 - 4) Consider promoting Extractive Industries Transparency Initiative (EITI) adapted to ASM reality taking into consideration the priorities of the sector

- **Considerations for the role of miners' organizations, the academy, and research centres**
 - 1) The legal framework and other programs such as credit can play a role in changing socio-economic structures and relations and in creating the conditions for establishing healthy and fair economic relations between the different actors throughout the gold chain of custody
 - 2) It is valuable to understand better the role of public policy in promoting a diverse ASM sector and in establishing healthy and fair economic relations among different actors
 - 3) The participation of the miners' organizations in the elaboration of the regulatory frameworks and national ASM policies or programs is essential in terms of developing successful and realistic public policy
 - 4) Nevertheless, it is also important that all categories are represented along with the different strata in each group where they exist
 - 5) Organizations that protect interests are obviously voluntary but can be promoted through "bottom-up" projects or initiatives, such as some of the ethical certification initiatives
 - 6) Incentivize universities to incorporate ASM into the curricula of programs of mining engineering, geology, geosciences, law, sociology and anthropology, business, etc.
 - 7) Promote mining research centres to create long-term ASM interdisciplinary research programs with the objective of generating information and knowledge but also to develop capacity building
 - 8) Create incentives for dedicated interdisciplinary capacity building centres to support the ASM sector and legal clinics to help ASM to face its challenges. These centres and clinics should be located close to the main areas of ASM activity. Long term financial support is crucial in these cases
- **Considerations for the development of a fiscal regime (including taxes, royalties, and fees)**
 - 1) ASM is an undercapitalized sector
 - 2) Miners tend to have little access to capital
 - 3) Taxation of companies/legal business entities is different than taxation of workers
 - 4) ASM needs a different fiscal regime than medium or large-scale mining
 - 5) Different categories of ASM (beyond the traditional small and artisanal scale) will allow for the creation of a framework that addresses the particular economic realities of various mining operations
 - 6) All mining categories need to pay taxes, even if they are nominal
 - 7) Different fiscal models can work for ASM but all models should take into consideration the economic reality of the mining operation
 - 8) Coordination between different government agencies should be achieved with the objective of having a balance in terms of cumulative fees applied for different administrative requirements
 - 9) Stability of the fiscal regime is important for ASM as much as for medium and large-scale mining
 - 10) Regional harmonization of fiscal regimes should be considered as one means to prevent smuggling
 - 11) More information and assessment should be provided to policy makers regarding the impact of fiscal regimes in the ASM sector
- **Considerations for selling requirements and aggregate value for ASM:**
 - 1) Promotion of direct mineral sales by the mining licensees

- 2) Add the right to sell minerals to the mining licence
- 3) In the case of buyers that do not have mining titles (e.g., dealers) simplify the requirements to obtain licences for selling
- 4) Decentralize ability to attribute licenses
- 5) Simplify requirements for gold evaluation certified by the assay office
- 6) Consider harmonizing requirements with bordering countries
- 7) Some of the best ways to avoid smuggling through the use of economic incentives:
 - Use secure and financially sensible banking and market solutions rather than policing ones (be creative in this and the gold will pay for the potential additional costs)
 - Buy with a better price (central banks may pay for the gold at the international price or a little more if the objective is to channel the gold through central or national banks)
- 8) Adding value to the minerals is not an easy task in developing countries because it depends on the existence and size of a national market as well as cultural aspects in foreign markets. Clear policy based on economic incentives should incorporate these issues
- 9) Royalties are not an appropriate tax as they should only be applied in the production phase prior to value-added activities