

# 2008 Regional Workshop: Small-scale Mining in Africa - A Case for Sustainable Livelihood



Common Fund for Commodities



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Left: A woman sorts copper tailings. At its height, this ASM site employed over 5,000 people and injected US\$240,000 per week into the local economy.



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## Acronyms

- |  |  |
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| <p>8 <b>Women, Gender and ASM</b> 61</p> <p>Women in the ASM workforce in Africa 61</p> <p>Roles for women in ASM 62</p> <p>Gender discrimination in ASM 62</p> <p>Risks for women in ASM 62</p> <p>Implications for children 63</p> <p>Opportunities for women in ASM 63</p> <p>Gender sensitive approaches 64</p> <p>Women's ASM associations 64</p> <p>9 <b>Alternative Livelihoods and Diversification</b> 65</p> <p>Sustainability 65</p> <p>Constraints and barriers to exit 66</p> <p>Opportunities within the LSM sector 67</p> <p>Challenges in depending on LSM-based alternatives 67</p> <p>ASM, agriculture and food security 67</p> <p>ASM and enterprise development 68</p> <p>10 <b>Designing ASM Interventions</b> 69</p> <p>Pre-planning ASM interventions 69</p> <p>Project planning 70</p> <p>Conflict sensitive approaches 71</p> <p>Tools &amp; resources 71</p> <p>11 <b>Recommendations</b> 73</p> <p>General ASM recommendations 73</p> <p>ASM and the CFC 73</p> <p>Timelines 80</p> <p>12 <b>Appendix A: ASM Statistics for Africa</b> 81</p> <p>Limitations &amp; assumptions 81</p> <p>13 <b>Appendix B: ASM Related Alliances and Initiatives</b> 96</p> <p>14 <b>Appendix C: Bibliography</b> 103</p> <p>15. <b>Data sources for Apendix A &amp; B</b> 107</p> | <p>ADC African Diamond Council</p> <p>ADPA African Diamond Producers Association</p> <p>AfDB African Development Bank</p> <p>AMP African Mining Partnership</p> <p>ARM Association for Responsible Mining</p> <p>ASM Artisanal and small-scale mining</p> <p>AU African Union</p> <p>AUC African Union Commission</p> <p>AZWIM Association of Zambian Women in Mining</p> <p>BRIC Brazil, Russia, India and China</p> <p>CADETAF Figui and Development Central Merchandizing of the Area of Tafilalet</p> <p>CAF Country Assistance Frameworks</p> <p>CAFOD Catholic Agency for Overseas Development</p> <p>CAR Central African Republic</p> <p>CASM Communities and Small-scale Mining</p> <p>CFC Common Fund for Commodities</p> <p>COMESA Common Market for Eastern and Southern Africa</p> <p>CRJP Council for Responsible Jewellery Practices</p> <p>CSR Corporate Social Responsibility</p> <p>CTC Certified Trading Chains</p> <p>CTC Certified Trading Chain</p> <p>DACDF Diamond Area Community Development Fund</p> <p>DDI Diamond Development Initiative</p> <p>DFID UK Department for International Development</p> <p>DRC Democratic Republic of Congo</p> <p>EIA Environmental Impact Assessment</p> <p>EITI Extractive Industries Transparency Initiative</p> <p>ERSMA Erongo Region Small Miners Association</p> <p>ESMAP Energy Sector Management Assistance Program</p> <p>ESMAZ Emerald and Semi-Precious Stones Association of Zambia</p> <p>FEDEMA Federation of Mining Associations of Tanzania</p> <p>FLO Fairtrade Labelling Organisations International</p> <p>GDP Gross Domestic Product</p> <p>GDP Gross Domestic Product</p> <p>GRI Global Reporting Initiative</p> <p>HIMO <i>Haute Intensité de Main-d'Oeuvre</i> (High Intensity Manual Labour)</p> <p>ICB International Commodity Body</p> <p>ICMM International Council on Mining &amp; Metals</p> <p>ICSG International Copper Study Group</p> |
|--|--|

ICT	Information & Communication Technologies	UNCSD	United Nations Commission on Sustainable Development
IFC	International Finance Corporation	UNCTAD	United Nations Conference on Trade and Development
IFI	International Financial Institution		
IGM	Gemology Institute of Madagascar	UNDESA	United Nations Department for Economic and Social Affairs
IIED	International Institute for Environment and Development	UNDP	United Nations Development Program
ILO	International Labor Organization	UNECA	United Nations Economic Commission for Africa
ILZSG	International Lead and Zinc Study Group		
INGO	Non-Governmental Organization	UNED	United Nations Conference on Environment & Development
INSG	International Nickel Study Group	UNIDO	United Nations Industrial Development Organization
IPEC	International Programme on the Elimination of Child Labour		
ISEAL	International Social & Environmental Accreditation & Labelling Alliance	USAID	United States Agency for International Development
JV	Joint Venture	USEPA	U.S. Environmental Protection Agency
KPCS	Kimberley Process Certification Scheme	VAT	Value-Added Tax
LSM	Large Scale Mining	VCT	Voluntary Counselling & Testing
MCDP	Mwadui Community Diamond Partnership	WBCSD	World Business Council on Sustainable Development
MDG	Millennium Development Goals		
MMR	Ministry of Mineral Resources	WTO	World Trade Organisation
MRGP	Mineral Resource Governance Project		
NCOM	National Coalition on Mining		
NEPAD	New Partnership for Africa's Development		
NGO	Non Governmental Organization		
OAU	Organisation for Africa Unity		
PAC	Partnership Africa Canada		
PDA	Peace Diamond Alliance		
PISA	Participatory Information Systems Appraisal		
PRA	Participatory Rural Appraisal		
PRSP	Poverty Reduction Strategic Plan / Strategy Paper		
SA	South Africa		
SADC	Southern African Development Community		
SAESSCAM	<i>Service d'Assistance et Encadrement d'Artisan et Small-scale Mining</i> (ASM Agency of DRC Government)		
SAWIMA	South African Women in Mining Association		
SGBV	Sexual and Gender-Based Violence		
SMME	Small, Micro or Medium Enterprise		
SOE	State-owned enterprise		
SSM	Small-scale mining or miners		
SSMAZ	Small-Scale Miners' Association of Zimbabwe		
TAWOMA	Tanzania Women Miners Association		
UN	United Nations		
UNCRC	United Nations Charter on the Rights of the Child		

## Foreword

Artisanal and small-scale mining takes place throughout the world, but is particularly widespread in developing countries in Africa, Asia, Oceania, and Central and South America. In Africa alone, nearly 9 million people depend on artisanal and small-scale mining, who, with their dependents, account for nearly 8% of the population of the continent.

The Millennium Development Goal (MDG) of halving world poverty is at its mid-point of reaching its target year of 2015 and it appears that a breakthrough is required on three integrally interlinked pillars – aid, debt and trade. Among the challenges relevant to most African mineral-producing countries in this context is ensuring that mineral wealth serves as an engine of growth and poverty reduction. The need for a more society oriented development strategy resonates well with the growing pressure exerted by civil society and other stakeholders on the minerals industry for an equitable share of benefits and maximisation of local impacts for sustainable development that could result in integrated development and increased social well being, livelihood security, and reduced vulnerability of local communities.

Small-scale mining in Africa, in particular, is plagued with many problems including inadequate legal and regulatory framework, low productivity, application of rudimentary and inappropriate technology. The industry is also faced with problems such as isolation from the mainstream of economic development, adverse environmental effects, health and occupational hazards. The Yaounde Vision adopted in Cameroon, in November 2002, under the theme “Artisanal and Small-scale Mining in Africa: Identifying Best Practices and Building Sustainable Livelihoods of Communities” recommends that artisanal and small-scale miners should be integrated in the Poverty Reduction Strategy Papers (PRSPs) of African governments and identifies the goals, challenges facing Artisanal and Small-Scale Mining (ASM) sub-sector and actionable measures to be supported by national governments and development partners.

As part of the implementation of the Arusha Plan of Action on African Commodities, the Global Initiative on Commodities and to advance the contribution of ASM sector to the development agenda of the MDGs, the CFC has chosen the issue of Artisanal and Small-scale Mining as the feature of the 2008 Commodities Issues Series study. This follows the CFC workshop on “Mining Development and Investment Policy for Base Metals in Southern Africa” held in Namibia in May 2007. African governments continue to face considerable challenges in designing their mining policies so that the mineral wealth of the countries concerned could serve the objectives of poverty alleviation and improved livelihoods of artisanal mining communities. A people-focused, multi-disciplinary and holistic approach is required which is based on the recognition that ASM is essentially a finite and poverty-driven activity.

This study addresses the problem by looking at the interaction of the complex network of issues affecting the ASM sector and its contribution to poverty alleviation. This includes the subjects of government policies and regulations, issues of international trade and competitiveness, certification, regional cooperation, gender balance, alternative livelihoods and diversification. In conclusion, the study attempts to present a consistent framework for effective development interventions in the ASM sector on both national and regional scale.

We hope that the study will help the Members of the Fund as well as the international development community in making ASM sector development an integral part of the poverty alleviation and sustainable development framework in commodity dependent developing countries.

The Common Fund for Commodities, as a commodity focused international organization dedicated to assisting commodity producers to improve their productivity, product quality and livelihoods, took the initiative to organize a Regional Workshop on Artisanal and Small-Scale Mining and to identify support measures in line with the Yaounde Vision.

The immediate objectives of the Workshop are:-

- 1) To examine the priority needs of ASMs in Africa and to prioritize them;
  - 2) To identify support measures that are of priority interest for specific countries and to develop pilot projects for CFC support; and
  - 3) To raise awareness of the needs of ASMs in Africa through advocacy work and to promote linkages of the sub-sector to development strategies; particularly to poverty reduction and sustainable development.
- We are confident that the background study would provide useful material for the participants to reach conclusions that could be the basis for concrete action in the sub-sector.



Amb. Ali Mchumo  
Managing Director



## Executive Summary

Artisanal and small-scale mining (ASM) directly employs some nine million people in Africa on a full-time, seasonal or occasional basis, and occurs in most countries on the continent. The income the miners generate, whether ASM is their sole or supplementary source, provides the livelihood for perhaps 50 million people. The economic impact on the wider, trading community and the national economy may be profound with, in some cases, a significant proportion of national mining production coming from ASM sources. It is difficult to obtain accurate information on exact ASM numbers given that it is informal or illegal in nature, and it shifts temporally and geographically, but all indications are that, with high commodity prices, high unemployment and poverty, this is a growing phenomenon in Africa.

Artisanal mining typically uses manual labour, simple tools, and basic recovery and processing techniques. Small-scale mining is also labour-intensive but also employs a higher level of mechanisation and more sophisticated processes. Minerals mined by ASM include precious metals and stones, industrial minerals, construction materials and consumables such as salt. ASM is fraught with dangerous practices with little regard for health and safety, and is also characterised by illegal practices such as the use of child labour.

ASM is frequently migratory as miners move from site to site in search of minerals. The rate at which they move, and the geographic area within which they travel, are functions of a combination of practical, economic and social factors including the life of the mine; the lure of high value mineral strikes in other areas which create a 'rush' to that site; relocation by traders; pressure from conflicts; exclusion from a site by new restrictions such as the arrival of a large-scale mining company; rain and the availability of water; environmental shocks; and the agricultural season. In some cases, ASM is more sedentary, particularly where the ratio of miners to resources is such that a lower rate of extraction can be maintained for a longer period of time.

ASM can have significant negative social impacts as a sudden influx of miners to an area can cause overcrowding, contamination, and consumption of the area's water and other resources, as well as introducing or escalating alcohol abuse and sex-trading. ASM can change an area's economic profile drama-

tically, bringing new revenue sources, stimulating trade, and creating access to new goods and services, but often at the expense of traditional income sources and with associated inflation.

There is also a relationship between ASM and conflict at multiple levels, from the use of ASM production as a means to fuel wars through to local level conflicts on mining concessions. Whilst relations between ASM and LSM are often conflictual, they can also be positive, particularly if a company is prepared to try to find ways to cohabit.

ASM often has serious environmental impacts such as physical, chemical and organic pollution of water sources and courses; damage to the landscape which is rarely rehabilitated when the mine closes; deforestation; hunting; and the creation of public health hazards through poor sanitation. ASM activity for gold often releases mercury into the environment with serious impacts on health, water, crops and animals. ASM can damage an area's viability and compromise the resident community's original or future livelihoods.

Much ASM is driven by poverty and is the only means of survival in the face of conflicts, economic collapse, large-scale retrenchments and environmental crises or degradation. The majority of artisanal miners live on an income around, or barely above, one dollar per day. However this income also assists in alleviating poverty and can be a critically important sole or supplementary source of income. Some ASM is the work of tradition and choice of communities and ASM areas can be economically vibrant, albeit short-lived. ASM can also contribute to the perpetuation of poverty as it attracts people away from other more sustainable livelihoods; can compromise the levels of education and skills for employment of young people; creates debt which can trap people in ASM; has little culture of savings; and inefficiently uses non-renewable resources with little revenue going to the state or being used for social investment.

Government commitment, capacity and resources to address the challenges of ASM vary across the continent. Government has a pivotal role to play in defining the policy and legal framework, incentives, and processes which determine if ASM is carried out informally or if it can become more integrated into the mainstream economy. Mining legislation and

regulations are often more focussed on large-scale mining (LSM) rather than on the needs and potential of ASM, however there are examples of governments addressing this, including the creation of dedicated services to assist ASM operations. Access and rights to land, including tenure and transferability of ASM mining titles, are critical issues particularly as investment in Africa by LSM companies expands and ASM is excluded from traditional sites when they are transformed into LSM concessions. Taxation on ASM is often carried out informally and capriciously due to lack of capacity; inadequate systems; lack of knowledge of the legal tax regime; the remoteness of sites; and opportunism by other actors. Thus, the potential return to the state is often lost. Local government can have an important role to play in ASM regulation, taxation, assistance and socio-economic improvement.

ASM can be inefficient and compromised in terms of the contribution it can make to livelihoods if it lacks appropriate technical, financial and market resources. Introducing new technologies to ASM can improve the recovery and processing of materials, however such interventions can only be successful if they are developed and adapted in close consultation with the user community; if they are simple and cost effective to introduce, maintain and replicate; if they generate rapid, tangible benefits; and if they are based within the realities of the market, and the context and constraints of the ASM environment. Access to finance is another important issue if ASM is to become more formalised, however ASM operations rarely have the profile which inspires the confidence of creditors. Therefore, dedicated and alternative mechanisms must be explored that can provide financial and technical services, build capacity, and strengthen the ASM sector.

Trading relationships in ASM can be complex. Often a purchaser also fulfils the role of creditor and may have a degree of control over the workers through remoteness, indebtedness or threat. Alternatively, the purchase may be the preferred trader based on loyalty and a value-adding relationship. Some interventions seek to remove the middle-men and traders from the ASM supply chain in order to improve the return to the miners, however caution is required as supply chains such as these have evolved to operate within their context and attempting to change them may have uninten-

ded negative consequences; may be resisted; or the change may be unsustainable. A weakness in ASM is the lack of organisation within the sector. Formalisation of ASM could improve representation to government and the market; strengthen price bargaining; allow pooling of resources for credit and development; and help to achieve economies of scale. Co-operative structures have had limited success within ASM in Africa as profit-sharing is not popular in the extraction of precious metals and stones, however where associations are established for legal compliance and to improve access to other resources, they may have greater impact. Interventions which improve product valuation skills and knowledge, marketing skills and access to new markets through technology, ASM bourses, auctions, etc, can also improve ASM as a livelihood.

Certification of ASM products is still in its infancy therefore there has been little assessment of impact, however lessons can be drawn from other sectors and commodities. Certification may have a role to play but consideration must be given to the need, feasibility, criteria, processes, constituency, value and potential for expansion. Standards for gold and diamonds have already been developed and efforts are underway to establish a mine-to-market system for industrial ASM minerals. However there is little evidence yet of ASM certification generating a premium other than in jewellery where an emotional connection can be made.

Women constitute perhaps 40-50% of the ASM workforce in Africa, fulfilling roles in all aspects of mining, processing, transporting, trading and service provision to the mines. Women are often subject to gender discrimination in terms of access to the resources; ownership and tenure; types of work undertaken; and pay received. They also face elevated risks in terms of health and security and, if they have to bring children to the mines with them, the children too face physical, moral and psychological risks as well as potentially being excluded from education. Women have aptitudes and potential which make them a good focus for interventions to improve ASM livelihoods, with a related positive impact for their children and households.

In finding solutions to ASM it is essential to recognise that there is not just one single correct approach, but rather a wide range of interventions

which can suit different situations. The starting point for any intervention is to decide if the objective is to strengthen ASM's potential as a livelihood; or to find ways to assist ASM workers in a process of transition to alternatives; or both. Whichever route is chosen, both require appropriate legislation - which is disseminated and enforced - to achieve their goal.

Strengthening ASM as a livelihood can include improving organisation; access to finance and resources; skills and business development; improved technologies; and assisting access to markets. It is essential to understand the context, the community, the constraints, and to create linkages to other initiatives that can contribute to the enabling environment, success and sustainability of the project. The Common Fund for Commodities' (CFC) emphasis on interventions based on commodities, markets, economic viability, improved processes and technology has much to contribute to ASM policy and practice in relation to improving its livelihood potential.

ASM is an inherently unsustainable activity as it involves the extraction of non-renewable resources. Therefore, even if ASM plays an important role in contributing to livelihoods in Africa today, this potential will eventually reduce over time as resources become increasingly scarce and increased mechanisation is required to access deeper and lower grade minerals. Transition to alternative livelihoods may be difficult, however, as these alternatives have to provide an attractive and competitive income; transition takes time with no guarantees of success; ASM workers often lack skills outside of ASM; and miners may be indebted or even addicted to ASM. LSM can create economic opportunities for ASM communities through sub-contracting or purchasing; creation of employment; stimulating supplier businesses; and by supporting transition to alternatives. The CFC's experience in income diversification and generation of markets can bring great value to ASM transition efforts.

Comprehensive recommendations have been made in many ASM reports from a wide variety of sources. There is much agreement on what needs to be done and many examples and lessons learned which can inform and refine the recommendations. However, the challenge lies in having enough of the right actors, working within their area of competence, in co-ordination with all others and at a sufficient

scale, to have an impact.

There is a wide range of forums, instruments, alliances, toolkits and potential partners already in existence which have roles, commitments and goals in relation to ASM. These are detailed throughout the report to assist the CFC in reflecting on the appropriate points of entry, potential partnerships and interventions which would best suit the CFC's competences, resources and objectives.

The report uses exclusively African examples. Whilst this limits the scope of examples that can be presented, it serves to keep the material focussed on what has been learned from the successes and failures experienced within the African context.



# 1. Overview of Artisanal and Small-scale Mining in Africa

## Introduction

Artisanal and small-scale mining (ASM) is one of the most important livelihood activities in Africa. There are estimated to be perhaps 9 million people directly engaged in ASM activities across 45 countries of the continent. With their dependents, allowing five family members per miner, they may number over 54 million and account for almost 6% of the population of Africa.

Despite the actual and potential economic value of this livelihood, those occupied in the ASM extraction and processing of minerals are amongst the poorest and most marginalised members of society. The trade is fraught with dangerous and illegal practices, and, in conflict and post-conflict countries, it can have serious implications for security. It can create localised and far-reaching social risks, and typically exploits highly vulnerable individuals and groups.

Finding a way to redress the imbalance between the economic value and livelihood potential of ASM and the often grim realities of life in the mines, the camps, on the trade routes, and in depots, is critical. ASM has a potentially significant role to play in efficient resource extraction and economic development in Africa if policies and investments aimed at ASM formalisation, strengthening and transition can genuinely be translated into practices that deliver

improvements in people's lives, security, income, and future prospects.

## Technical features of ASM in Africa

Artisanal mining (AM) is characterised by the use of manual labour to extract minerals from open pit, underground or riverine sources. Typically, few if any health and safety standards are in place and mine planning and management practices are rudimentary at best. The mines are frequently under the control of a local traditional authority, a minerals trader (or group), or, in some cases, military or militia personnel. Land may be ceded to artisanal miners by governments but this is relatively rare. Where AM is legal, licences are usually restricted to national citizens.

Small-scale mining (SSM) is defined by a range of different criteria but basically involves a degree of mechanised recovery of material from a mine which is, in size and value, between that of an artisanal mine and an industrial mine. The criteria used to define a SSM in various mining legislative documents include factors such as: size of the claim, the nature of the mine, quantity of reserves, number of people employed, level of capital investment required, and volume of sales. For example, in Ghana, Zambia, and Zimbabwe, the criteria for defining SSM is based on concession area; in Senegal, and Ethiopia, it is based on depth of working; in South Africa and Zimbabwe, it is based on capital investment; in Senegal, it is also



## Chapter Summary:

It is estimated that there may be 9 million people in Africa who work fulltime or occasionally in Artisanal & Small-scale Mining (ASM). In some countries, the artisanal miners and their dependents constitute a significant proportion of the population. Artisanal mining is characterised by manual labour using simple tools and it is often carried out illegally or informally. Small-scale mining use some mechanisation. ASM may be seasonal and migratory and may cause negative health, environmental and social impacts on non-mining communities. ASM is of potentially significant economic value but often this is not realised or it is wasted. ASM is often associated with conflicts at concession, local, regional, national or even international level.

Left: A gold mine where the entry fee to be permitted to work is \$200.

based on crude production levels; in Ghana, a criterion is the use of explosives.<sup>i</sup>

For purposes of this report, the generic term Artisanal & Small-scale Mining is used throughout unless otherwise specified.

A huge variety of minerals are mined on an ASM basis in Africa including gold; precious stones such as diamonds, emeralds, sapphires and tanzanite; semi-precious stones including tourmaline, amethyst and garnet; and industrial, base and specialist metals including copper, cobalt, iron, manganese, tantalum, niobium and tin. ASM techniques are also used in quarries to produce gravel, sand and other building materials and for mineral resources such as salt.

The distribution of minerals mined using ASM methods across Africa, the scale of ASM activity in each country, and the economic value of ASM, wherever it is possible to estimate, are given in Appendix A.

### Numbers of ASM workers & dependents

It is notoriously difficult to collect accurate information on this sector given its informal and unregulated nature, seasonality, migration, use of ASM as a supplementary or back-up income source,

etc. However, it is generally agreed that ASM is growing.

Two countries, the Democratic Republic of Congo (DRC) and Tanzania, are estimated to have over 1 million people each directly employed in ASM. (Previous estimates for Tanzania are in the region of 550,000 miners however the Tanzanian Government has recently re-assessed the figure to an estimated 1,500,000, though this requires verification). The DRC has possibly around 2 million ASM workers, approximately half of whom are diamond miners. Another 12 African countries may each have over 200,000 ASM workers, and an additional 8 countries have over 100,000 ASM workers (see Map 1).

To understand the social and economic impact of the sector, it is necessary to look beyond the individual ASM workers and to include their dependents who also survive on the ASM income of their family. As a general guide, each artisanal miner has been assumed to have five dependents. Taking these figures for ASM dependency as a proportion of the population gives another perspective on ASM (See Map 2).

This calculation puts the Central Africa Republic (CAR) and Eritrea as the countries with the greatest dependence on ASM as a full or supplementary livelihood. In a further four countries, over 20% of the

Table 1 Estimated ASM employment and dependence

Country	ASM est. at >100,000 worker numbers	Country	ASM dependence as >5% of pop.
DRC	2,000,000	CAR	54.00
Tanzania	1,500,000	Eritrea	43.62
Zimbabwe	500,000	Sierra Leone	28.60
Ethiopia	500,000	Zimbabwe	26.43
Nigeria	500,000	Tanzania	22.38
Niger	450,000	Niger	20.34
CAR	400,000	Mali	19.47
Eritrea	400,000	DRC	18.04
Mali	400,000	Liberia	17.99
Sierra Leone	300,000	Djibouti	11.85
Ghana	250,000	Gabon	10.10
Burkina Faso	200,000	Eq.Guinea	9.73
Mozambique	200,000	Burkina Faso	7.86
Sudan	200,000	W.Sahara	7.62
Angola	150,000	Angola	7.18
Uganda	150,000	Ghana	6.41
Liberia	100,000	Guinea	6.12
Guinea	100,000	Chad	5.93
Chad	100,000	Namibia	5.75
Madagascar	100,000	Lesotho	5.64
Cote d'Ivoire	100,000	Mozambique	5.64
Kenya	100,000	Swaziland	5.32



population depends, at least partially, on ASM to survive, and in yet another five countries, the level of dependence is probably over 10%.

Whilst Nigeria and Ethiopia are both in the top five countries in terms of direct ASM numbers, the sheer size of their populations (146m and 83m respectively) means that this 1 million people and their families constitute only 2% of the Nigerian population and 3.6% of the Ethiopian population.

In contrast, some countries with small populations have a proportionally higher dependence on ASM. For example, Liberia has fewer ASM workers (estimated at 100,000) but with their families they account for almost 18% of the population. The same goes for Namibia's 20,000 diamond and sapphire miners who, with their dependents, constitute perhaps 5% of the population; while Djibouti's 10,000 salt miners may generate or supplement the livelihoods of over 10% of the population.

### **Social and environmental impacts of ASM**

ASM, particularly artisanal mining, has profound impacts on all aspects of the social structure and functioning of those engaged directly in the work, and those communities proximal to artisanal mining sites.

Artisanal mining may be highly seasonal due to rainfall and the need for water for mineral processing or, conversely, due to flooding of mining areas during the rain. ASM is often used as a supplementary income source for farmers, which also promotes seasonal work patterns. For these reasons, and due to the nature of exploration for new mineral resources as mines are exhausted, ASM is frequently migratory. Typically, for metals and gemstones in particular, ASM provides labour opportunities for large numbers of men who live in camps associated with the mines. Over time, these camps may disappear or may transform into more permanent settlements, depending on the scale of the resource and the duration of mining activity.

As the camps are established, service providers (often women) move to the camps to gain employment in minerals transporting, washing, sorting, grading or treatment. They also come to trade essential goods, provide tools and materials, set up restaurants, or to gain employment in the sex

trade. Mining camps can be highly vibrant economic entities, albeit sometimes short-lived. They can often cause rampant local inflation.

If camps become established on an ad hoc basis, particularly in response to a minerals 'rush', or if they over-run an existing village or community, sanitation and hygiene conditions are often extremely poor creating health hazards. This is compounded by the often promiscuous lifestyle associated with some ASM where the daily cash payment for minerals is sometimes used for alcohol, drugs and payments to sex workers. All of this can compound the risk of the spread of STDs, including HIV/AIDS. The migratory nature of ASM can also give rise to polygamy if miners abandon families or start new families in mining areas.

A key feature of ASM in Africa is the use of child labour. In some areas, children may constitute a significant component of the ASM workforce. This is universally condemned by the UN Convention on the Worst Forms of Child Labour yet, in many countries, even if there is national legislation to ban children from mines, enforcement may be severely lacking. ASM can have serious repercussions on children's physical and mental health and moral wellbeing, as well as disrupting or preventing their access to education. Conversely, ASM may be the only livelihood

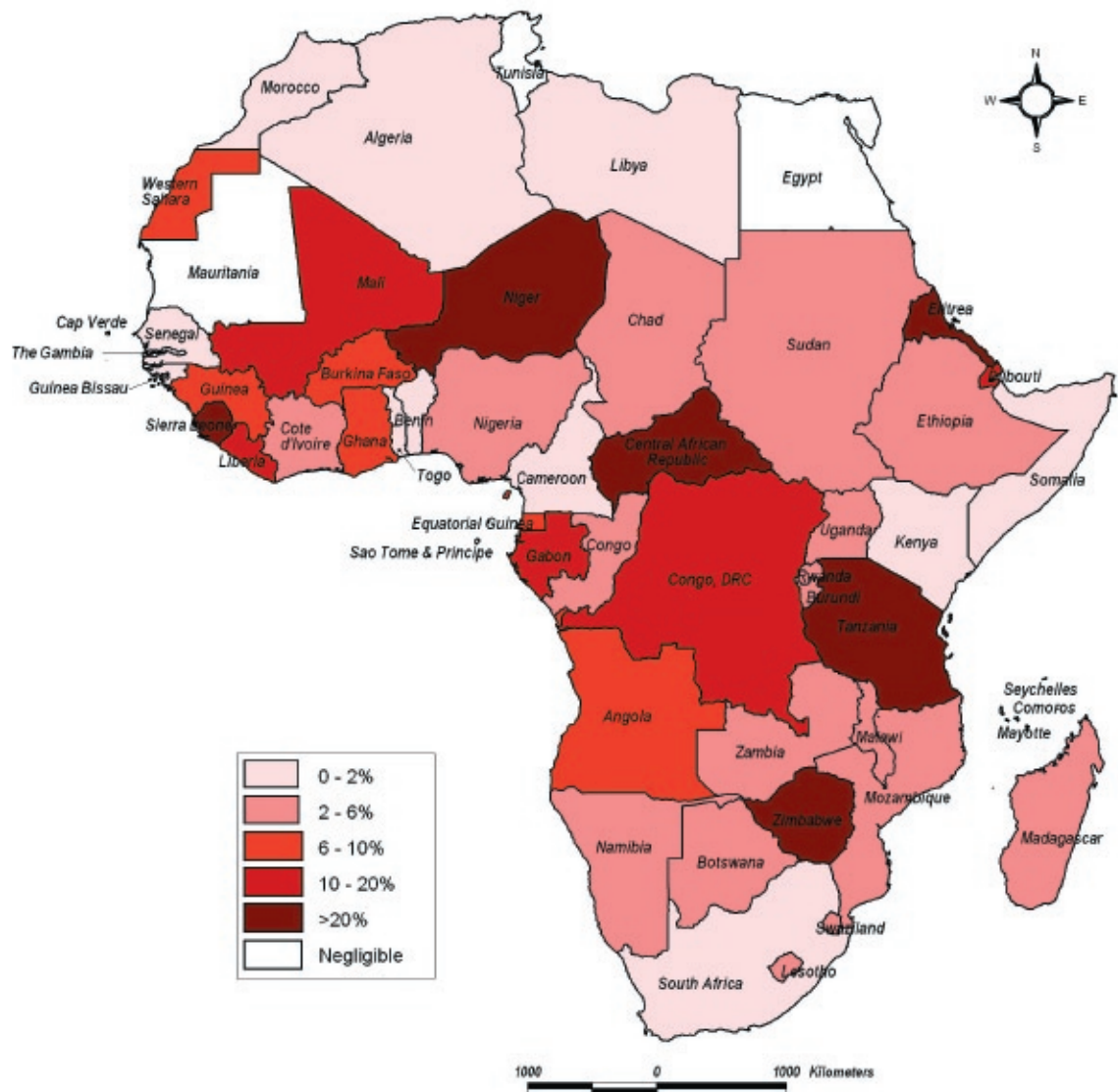
option available to families to pay for their children's education and some children are employed in peripheral activities which are less dangerous and enable them to work outside school time to make a financial contribution to the family and their own schooling.

Artisanal mining teams, associations and communities are highly complex groupings of people, often with a well-structured hierarchy. Even if a site or camp looks chaotic to an outsider's view, some investigation will typically reveal specific roles in team structures, differential pay rates, taxes, authorisations, security, loyalties, royalties, dependences and debts. Added to these layers of interactions and relationships may be tribal or ethnic issues, gender issues, traditional law, and superstition.

ASM can also have significant health impacts. Occupational health concerns for the miners themselves include:



**POTENTIAL PERCENTAGE OF POPULATION ECONOMICALLY DEPENDENT ON ARTISANAL AND SMALL-SCALE MINING AS THEIR SOLE OR SUPPLEMENTARY LIVELIHOOD SOURCE**



Map 2.

- physical injury within the mines due to rockfalls and mine collapse
- accidents with machinery
- exposure to dangerous chemicals such as mercury & cyanide
- physical stress due to the exertion and difficulty of the work
- exposure to dust, fumes and gases causing respiratory problems
- exposure to noise which damages hearing
- working in poor light conditions which can damage sight
- psychological stress as well as exposure to substance abuse which can cause mental and organ damage

Concerns for the health of communities around the mines include:

- exposure to chemical and organic toxins in water supplies
- inhalation of dust and fumes
- risks of explosions, floods, landslides or other crises associated with the destabilised terrain
- increased levels of communicable diseases due to poor hygiene and lack of sanitation

### **Economic impacts of ASM**

First and foremost, ASM provides a source of income and revenue for millions of people in Africa, both directly and indirectly. The miners themselves typically receive a very small percentage value of their product but the revenue chain may be long and complex, therefore many people may gain an income from the production, transport, processing and re-selling of the minerals. External perceptions of this chain are often that there are only two broad categories of actors – the exploited, impoverished miners and the predatory, wealthy traders – but this limited analysis fails to recognise that, often, it is more likely that there are much larger numbers of people all making a small income at various levels, and a handful of top actors making a significant return.

It is certain that the miners are often exploited however efforts to improve their income by removing other economic actors from the ASM chain must be considered carefully. Miners may restrict their activity to the physical extraction of the minerals. Those employed as washers and transporters may

only work in these activities, not in the mines themselves. If the mine is remote from its market, the presence of traders or their agents ensures that miners do not leave the mines to travel to their buyers. The opportunity cost of leaving the particular activity sector in which any individual is engaged is a key factor which maintains specific roles and the complexity of the supply chain.

The role of mineral traders and “middle men” is crucial for the functioning of the chain in many instances. Traders typically provide pre-financing which enables the miners to purchase tools, pay entry fees to mines, and to support their families during periods of transition or when mineral returns are low. Whilst this access to credit is an essential function, it also creates debt relationships which, at their most benign, can result in preferential pricing for the traders and, at worst, can result in a debt burden which acts as a trap prohibiting exit from the sector. The debt can even be passed on to the next generation.

A key issue limiting economic return is the often inefficient exploitation and beneficiation methods used, which also curtail the life of the mine. ASM methods are only suitable for certain types of resources and, if they are used on ore bodies which have a profile better suited to industrial exploitation, the potential overall return to the economy may be lost.

The ASM community (this term being used to apply to all actors in the chain from mine to the point at which the minerals enter the formal economy) is largely isolated from mainstream economic development opportunities. This isolation results from a range of factors, many of which are based on the question of legality of ASM.

Where ASM is illegal, or operates largely outside weakly-enforced or inappropriate legal structures, it is often excluded from government or donor social and economic development frameworks. The question of legality also contributes to the economic marginalisation of ASM as it restricts access to fair and competitive markets as well as creating a barrier to accessing the resources that could contribute to its entry into the mainstream economy.

This spills over into other economic impacts as, when ASM is relegated to being an illegal activity, the taxes, site fees, licence fees, royalties, etc, that should

be due to the national treasury are instead appropriated by the various actors who control the sites and the trading chain. ASM is often migratory, seasonal, and rarely effectively monitored in terms of numbers and scale so its contribution to the economy is rarely accurately estimated.

Another key point in relation to exclusion from mainstream economic development is that there exist local forms of organization, institutions and social/power relationships, which underpin inequalities and discrimination and contribute to the social, and hence economic, marginalisation of ASM communities.<sup>ii</sup>

### **Political impacts of ASM**

As noted above, because ASM is often an illegal or informal activity it may be difficult to determine its economic and social importance, thus there is a wide disparity in terms of whether or not countries recognise the scale and importance of their ASM sector. Even in countries where there is a significant ASM community, policy and legal frameworks that genuinely assist in strengthening, regulating or transforming the sector are frequently lacking. This also extends to donor agencies, manifest as the relative rarity with which ASM is identified within country assistance frameworks or social development planning.

ASM is a critical issue for certain countries in relation to stimulating and fuelling conflicts such as that seen in the Great Lakes Region over many years. ASM diamonds have fuelled rebel movements in Sierra Leone and Angola. ASM can have a direct relationship to illegal trade in arms in situations such as these (reported by groups such as Amnesty International and Global Witness), but it also has a key role to play in post-conflict stability.

The most obvious ASM-conflict relationships are seen in cross-border conflicts where resource-rich territories are occupied by national or foreign military forces, however the ASM-conflict relationship covers a wide spectrum of interactions, including conflicts between actors in the supply chain and conflicts at community level.

ASM-related conflicts may be all-out wars, border skirmishes, illegal occupation of mineral territories, or illegal migration by workers which can result in local

conflicts. For example, workers from the DRC mining illegally in Angola have been expelled, often through violent means, though mass expulsions have recently been halted by an agreement between the two countries.

The cessation of conflicts also impacts on ASM and may actually increase the number of people dependent on ASM as a livelihood as it can become the livelihood recourse for ex-combatants.

Demobilised soldiers can find it difficult to reintegrate into society after active military service and their social reinsertion programmes are often too short to provide genuine transition support. In discussions with focus groups in Ituri in the DRC, the majority of ex-combatants interviewed who had been through the demobilisation and reintegration program had chosen ASM as their preferred means of survival, or they have drifted into it as they could not make their new 'kit' livelihood viable. The presence of large numbers of ex-soldiers in the mines can also create risks of conflict.

Security in ASM mines can be a complex issue involving a multiplicity of actors and agencies, both formal and informal. At one end of the scale this is a service provision to maintain public security for those within the mine and, at the other extreme, it can involve renegade elements hired or self-appointed to control minerals, money and people. Security concerns human rights abuses. In Ghana, a campaign has been launched by the National Coalition on Mining (NCOM) as they allege cases of human rights abuses perpetrated against ASM workers, or *galamsey*, by mining companies, and public security forces.<sup>iii</sup>

In countries with weak governance and high levels of corruption, linkages between key political actors and resources, often mined by ASM communities, can be strong. Disruption or severance of these vested interests can be difficult and dangerous and, indeed, may create serious security risks for innocent actors at every point in the supply chain as pressure and hardship is passed downwards.

### **Environmental impacts of ASM**

ASM can have significant negative impacts on the environment with resulting impacts on the poverty of communities. These impacts are both direct, and indirect, and include:

- Contamination of water courses (rivers, streams, etc) with waste material and through washing of minerals
- Siltation which blocks rivers and lakes, disrupts ecosystems by reducing photosynthesis and physically covering sedentary life forms
- Diversion of water courses, including those needed for irrigation
- Contamination of water sources (springs, wells)
- Pollution related to processing inputs, such as mercury, which bio-accumulates in crops and animals
- Physical disruption of the landscape, creation of physical hazards
- Deforestation in order to access mineral sites and to provide timber for shelter, mine shaft reinforcement, construct tools, and to provide firewood and charcoal
- Hunting to provide food for mining camps, sometimes with very serious impacts on biodiversity
- Health implications due to poor hygiene and lack of sanitation
- Standing water left in open mine pits can result in growing mosquito populations that spread malaria

All of these environmental changes can have significant negative impacts on communities, their resources, their viability and ultimately their poverty status. A sudden influx of ASM workers can consume and contaminate all the resources on which a community normally depends and, when the miners move on to the next rush, some community members may choose to go with them either because of a preference for the new lifestyle and income or because their original livelihood is no longer possible.

## 2. ASM, Poverty and Development

### ASM and poverty

The link between ASM and poverty is profound and complex. Those who constitute the majority of the ASM community at the level of resource extraction, basic processing and local trading, generally live in poverty. They are often driven into ASM by this poverty and the income they receive from ASM can improve their daily subsistence, thus reducing their impoverished status in the immediate term. However, the nature of the activity is such that it is exploitative; it draws people away from other more sustainable activities such as agriculture; it does not produce long-term wealth for these individuals; it creates debt; it uses resources inefficiently; and it is not sustainable. Therefore ASM can actually perpetuate poverty.

These three elements all require consideration:

- ASM is driven by poverty
- ASM can alleviate poverty
- ASM can perpetuate poverty

### ASM is driven by poverty

Many ASM workers are engaged in the trade because they have no jobs and no alternative options. In places where the previous, formal economy has collapsed due to war, political instability, corruption, etc, ASM can arise as a survival strategy for those who live on and around mineral-rich land.

An example of this is the Katanga Copperbelt in the DRC where artisanal copper and cobalt mining did not exist during the years of state and private sector mining before the wars in the mid 1990s but in just 15 years it has become the means of livelihood of over 100,000 people in the province.

In the same way, the experience of Mozambique is that with closure, in late 1980s and 1990s, of several mining companies in Manica, Zambézia and Nampula and agricultural companies (sugar, copra, timber) in Zambézia provinces, which employed a significant number of people, ASM then attracted the people who could not migrate elsewhere.<sup>iv</sup>

In areas where soil quality is poor, or other external conditions or environmental shocks such as drought impact negatively on agricultural productivity, ASM can be the only resort. Zimbabwe is an example of how ASM can come into play as an emergency response to a combination of deteriorating factors. Successive droughts in 2001-03, the economic collapse and destruction of agricultural productivity, and the chance 'find' of diamonds in the Chiadzwa area, has caused a dramatic increase in ASM activity in both gold and diamonds.

ASM can thus be driven by endemic poverty resulting from prolonged institutional and governance



### Chapter Summary:

ASM is often driven by poverty and may be the only recourse of people who live in a collapsing economy or whose livelihood has suffered an environmental or economic shock. Thus ASM can also alleviate poverty by supplementing other incomes or providing an important livelihood in the absence of any other. ASM can cause local inflation but can also bring new trade flows to a previously isolated area. ASM can also perpetuate poverty by drawing people away from more sustainable livelihoods and damaging local resources. The use of child labour is a feature of ASM in Africa. ASM is identified as an issue in a range of poverty alleviation instruments and has increasingly been included in country development frameworks. ASM is directly connected to social issues such as HIV/AIDS.

Left: Artisanal miners struggle for a share of gravel where a diamond has been found.

failure and economic decline, or by sudden poverty caused by political or environmental shocks.

### **ASM can alleviate poverty**

The majority of the 9 million Africans who work as miners, sorters, transporters and traders in ASM generally live on, perhaps, a few dollars a day. Many live on less than \$1 per day. Even where their income exceeds that, they are often living in areas of high prices and cost of living, so their income is still marginal. They live in poverty but, without ASM, their situation could be even worse.

Small-scale mining is particularly labour-intensive and thus provides employment and incomes to large numbers of people who are generally uneducated, poor and live in remote areas where few opportunities exist for formal employment.<sup>9</sup>

For many ASM workers, mining is a supplementary source of income, not their sole livelihood. ASM can be an important economic activity during the non-agricultural season, or it can provide a cash income to subsistence farmers.

In some areas, ASM has been a livelihood option for generations and is considered by many of those engaged in the trade to be an acceptable if not preferential way to make a living. ASM gold mining, processing and trading is an ancient practice in Africa, and still constitutes an important livelihood for millions of people across the continent from Mali to Tanzania.

It is also important to recognise that, unless they are working under conditions of forced labour, extreme duress or desperation, people usually have choices. People may choose to work in ASM, equally they may choose not to and the presence of a mineral does not automatically mean that communities will mine them. On a visit to eastern DRC on one occasion, the author visited an abandoned but obviously valuable coltan (columbium/niobium and tantalum) mine next to a village. The village Chief advised that the miners who had been working there had moved away due to a dispute with their trader. When asked why the villagers themselves were not exploiting the mine the chief replied with great patience at having to state the obvious, *“Because we are not miners”*.

It can be used as a general guideline that miners typically receive around a relatively small percentage

of the local sale value of their product. A larger proportion of this money enters local circulation (through a variety of actors, the largest proportion being through the trader) where it pays for services directly associated with the mining activity such as provision of tools, equipment, fuel, food, housing, etc. It also creates other types of jobs, purchases goods (essential basics and luxury items) from local suppliers, creates a demand for transport services, pays unpaid state agents and stimulates economic activity. Thus, despite exploitation of the workers in the mines, at a certain level ASM generates a high level of social access to the economic value of their product by generating a significant cash flow through the community.

### **ASM can perpetuate poverty**

As with all forms of mining, ASM is a finite activity exploiting a non-renewable resource. As such, the livelihood potential associated with any ASM site is limited to the life of the resource, which is a function of the accessibility, scale and quality of the ore, the market, the efficiency of production techniques, the number of miners and the intensity of their labour. Even the local economic benefits and business opportunities described above are usually unsustainable after mine closure.

Inefficient techniques used on inappropriate and over-crowded sites will reduce the return from that resource for the individual miners, the community and the national economy. ASM can only begin to contribute to national poverty reduction if the technical elements of efficient mining are managed in order to deliver economic development.

ASM can attract workers away from more sustainable livelihoods, such as farming, and can destroy the future potential of such areas if there is a resource found on agricultural land. The work is often migratory as miners move from site to site, sometimes abandoning their homes and fields when they move. ASM communities are exploitative of their environment and the temporary presence of a large camp can deplete or destroy the resources (water, forests, etc) on which neighbouring villages depend. ASM can therefore cause poverty in communities which were relatively self-sufficient before the influx of miners.

There is little culture of financial savings from ASM earnings which is another element perpetuating

poverty. The lifestyle associated with some ASM (particularly migratory and 'rush' ASM and camps) is often one in which daily cash income is spent on consumer goods, alcohol and other substances, rather than contributing to household expenses or family development. In diamond producing areas, for example, if a miner finds a big stone the cash paid to him will often be spent on luxury items that quickly use up the entire income. Artisanal sapphire miners in Madagascar have described income from sapphires as "hot money" that could not be invested but had to be spent quickly and on luxury items like clothes, stereos, bikes, beer and marijuana, and prostitutes.<sup>vi</sup> In less-migratory ASM communities, this rapid spending of cash may be less of an issue (for example, in Kenya, Ethiopia, Nigeria, and Malawi) but, as noted previously, as mining is a finite activity each ore body can only constitute a livelihood opportunity for a limited period of time.

ASM can stimulate localised inflation. This can have a significant impact on the resident communities by causing previously available and affordable items to become scarce and expensive. In some cases, in order to be able to survive in this new economy, villagers also have to start artisanal mining so that they can earn the necessary cash demanded by the market. It is another step in perpetuating poverty as it creates more miners and further reduces alternative livelihood activity, including the reduced production of food stuffs and subsequent increased dependence on expensive imports, thus contributing to the vicious cycle of inflation.

However, ASM trading activity can also bring important and previously unobtainable goods and services to an area, therefore the impacts are not exclusively negative. When ASM activity moves away from an area, loss of access to these introduced goods can cause hardship and stimulate further migration.

It should also be noted that artisanal miners can become trapped in ASM. They are frequently indebted to traders or others. The traders' terms of credit may include a share of the material, preferential pricing, high interest rates, or control over the miners' location and work. Servicing this debt can be crippling and can perpetuate poverty.

## Spectrum of intervention

Given the spectrum of relationships between ASM and poverty, it is clear that any efforts to reduce poverty in relation to artisanal mining must include a wide range of approaches.

The key issues to be addressed in ASM can be broadly categorised under three types of intervention:

- Illegal practices, trade and ASM revenue related issues require a legislative and regulatory approach
- Improving ASM organisation, productivity and market access and therefore its economic return (including socialising the economic benefits) require approaches to formalise ASM
- Addressing the fundamental un-sustainability of ASM requires interventions to support and enable transition away from ASM to other livelihood options over time

The regulatory approach includes development of policy; articulation of legal frameworks with the resources for their enforcement; provision of national and international mechanisms to address ASM conflict issues; and the reinforcement of the capacity of government agents. Such interventions are essential if the other two categories of activities are to be viable.

ASM formalisation approaches can be used to improve mine development; health, safety and environment standards; enable access to finance and markets; develop certification of ASM products; create collective ASM mechanisms and structures; and support for the transformation of artisanal mining towards small-scale mining. These approaches recognise the potential for ASM to be a legitimate livelihood option that alleviates poverty and makes a positive economic contribution.

The final approach addresses the fundamental question of the finite nature of mineral resources; seeks to create routes by which miners can overcome the barriers to exit and escape the ASM-poverty trap; supports appropriate roles for women within and beyond ASM as well as the elimination of child labour; and proposes viable and sustainable alternatives to ASM. This suite of interventions aims to ensure that ASM does not perpetuate poverty.

The Common Fund for Commodities (CFC) seeks to alleviate poverty through development measures

that can be classified into four broad categories:<sup>vii</sup>

- pre-harvest productivity improvement (including research)
- post-harvest processing, marketing and quality testing
- market expansion projects
- price-risk management

These measures primarily relate to the approach of formalizing ASM. However this does not exclude engagement with approaches or initiatives that address the legislative and regulatory environment within which production and trade occurs. The approach to enable transition out of ASM fits directly into the CFC's support for diversification to improve sustainability and income.

### ASM and the Millennium Development Goals

The eight Millennium Development Goals (MDGs) have been adopted by the international community as a framework for the development activities of over 190 countries in ten regions; they have been articulated into over 20 targets and over 60 indicators.

A progress report was published in 2008<sup>viii</sup> and a number of targets are expected to be reached by 2015. Progress is visible in areas including the overarching goal of reducing absolute global poverty by half; improved enrolment and gender parity in primary schools; a 60% reduction in deaths from measles; small but important reductions in deaths from AIDS

and the rate of new HIV infection; improved malaria prevention; improved access to safe drinking water; a halving of the share of developing countries' export earnings devoted to servicing external debt; and the private sector has increased the availability of some critical, essential drugs and rapidly spread mobile phone technology throughout the developing world.

In looking at how ASM may be impacted by these improvements, there is not much room for optimism. ASM-related poverty is not reducing; the number of projects actively assisting children to leave the mines and enter school is too small; there are no known measles and few HIV/AIDS programmes for ASM areas; ASM areas can suffer from increased malaria prevalence due to standing water and lack of access to prevention programmes; water quality in ASM areas is poor and progressively deteriorating.

The 2008 Report also identified the targets which are likely to be missed unless urgent action is taken. A selection of these targets most relevant to ASM includes:

- the proportion of people in Africa living on less than \$1 per day is unlikely to be reduced by the target of one-half
- almost two thirds of employed women in the developing world are in vulnerable jobs
- some 2.5 billion people, almost half the developing world's population, live without improved sanitation

Table 2 The Millennium Development Goals & ASM

MDG Goal	Relevance to ASM
- Eradicate extreme poverty and hunger	8.775m people in Africa depend on ASM for their livelihood. ASM is driven by poverty, can reduce or can perpetuate poverty. Unregulated ASM undermines agriculture and food security.
- Achieve universal primary education	676,000 children work in ASM in Africa. For many this is a result or cause of exclusion from school
- Promote gender equality and empower women	4m women work in ASM in Africa. Women suffer inequality and abuse in ASM and need urgent support to strengthen or transform their roles
- Reduce child mortality - Improve maternal health	ASM communities rarely have access to health care, decent hygiene or sanitation, clean water, or good nutrition. Women and children are highly vulnerable in ASM communities
- Combat HIV and AIDS, malaria and other diseases	ASM is a high-risk activity for HIV/AIDS. ASM camps are high risk for diseases such as malaria, and water-borne diseases
- Ensure environmental sustainability	ASM causes water contamination, mercury poisoning, erosion, degradation of landscapes, and agricultural land, deforestation
- Develop a global partnership for development	A range of ASM partnerships already exist and can be incorporated into global alliances to bring ASM into a stronger position for interventions



Given the apparent importance of ASM as a livelihood in Africa, interventions that genuinely impact on ASM communities could have the potential to make contributions to supporting progress towards these goals if implemented across the continent and at a large scale.

Another issue of concern is that developed countries' foreign aid expenditures declined for the second consecutive year in 2007 and risk falling short of the commitments made in 2005, also international trade negotiations are years behind schedule and any outcome seems likely to fall far short of the initial high hopes for a development-oriented outcome. This is a challenge even for those issues which are high on the development agenda and which have a wide level of recognition, understanding and support. For complex and low-visibility issues such as ASM, this is not encouraging.

### Yaounde Vision Statement

In 2002, the United Nations Economic Commission for Africa (UNECA) and the United Nations Department for Economic and Social Affairs (UNDESA) held a Seminar on "ASM in Africa: Identifying Best Practices and Building the Sustainable Livelihoods Of Communities". The recommendations from that seminar were captured in the Yaounde Vision Statement to "Contribute to sustainably reduce poverty and improve livelihood in African Artisanal and Small-scale Mining (ASM) communities by the year 2015, in line with the Millennium Development Goals".

The goals identified included:

- Acknowledge and reflect ASM sectoral issues in national legislation and codes
- Mainstream poverty reduction strategies into mining policy inclusive of ASM policies
- Integrate ASM policy into PRSP processes with linkages to other rural sectors, develop a strategic framework for PRSPs
- Revisit existing thinking on ASM legislation (traditional land rights, and modern land use legislation nexus) and role of central government
- Strengthen Institutions by improving availability of appropriate technologies and developing analytical and business skills

- Undertake necessary reforms of the ASM sector: improve policies, institutions, processes and the ASM stakeholders' livelihood; reduce child labour; ensure gender equality; improve health and safety; develop partnerships; promote sustainable use of natural resources; infrastructure development; land use management

A series of recommendations were made for government and development partners, and for international and national stakeholders including the private sector, IFIs, donors, and NGOs.

### UN Commission on Sustainable Development

The United Nations Commission on Sustainable Development (UNCSD) was established by the UN General Assembly in 1992 to ensure effective follow-up of the UN Conference on Environment and Development (UNCED), also known as the Earth Summit. UNCSD is responsible for reviewing progress in the implementation of Agenda 21 and the Rio Declaration on Environment and Development. The current programme of work extends from 2004 to 2017.

At the 16<sup>th</sup> Session of the UNCSD in New York in May 2008, the Chairman discussed the challenges facing agriculture, rural development, land, drought, desertification and Africa. A direct reference was made to ASM: "There is thus an urgent and continuing need to diversify the rural economy with the objective to provide additional opportunities for rural labour force and to reduce the disparities in the quality of life and in access to services between urban and rural areas. In this context, the rural development programs must aim at creating new jobs and income opportunities outside the agricultural sector. Activities such as environmentally-sound small-scale mining and forest conservation and management offer the potential for diversifying rural economy".<sup>ix</sup>

In 2010-2011, UNCSD will carry out a review of progress on the Johannesburg Plan of Implementation of Agenda 21. Work in 2010 will articulate progress achieved and, in 2011, the way forward will be agreed. CFC member states who are also members of the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development should lobby to have ASM included on the agenda of the review.

## African Union

On 20 October, 2008, in Addis Ababa, the African Union (AU) Conference of Ministers Responsible for Mineral Resources Development endorsed the concept of an “Africa Mining Vision 2050”, drafted by a task force from the experts from the African Union Commission (AUC), African Development Bank (AfDB), UNCTAD, and UNIDO, under the leadership of UNECA.

The draft ministerial declaration approved the idea of a new resource-based industrialization and development strategy for Africa. Elements that will be articulated in the Vision (to be prepared by January 2009 for the AU Summit of Heads of State and Government) are likely to include: consensus on the rights and obligations of mining TNCs; improving management of the mineral resources, wealth and its benefits; enhancing downstream and upstream industries and support sectors; increasing the role of minerals in building local physical, social, human, knowledge, and institutional capital; promoting the development of sustainable livelihoods in mining communities. Again, CFC member states could lobby for the AU Vision to include specific reference to ASM.

## G8 Summit

ASM was referenced in the Final Communiqué of the 2007 G8 Summit. In paragraph 86 of the Summit Declaration, the G8 commits to expand “support for the Communities and Small-scale Mining (CASM) initiative, housed at the World Bank”, also to “support efforts to develop techniques to limit pollution associated with artisanal mining” and to undertake a pilot study “concerning the feasibility of a designed certification system for selected raw materials”.

## ASM and country development frameworks

In most African countries, government planning is linked to, and supported by, collective donor approaches which are developed to ensure complementarity and synergy between development agencies. Such collective plans include Poverty Reduction Strategies (PRSP), Country Assistance Frameworks (CAF) and other mechanisms.

ASM can fit under many of the categories of activities that are typically included in such frameworks. It is included in several PRSPs with varying degrees of emphasis. Examples of ASM references in PRSPs are given below:

The majority of the country Poverty Reduction Strategy Papers were produced by the Africa Development Bank, IMF/ World Bank with respective governments.

### Box 1: Key Reference Document

*Macroeconomic & Sectoral Approaches, Volume 2, World Bank (Chapter 25) is aimed at policymakers in countries where mining has the potential either to contribute significantly to poverty reduction or to heighten risks to the lives of the very poorest of society Chapter 25, Mining, by Weber-Fahr et al, includes detail on ‘How to Develop a Section on Mining for a Poverty Reduction Strategy Paper’*

Table 3 ASM in Poverty Reduction Strategy Papers

Country	Year	PRSP Reference to ASM
Angola	2003	No reference in the interim PRSP
Burkina Faso	2004	Improve working conditions and yields in the ASM sector, including: setting up ASM ore crushing & grinding plants; disseminating ASM equipment; training to reduce ASM health, environmental, and safety hazards
Central African Republic	2008	Develop SME & LSM companies to stimulate mining production, increase the employment of the rural population and prepare the ground for industrialisation
DR Congo	2006	Reinforce capacity of the government service for ASM to ‘encadre’ artisanal miners; Promote ASM micro-credit
Eritrea	2002	No mining refs 2002-04 Country Strategy Paper
Ethiopia	2005	(PASDEP) Organise mining cooperatives; Legalize artisanal mining operations in precious and gem minerals; Establish a legalized market system to increase foreign currency retention and employment; Carry out social surveys on the participation of women in ASM so that women could make meaningful contribution towards the development of mining; Increase the number of legal traditional mining producers

Country	Year	PRSP Reference to ASM
Ghana	2006	Control illegal mining; Adopt or enforce collaboration to manage natural resources, environmental health and illegal mining
Liberia	2008	ASM encouraged through the support of cooperative schemes to formalize their activities and reduce the potential for the sector to fuel future conflict; Efforts to improve efficiency of alluvial mining recovery methods & production from operations to increase revenues
Mali	2008	Support to grassroots communities in the mining zones; promotion and assistance to ASM and mines handicraft
Mozambique	2006	Increase the contribution of the ASM mining sector to improve the life of population groups as a means of increasing productivity and production efficiency by: (i) providing technical support to prospectors in improving their mining tools; (ii) promote associations, cooperatives or companies, and other forms of organization in the extraction and processing of minerals
Niger	2008	Improve and sustain ASM activity by: (i) organising ASM sub-sector, (ii) providing support to ASM developers, (iii) eliminating the worst forms of child labour in ASM (iv) protecting the mining environment, (v) improving health of ASM developers, (vi) controlling marketing
Nigeria	2005	Informal sector mining activities will be formalized and supported to encourage sustainable production and create self-employment; Establish licenced buying centers as the procurement interface between mining cooperatives and licenced miners and export markets; Inventory the number of miners, the environmental status, the market structure, licensing, and other features of ASM; Promote mining cooperatives and associations of miners in order to simplify control and assistance (financial and technical) and guarantee the sustainability of mining, in active collaboration with community leaders and state and local governments; Training in environmentally acceptable mining and processing methods to improve skills and competence and reduce health risks of miners and their dependents; Promote transparency and participation at all levels of government and management of ASM
Rwanda	2008	Assist ASM cooperatives to acquire knowledge and skills and access appropriate technology to ensure that mining strategy incorporates a pro-poor component; Programmes to train women in the mining and environmental management skills
Sierra Leone	2004	Improve miners' standard of living through modernising mineral rights licensing, providing access to finance and extension services.
Sudan	2008	No reference in 2008 Interim Strategy Note
Tanzania	2005	Develop ASM technologies; Develop a system to ensure safe and sustainable ASM; Train a minimum of 90% of registered ASM workers in safety awareness by 2010 through safety awareness campaigns and monitoring visits
Zambia	2006	Revitalize and ensure realization of the potential of the ASM sub-sector to contribute to economic development and poverty reduction; Strengthen the institutional framework; Set up ASM skills training for men & women
Zimbabwe	2007	No reference in 2007 Interim Strategy Note

*The majority of the country Poverty Reduction Strategy Papers were produced by the Africa Development Bank, IMF/ World Bank with respective governments.*

When ASM is referred to in PRSPs, it can risk being restricted to a sector-specific, technical intervention. This limits a holistic approach to ASM livelihood options. The DRC CAF, for example, states that social protection measures “*should ensure that sector programming focuses on the most marginalized groups in society and prioritises interventions to address the greatest barriers to access. Special measures need to be taken to ensure the voices of those who may be ‘less visible’ are included in planning processes and that groups receive additional, targeted support, beyond the services received by the general population. Social inequities need to be addressed along with material inequities*”.

It is in such terms that ASM issues need to be addressed. This type of definition and remit should explicitly include ASM communities to ensure that their needs are incorporated into mainstream development objectives, rather than their future being relegated to a sub-point in the section on development of the mining sector.

### **Child labour in ASM is linked to poverty**

A key development issue within ASM which is a function of, and contributor to, poverty is the widespread use of child labour in the mines and the supply chain. The scale of child labour in mines is unclear as there are conflicting reports of the numbers. In 1999, the ILO estimated that there were 13m ASM workers

worldwide, 1m of whom were children. Maintaining this percentage (7.7%), the number of children working in the ASM mines in Africa can be calculated in the region of 600-700,000, however this is probably an underestimate.

The UN Convention on the Worst Forms of Child Labour (No. 182, 1999) identifies mining as “*work which, by its nature or the circumstances in which it is carried out is likely to harm the health, safety and morals of children*”. The types of risks that children face when working in mining include:

- Physical trauma, injuries, hernias, backache, eye damage
- Damage to growing bones & organs
- Asphyxiation, mercury poisoning, lung and skin disorders
- Water-borne disease, malnutrition
- Exposure and addiction to alcohol and drugs
- Prostitution, trafficking, STDs, HIV-AIDS

The Convention has been ratified by 41 African countries and, in many, there is a legal age limit established for the issuance of mining licences which precludes young people under the age of 18 from working directly in the mines.

In 1990, an African Charter on the Rights and Welfare of the Child (the African Children’s Charter) - the first regional treaty on the human rights of the child - was adopted by the Organization of African Unity (OAU) Assembly of Heads of State and Government (now the African Union). The African Children’s Charter is a codification by member states of the OAU of the responsibilities of the state, community and individual in the protection and promotion of the civil, cultural, economic, political and social rights of the child. It is rooted in other human rights treaties, including the African Charter on Human and Peoples’ Rights and the United Nations (UN) Convention on the Rights of the Child (CRC). The African Children’s Charter emerges out of the social and cultural values of Africa, including those relating to family, community and society. It takes into consideration “*the virtues of their cultural heritage, historical background and values of the African civilization which should inspire and characterize their reflections on the concept of the rights and welfare of the child*”.<sup>x</sup>

The African Committee of Experts on the Rights and Welfare of the Child, which was established in July 2001, monitors the implementation of the Charter. At its 8th session in 2006, the Committee of Experts agreed to undertake visits to encourage countries which have not already done so to ratify the Charter notably Tunisia, Sao Tome and Principe, the DRC, Gabon, Liberia and Zambia<sup>xi</sup>. The Committee began its work in 2001 and, as of December 2006, only the following countries had submitted their initial reports: Egypt, Mauritius, Rwanda and Nigeria. The Committee began examining State Party reports in May 2008<sup>xii</sup>. Thus, the African Children’s Charter is, as yet, a largely latent instrument for addressing child labour in ASM.

As well as the specific physical and welfare risks that children face when working in mines, they also risk being excluded from education and therefore their prospects and potential for future employment in a sector other than ASM are reduced. On the other hand, ASM may be the means by which children or their families earn the money for school fees.

In 2006, a media exposé focused international attention on Mererani, Tanzania, where artisanal miners work in extremely dangerous conditions, at depths of up to 300 meters, producing around 80% of Mererani’s annual tanzanite production. Dynamite accidents, collapsing mines and floods have caused hundreds of deaths since 2000. What was of greatest public concern was that over 4,000 children aged eight upwards were engaged in mining tanzanite. Their work is driven by poverty, there are few options beyond the tanzanite mines, and putting children to work. The Mererani-based Good Hope Program was set up to rehabilitate child miners and impoverished families. Good Hope provides skills training such as carpentry, tailoring and auto mechanics. By doing this, it helps families break the dependence on tanzanite mining however it can only reach perhaps 10% of the children and progress may only be temporary as the fundamental causes of poverty remain and success is fragile<sup>xiii</sup>.

The ILO’s programme, “Minors out of Mining”, launched in 2005, aims to eliminate child labour in ASM completely within ten years. It is a tripartite effort by government, industry and the ILO through its technical assistance programme, the International Programme for the Elimination of Child Labour (IPEC).

Participating countries should take a two-pronged approach: upstream action to create a policy-making environment conducive to regularization of ASM operations, and downstream activities to monitor children in the mining areas, withdraw those found to be working and place them in school or training.

In Africa, seven countries (Ghana, Burkina Faso, Cote d'Ivoire, Senegal, Togo, Mali and Tanzania) are all participating in this programme. Each of these countries is committed to contribute to achieving a "time bound" target in accordance with ILO Convention No. 182. The target for achieving clear results from this programme is five years: 2010. The maximum time for completion of the global goal is ten years.

### **ASM and HIV/AIDS**

HIV/AIDS is a profoundly important factor in considering poverty and livelihoods in Africa. When heads of families who are primary wage earners fall ill and cannot work, need substantial medical care, or die leaving vulnerable family members behind, the impact is devastating at emotional, social and economic levels. In some African countries, entire sections of the active workforce are HIV-positive with significant repercussions for local and national productivity and economic development.

Sub-Saharan Africa is more heavily affected by HIV/AIDS than any other region of the world. An estimated 22m people were living with HIV at the end of 2007 and approximately 1.9m additional people were infected with HIV during that year. In the past year, AIDS has claimed the lives of 1.5m people in Africa. More than 11m children have been orphaned by AIDS <sup>xiv</sup>.

In some countries, HIV infection is increasing (e.g. Cameroon) while in others some stabilisation is evident (e.g. Kenya). This disease is a key indicator in the development frameworks for most African states, given its huge impact on health, family welfare, economic activity, future social and economic viability and other critical issues. Every category of high-risk group for HIV/AIDS transmission can be equated directly with ASM <sup>xv</sup>.

Highest risks are identified with areas where conflict has occurred which correlate strongly with ASM areas. A key risk group is the public security forces whose vulnerability to HIV/AIDS is high, and

the risk of their spreading HIV/AIDS to the communities they are deployed in is also high. Not only are soldiers and police continually found in ASM areas but also large numbers of ex-combatants become artisanal miners. In West Africa, the mobility of people in the Sahel region, slave trafficking, child enslavement, etc, all combine to increase prevalence in ASM areas <sup>xv</sup>.

Conflict is a significant risk issue, but by no means the only one. There is also a correlation with LSM migrant labour which in turn reflects many of the areas of ASM activity and the major African highways. For instance, in Malawi there has been no conflict but the country has a relatively high HIV prevalence in ASM areas <sup>xvi</sup>.

Young people generally are becoming more vulnerable than other age groups, and it is young men who constitute the majority of the ASM community. In terms of employment groups, miners are specifically noted as being high-risk as their work involves them being away from wives and regular partners for long periods of time. The same applies to transporters. ASM communities are migratory and it is known that large numbers of young people away from their homes represent a significant high-risk group for contracting HIV. Women are a high-risk group and, in ASM communities, women frequently work in the sex trade, which dramatically increases their risk of exposure to HIV (and to other sexually transmitted diseases).

All of this indicates that ASM communities could pose significant risks as hubs for HIV/AIDS transmission and that specific prevention and treatment programmes, which recognise and respond appropriately to their lifestyle challenges, are required.

### **ASM and climate change**

The potential impacts of climate change on Africa's, social and economic development and the poverty of the African population may be very significant. The actual nature of how the changes will be manifest is yet to become clear but rising temperatures, disruption of seasonal rainfall patterns, increasing desertification, decreased river flows, shrinking lakes, changes in the water table, rising sea levels and alteration of biodiversity are all likely occurrences. Whilst Africa is not stricken by more natural disasters than other continents, the impacts of

such disasters tend to be particularly high due to the lack of adequate response and coping mechanisms and resources. A global study of losses from drought found that drought mortality hot spots are concentrated exclusively in sub-Saharan Africa <sup>xvii</sup>.

The relationship between ASM, agriculture and food security will be discussed in more detail in Chapter 9. Agriculture is the primary livelihood of the majority of the continental population with 70% of the population in at least 20 countries depending on subsistence or low-level commercial agricultural production. It seems inevitable that climate change will impact, to some degree, on the viability, distribution and characteristics of agriculture. Climatic stress can destroy crops and the viability of agricultural land. Recent research into the impacts of changing precipitation and temperature suggests that Africa will be the continent most affected by climate change from the point of view of agricultural productivity, with almost all countries undergoing losses of productivity even after crop adjustments (to suit new climates) are taken into account <sup>xviii</sup>. If these changes resulting from climate change are coupled with the more direct and easily observable impacts of human activity, such as deforestation, soil erosion, nutrient mining, migrant slash-and-burn techniques, over-fishing, water contamination and diversion, then the outlook for sustainable agriculture may be bleak.

It is already known that drought, crop failure, floods and other natural catastrophes can result in large numbers of people turning to ASM as a coping mechanism. Were climate change to cause a continuous series of such events, it could have a disastrous impact on agriculture and stimulate a concurrent increase in ASM.

Loss of water sources can make ASM increasingly difficult or impossible. Climate stress may stimulate increased migration and, if coupled with ASM opportunities or drivers, this could increase the nomadic, rush, or in-migrant ASM populations of some areas.

### 3. ASM and Government

#### Government's role in ASM regulation, formalisation and transition

The role of government in addressing ASM issues and transforming the sector is central. Without government commitment, capacity and resources, efforts undertaken by other actors will always be limited in impact. It is government which can create the enabling environment in which such interventions can succeed.

The key areas of intervention for government which will be described in this chapter are:

- Development and dissemination of ASM legislation and regulations
- Government ASM regulatory capacity & law enforcement,
- Access to land and resources including security of tenure
- Taxation and use of ASM royalties
- The role of local government
- Inter-governmental frameworks for ASM development

#### Policy frameworks, Mining Codes and Regulations

Many countries in Africa now have new mining legal frameworks designed to regulate the sector, improve its economic and development potential, and to attract new investors by increasing their

confidence that there is a transparent and legal framework within which they can operate. Often, however, mining legislation is drafted and adopted with the needs and potential of LSM as the focus, and ASM given merely brief and inadequate reference. In South Africa, ASM is regulated by the same legislation (i.e. for the environment, labour, mineral rights, exploration and mining permitting, and skills development) as LSM<sup>xix</sup>.

Legislation need to be achievable within some realistic time frame. In cases where there is much to achieve between the ideal of the law and the challenges of reality, governments should propose, develop, consult and agree a timetable and series of viable steps towards achievement of the law. However, diluting the law through the creation of alternatives and parallel systems is a retrograde step which will create hurdles for future law enforcement.

Legislation must be motivational and rewarding, as well as regulatory and punitive, if it is to impact positively on ASM. There is a need for incentives for ASM communities to operate within the legal domain otherwise legislation can actually push more people into illegal activity. For instance, if a requirement to obtain a mining licence is financial and technical ability, then the government should try to provide access to services for applicants to develop these



#### Chapter Summary:

Government must have the commitment, capacity and resources to address ASM issues. Development, dissemination and enforcement of appropriate legislation and regulations to formalise ASM are essential. Transforming such policies into practice requires dedicated effort and is sometimes the responsibility of a specific agency. Access and rights to land and minerals, including the transferability of titles between different parties, is essential for legal ASM. Taxes generated by ASM have the potential to contribute to social development in mining areas but transparent collection and responsible management are challenges. Local government has an important role to play in ASM regulation. African inter-governmental forums are considering how best to address ASM issues.

Left: A government agent collects a 30% tax on a gold mining team's daily production.

skills. The mine operators will be motivated to legalise their activities and the mines are more likely to be successful, improving the returns and benefits to all.

This leads on to the important question of the cost of compliance with the law. Artisanal miners are usually extremely poor. Small-scale mining operations are often struggling to survive in a competitive market. Regulatory instruments which are not sensitive to these constraints and which establish prohibitive tariffs for licences can create barriers to entry into the legal ASM system and may result in ASM remaining outside the law.

Formal legislation may often be at odds with traditional and local management structures and norms. This creates a further layer of complexity and confusion within which illegal activity can occur and proliferate. Traditional land rights and control mechanisms are often better known and more widely implemented in ASM areas than modern laws and this is an area where community consultation and engagement is essential if legislation is to be effective. Culturally important lands and heritage sites are recognised in many national laws and international guidelines for responsible LSM operations (for example, International Finance Corporation (IFC) Safeguard 8 which aims to “avoid, reduce or mitigate adverse impacts from projects on cultural heritage and to promote equitable benefits from use of cultural heritage in business activities”) however these are not often translated into ASM regulations.

Mining regulation should not operate in isolation from other natural resource management instruments. There must be legal coherence between mine law, forestry law and land law however there is a lack in many countries of coordination mechanisms between the bodies that allocate land for different uses. There is a need for holistic land use planning that recognises the respective or overlapping resource values of different areas and the role of artisanal and small-scale extraction and use of resources within these areas.

Dissemination of the law is also essential. In many ASM communities, the miners know neither their rights, nor their responsibilities. Legal texts need to be made accessible – both physically and intellectually – in order for ASM workers to understand the constraints and opportunities of the specific context in which they operate.

## Government regulatory capacity & law enforcement

Transforming policy into practice is a serious challenge for ASM everywhere, not just in Africa. The implementation of ASM regulations requires significant investment in, and support for, government capacity within the sector. Mention has already been made of the need for capacity within the Cadastral system for allocation of appropriate land for ASM use, however this capacity extends to all areas of government including technical assistance, issuing and monitoring of licences, collection of taxes, management of social and environment impacts and law enforcement.

Several countries have dedicated ASM services within the Ministry of Mines. In Nigeria, a Ministerial Department for ASM is currently being created within the Ministry of Mines. In the DRC, a similar structure is the *Service d'Assistance et Encadrement d'Artisan et Small-Scale Mining*, SAESSCAM. Whilst both Nigeria and DRC have large ASM populations, in Morocco there are only some tens of thousands of miners, primarily in the areas of Tafilalet and the High Eastern Atlas, who operate in various small layers of lead, zinc, and barytine. Despite the relatively small numbers, the Moroccan government has established the Figuig and Development Central Merchandizing of the Area of Tafilalet (CADETAF) to equip and technically assist these ASM operations<sup>xx</sup>.

The establishment of such a body is merely the first step. Once established, problems can arise in relation to:

- **Mandate:** the agency must have a clear legal remit, simply stated and enacted, which is synergistic with the mandates of related government agencies
- **Public acceptance:** the role, responsibilities and limitations of the agency must be known to the community and ASM operators, and there must be some visible benefit seen from their presence
- **Capacity:** the agents need to have the technical skills to carry out their work in an effective manner
- **Staff:** the agency must have professional, motivated staff with a commitment to achieving the agency's mission. This is often extremely difficult to achieve as government staff are often moved between departments



with little consideration for their core skills, incentives are poor, and typically government salaries are low and uncompetitive in comparison to the private sector

- Resources: the agency needs to have the physical and financial resources to adequately cover the territory for which it is responsible
- Transparency: the agency must have the training, systems, motivation and cross-checking mechanisms which will enable credible recording and management of ASM production and payments

A country can have the best mining legislation and regulations possible, but if these are not enforced then the ASM sector will not contribute to improving the lives of the population or the economy. Law enforcement in ASM can result in violent clashes between the miners and the public security forces. Government capacity for constructive law enforcement in relation to ASM is often lacking. ASM inspectorates or regulatory agencies which have the mandate, capacity and resources to assess the legal status of an operation and to make practical, feasible steps towards legality can help to move ASM into the legal framework without the risk of conflict or violence.

In 2006, the Ministry of Mineral Resources of Mozambique decided that instead of coming down on its 60-70,000 illegal gem miners, it would instead try to control the marketing of the gems. It issued marketing licences to over 1,000 buyers who purchased the gems directly from the miners. It is also planned to set up a Gemology Centre and Cutting Shop to train Mozambican miners in how to cut and value their stones. Unusually, the training was extended to policemen and customs officers to improve their capacity to act against contraband in gemstones<sup>xxi</sup>.

There is also a real need for penalties to be appropriate if they are to be a realistic deterrent. A fine of \$10,000-\$250,000 for infringements of the Mining Code is so far beyond the means of ASM workers in the DRC that the penalty is simply ignored.

### **Access and rights in relation to land and resources**

Perhaps one of the most fundamental issues facing ASM workers is access to land and mineral resources. Lack of legal access to high-quality and

mineable resources and associated security of tenure means that ASM workers cannot generate adequate income or use those mineral rights as security for funding or to enter into joint ventures with partners capable of improving their resource use and return. As stated by the World Bank, “*no real solutions will be possible unless artisanal miners are given full legal and transferable mining titles to their claim*”<sup>xxii</sup>.

ASM may be carried out on traditional lands where tenure is recognised informally by simple occupation of the land, or through a system of rents paid to local chiefs or others who historically control the land. However, as external investment in industrial mining has increased, and formalisation of mining legislation and concession rights has occurred across Africa, the land available under such informal or traditional systems has dwindled.

Resource and land rights are increasingly being sold to LSM companies who typically have sole mining rights on the concession. Most legislation dictates that ASM is excluded from industrial concessions and therefore the workers sometimes turn to illegal activity in desperation. This exclusion, coupled with the lack of alternative sites or resource-access mechanisms, mean that artisanal miners who live in proximity to LSM may choose to occupy LSM sites, and this is one of the key reasons that ASM is often carried out illegally. Even when ASM is recognised as a legal activity in national legislation, the provisions to enable ASM sites to operate within the law are weak.

Given the profound importance of the issue of land and resource access and rights, some governments have taken steps to set aside land for ASM:

- The Government of Zambia has set aside plots for emerald ASM operators, however the ASM communities report that some plots are too small and the minerals are too deep
- In 2007/08 the Government of Tanzania has set aside 295,000 ha for small-scale mining throughout the country<sup>xxiii</sup> however this is tiny compared to the demand and only some areas have actually been assigned
- In 2007/08 the Government of the DRC identified six copper and cobalt concessions belonging to the state-owned enterprise, Gecamines, for transformation into Artisanal Mining Zones however these sites are marginal with no accompanying technical or

financial resources for effective mine development or management

- In 2008 in Ghana, the Chamber of Mines has requested the Government to use part of the country's mineral development fund to explore concessions for small-scale miners in support of the development and promotion of artisanal and small-scale mining<sup>xxiv</sup>. A 1996-2001 World Bank project allocated US\$1.88 to demarcate 16 ASM zones. Some were found useful but the project was deemed unsuccessful as the zones were not properly evaluated and other 'political' issues marred progress.<sup>xxv</sup>
- Since 2007, the government of Mozambique has set up 58 legal areas for gold and gem ASM activities

The creation of areas to be owned and managed by ASM communities or groups is highly challenging. Leaving aside the issues of geological evaluation, management and accountability, creating an ASM area is not just a matter of allocating commercially marginal land which may or may not have adequate and accessible resources, but rather of ensuring that the supporting elements of land ownership, tenure, and legal status are in place.

Even where provision is made for ASM lands to be allocated, security of tenure can be weak. The DRC Mining Code, for example, supports the creation of ASM zones but "*if a new deposit which does not lend itself to artisanal mining has just been discovered... the Minister proceeds to close the artisanal mining area... The Artisanal Miners are obliged to free the artisanal mining area within 60 days. The group of artisanal miners concerned have a priority right to request a Licence for a industrial exploitation or small scale mining within 30 days.*"

The unavailability of land for ASM acquisition is largely a result of the majority of concessions being leased out to LSM companies. In some countries, mineral rights are non-transferable which prevents the reassignment of sections of concessions awarded to LSM companies that prove unfeasible to work but are at the same time, suitable for small-scale mining. In others, the Cadastre office can legally dictate how and what areas can be relinquished however examples that demonstrate LSM transfer to ASM after the concession has been granted to a company are not

plentiful. In Tanzania, foreign companies have entered into agreement with small-scale miners after re-licensing agreements. For example, at the Tembo Mine in the Geita district, an LSM company entered into an agreement with a small-scale miner to participate fully in mining, ore processing and marketing of products<sup>xxvi</sup>.

Few countries have genuine capacity within their government body tasked with the allocation of mineral rights to focus on the specific needs of ASM. Fewer still have mechanisms whereby there can be public consultation and local involvement in the activities of the Cadastre or Mining Registry. Ideally, a mining Cadastre needs to have the mandate, skills and resources to assess and process ASM applications for mining titles, as well as efficient mechanisms to liaise with the agencies responsible for ESIA and community consultation (this latter element is provided for under legislation in Cote d'Ivoire and Sierra Leone). This is recognised by governments and the Government of Angola in 2007 formed a commission (the *Comissão Intermistrial para Protecção dos Recursos Diamantíferos*, CIPRED, working in collaboration with the *Comissão Técnica para a Revisão da Legislação Mineira*) to define and limit the areas for artisanal exploration, register and licence small mining groups<sup>xxvii</sup>.

### Taxation of ASM

Large-scale mining activity, which is predominantly foreign-owned, repatriates the majority of revenues generated to their home countries. The revenues generated by small-scale mining activities, however, are generally retained within the host country<sup>xxviii</sup>. Therefore there is a real potential for ASM to contribute to the national treasury however, taxation on ASM products is often informal or illegal, capricious, highly changeable and rarely recorded. Therefore this potential is often compromised by parallel or alternative taxation.

In a study on ASM in the Great Lakes Region, researchers found that up to 27 different, taxes were levied on materials, including ASM products, being exported from the Kivu provinces<sup>xxix</sup>. Whilst most of these taxes are illegal, there are many other examples of heavy, legal, tax burdens being imposed on ASM operators and traders. In Zambia, the Emerald and Semi-Precious Stones Association of Zambia (ESMAZ) report that they pay area charges per hectare of land, property taxes, mineral royalty tax, deemed turnover

tax, company tax as well as the Value-Added Tax (VAT) for most of their purchases when most of the large copper mining companies as well as some of the larger emerald mine operators are exempted from some of these<sup>xxx</sup>.

Mineral royalties in Sierra Leone and Guinea are deliberately set low at 3% on exports and 5% on production in order to encourage traders to sell their diamonds openly and legally<sup>xxxii</sup>.

Formal tax collection systems are rarely suited for the practical conditions in which ASM mining and trading occurs. Taxes imposed on traders are often passed down the chain to the actors who can afford them least, the miners themselves. In order to be effective, tax systems on ASM work and products must be:

- Practical and affordable in relation to the ASM income
- Supported by a viable and official collection system which issues verifiable receipts and can withstand corruption
- Known to the ASM communities to reduce their vulnerability to exploitation through illegal taxes
- Supported by a system of redress and appropriate legal instruments which protect all parties

There are various examples of how ASM activity contributes to national tax revenue in unusual and specific ways. In Eritrea, for example, certain ASM sites are controlled by the military and a 20% tax is levied on all gold produced and paid into a fund for war veterans. This tax is officially recorded and paid through the Ministry of Mines accounts<sup>xxxiii</sup>.

In Sierra Leone, an Artisanal Mining Reclamation Fund was established in 2004 with the objective of supporting land restoration post-mining. The Fund was raised through license fees paid per acre per plot of ASM land. Although monies for reclamation were accumulated, very little of the fund was used for this purpose. When the costs of rehabilitation were calculated (\$9,000 per acre) it became clear that only about 18 acres could be completed with the annual proceeds, contrasting with over 2,300 acres mined annually. A USAID assessment concluded that the reclamation fund could be useful to address those mining areas for which no 'responsible party' can be

held accountable but if a responsible party can be identified, that party should pay all relevant costs associated with clean-up of the mess created by the mining activity<sup>xxxiii</sup>.

Also in relation to the negative impact of ASM on the environment, Guinea currently levies a 500,000 Guinean franc (US\$110) charge - one third of the cost of the annual licence fee - on artisanal mining licences to cover the cost of environmental remediation<sup>xxxiv</sup>.

### Local government

The question of centralised or decentralised control of national and local mining assets, rents and royalties is a contentious one. National policies that aim to generate and disperse mining revenue benefits to all parts of the country, to ensure that economic activity and development is not limited to resource-rich but ultimately unsustainable areas, are not always popular with the residents of the mineralised zones. However ASM may offer a practical means to delegate resource regulation authority and royalty management to local government and communities from whence the minerals are sourced.

Taxes from ASM should be transparently reported to the communities involved with some visible or tangible benefit returning to the area where the minerals were sourced. This is an important element of building community confidence in the value of legal taxation and reducing conflicts associated with perceptions that an area's natural riches are being appropriated for the benefits of others. It is also the only mechanism of transforming natural capital from a non-renewable resource into social and human capital locally, so that there is some sustainable benefit from ASM and communities benefit from their mineral endowment.

In Mozambique in 2006, the government established a Mining Fund with a sub Fund for District Development to support economic revenue generation projects in the ASM sector. This Fund is administered by a District Council which is elected by the community to make proposals and decisions on projects.

Similarly, in Sierra Leone, a proportion of the 3% export duty on diamonds (equivalent to 0.75% of the total export value) was designated to be paid directly

to communities through the Ministry of Resources under the Diamond Area Community Development Fund (DACDF)<sup>xxxv</sup>. Funds, proportional to the number of licenses, were distributed every six months to the Chiefdoms where licensed mining occurred. The objective was to encourage community monitoring of mines by creating a monetary incentive; encourage chiefs to issue licenses rather than allow illegal mining; and to return mineral revenues for development projects<sup>xxxvi</sup>. However, this disbursement of funds and community capacity to implement and monitor projects caused controversy and it was suspended in 2004<sup>xxxvii</sup>.

In Madagascar, a consortium including the Government and the World Bank funded local NGO, Green, to carry out a pilot project to test the benefits of decentralisation of resource management to a local 'commune' in Antanimbaray. The project included the local authorities, artisanal miners and traders and involved training, formalising ASM sites, recording transactions, and disseminating information. The results included increased transparency in mineral trading, development of social infrastructure with the revenues received, and better working conditions for the ASM communities<sup>xxxviii</sup>.

There is a range of benefits that can be achieved through increasing the role of local government. Decentralisation of the many of the functions of the Cadastre and mining inspectorate in relation to granting of licenses, monitoring of sites, etc, can reduce the burden of red tape for ASM workers and groups. A conclusion of the ICMM Resource Endowment Study in Tanzania was that conflicts between artisanal and large-scale mining would be easier to resolve if local authorities had more substantial administrative and financial capacities and were better placed to adjudicate fairly between conflicting claims (and in a way which also upheld national legal agreements)<sup>xxxix</sup>.

### **Inter-governmental forums**

The inter-governmental African Mining Partnership (AMP) is responsible for implementing the various mining-related initiatives of the New Partnership for Africa's Development (NEPAD) and promoting the growth of the sector across the continent. The AMP proposes to formulate an integrated mining programme, envisaged as a means to streamline the sector across the continent. Whilst progress on this has been delayed, the AMP has resolved to establish a permanent Secretariat in South Africa to develop an

African Mining Policy framework along with a Sustainable Development Charter for mining, both of which will include ASM<sup>xl</sup>.

Within the AMP, specific responsibilities for ASM have been allocated as follows<sup>xli</sup>:

- Development of an appropriate financing strategy for ASM (led by Nigeria)
- Development of an appropriate marketing strategy for ASM (led by Ethiopia)
- Development a sustainable mining strategy for ASM that addresses Health, Safety and Environment (led by Mali, Egypt and South Africa)

The AMP is also establishing a gender desk to address issues of gender equity, access and challenges in the mining sector, including in ASM.

The Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development was inaugurated in 2005. Membership of the Forum is voluntary and it acts as an advisory and consultative body to promote the contribution of mining, minerals and metals to sustainable development. The Forum currently has 23 African state members (national mining ministries of Botswana, Burkina Faso, Burundi, Ethiopia, Gabon, Ghana, Kenya, Madagascar, Malawi, Mali, Mauritania, Morocco, Mozambique, Niger, Nigeria, Guinea, Senegal, Sierra Leone, South Africa, Swaziland, Tanzania, Uganda, and Zambia). The Forum will remain in existence until the end of 2010 unless there is an explicit request that it should continue thereafter. The Forum is another potential platform through which collaborative action on ASM could be progressed.

The African Diamond Producers Association (ADPA) is an intergovernmental organization established in 2006 as a strategic alliance between twelve African diamond-producing countries (Angola, Botswana, CAR, DRC, Ghana, Guinea, Namibia, Sierra Leone, South Africa, Tanzania, Togo, and Zimbabwe). The organization seeks to strengthen the level of influence African diamond-producing countries have on the world diamond market using uniform production standards and emphasising domestic beneficiation. ADPA will also work to devise and implement policies, strategies and laws that generate a substantially larger share of diamond profits from foreign diamond mining companies to its Member States. ADPA will serve as the inter-

governmental branch of the African Diamond Council (ADC), the umbrella organization that serves as the official governing unit for Africa's diamond producing countries. The organization is housed in Angola<sup>xlii</sup>. Given the huge importance of ASM production in African diamonds, the ADPA could be an important forum for identifying collective policies or actions to address ASM issues.

### **Reflections of the AU Ministers Responsible for Mineral Resources Development**

The challenge of enhancing the contribution of the minerals sector to the economic and social development of Africa has been considered by African mining ministers in many plans and development strategies at national and regional levels forums. Examples include the Lagos Plan of Action, SADC Minerals Sector Programme, Mining Chapter of NEPAD, the NEPAD Spatial Development Programme, and the Africa Mining Partnership<sup>xliii</sup>.

The success of these plans has not always been as strong as hoped. At the October 2008 AU Conference of Ministers Responsible for Mineral Resources Development, they reflected that the implementation has not been as successful as hoped. *“Some projects were too ambitious and grandiose while others were poorly designed, with a very narrow “mining box mentality” and limited to the initial resource factor endowment. Most of the projects were very capital intensive and dependent on foreign inputs. In general, the main reasons for failure of most resource-based industrialisation projects launched on the continent include (i) inefficiency and poor management; (ii) projects not embedded in the local economy; (iii) tariff escalation, trade barriers and other market imperatives imposed by developed countries on higher-value goods from developing countries; (iv) lack of capacity to innovate due to weak local knowledge; (v) lack of supporting infrastructure; and (vi) lack of local competition”.*

As the CFC considers how to best contribute to ASM, integration with these various forums, and engaging with the Ministers' candid assessment of what works and what does not, will be very important.



## 4. Macro and Regional Economics in relation to ASM

### Economic growth in Africa

Economic performance in Sub-Saharan Africa is improving. Growth has accelerated to around 6% per annum while inflation has dropped into the high single digits. Moreover, in contrast to the early 1990s, most SSA countries have experienced positive growth and around a third have grown faster than 5% a year with only one country - Zimbabwe - experiencing a significant economic contraction<sup>xliv</sup>.

### Macroeconomic context for ASM

In recent years, commodity prices have reached record high levels. There are general and specific drivers which have stimulated these peaks. The demand for copper for the electronics industry and, notably, from China sent the market to a new record price of \$8,940 per tonne in 2008. Cobalt demand is outstripping production and this trend may continue for some time. This metal is essential to the growing electronics industry and the ever-strong defence industry and its price leapt 60% in 2007 reached \$45 per pound (\$99,207 per tonne) in 2008. With similar applications, tantalum reached a short-lived but influential peak price of in 2001, again due to demand vastly exceeding supply. Escalating oil prices, the weakening dollar, and looming global recession drove the price of gold to a record \$1,000 a troy ounce in March 2008. Gold prices have trebled over the past five years. Uranium also hit an all time high in 2007

as, again, the increasing price of oil has reinvigorated investment in nuclear energy.

This demand has provided a major impetus for new mining exploration and investment worldwide, including in Africa. The demand is sufficient to overcome, or make acceptable, the risks which have previously deterred many investors. In the words of one investment fund: *"African investments are subject to a high degree of risk, including those associated with less reliable financial information, higher costs, taxation, decreased liquidity, less stringent reporting, and foreign currency risks. Additional special risks particular to African investments include expropriation, political instability, economic impacts of armed conflict, civil war and severe social instability, less developed capital markets, lower market capitalization, lower trading volume, illiquidity, inflation, greater price fluctuations, uncertainty regarding the existence of trading markets, politically controlled access to trading markets, unsettled securities laws, and trade barriers"*.<sup>xlv</sup>

Despite such risks, market analysts estimate that the value of mining investment in the continent in 2007 was in excess of \$13.5 billion, up 38% from 2006.<sup>xlvi</sup>

The other critical factor in the new dynamics of the mining sector is the increasing buying power and influence of the BRIC countries – Brazil, Russia, India



### Chapter Summary:

Economic growth in Africa is improving and over US\$13.5 billion was invested in African mining in 2007. High commodity prices and willing new buyers, notably from India and China, are creating a high demand for minerals. In the case of commodities such as copper, this is contributing to an increase in ASM activity. Structural adjustment programmes which retrench large numbers of state mining workers can also fuel an increase in ASM if there are no other alternatives. Mineral occurrence is not confined by political borders and neighbouring countries may profit considerably, whether legally or illegally, by trade in resources from another country. Regional approaches such as harmonisation of tax and customs could play a role in reducing illegal trade.

Left: A heavily guarded depot illegally operating on an LSM concession.

and China. BRIC-based mining companies are considered to be poised as key players in consolidation of the mining sector and their cash balances and rapid-mover facility may give them comparative advantage over rivals in any takeover. In terms of the ASM supply chain for minerals such as copper and cobalt, the new super-buyers are resource hungry, cash rich, and have a very different set of standards than some of the traditional buying countries.

These record high prices and new market drivers directly impact on ASM in several ways. High commodity prices increase the value of even low-grade resources can make ASM more profitable. Shortages of particular metals create peaks of demand which cannot be met by LSM as production cannot be ramped up quickly but stimulate sudden upsurges of ASM activity which does not require capital investment or long lead times. New LSM activity identifies new resources and opens up trade routes which can be used for ASM. The presence of willing buyers who pay quickly, and ask few questions, makes ASM trading significantly easier. The combination of these factors has, in some areas, led to an escalation of ASM.

All indications are that ASM in Africa is growing. In Mozambique, for example, gold ASM is estimated to have increased threefold in three years and even more in diamonds.

### **Structural adjustment**

Whilst not solely responsible, structural reforms of the mining sectors of countries in Africa have contributed to the development and proliferation of dual mining economies in some countries. On one hand there is a growing LSM sector comprised predominantly of foreign players, while on the other hand, there is an expanding ASM sector where there is little government control and a lack of frameworks for its systematic and regulated development<sup>xlvii</sup>.

Whilst the development of the formal mining sector is, undoubtedly, essential for national economic growth and effective exploitation of industrial-scale resources, the job creation potential for LSM is lower than that of manual-intensive ASM, and the financial flows may not have the same immediate scale of local impact as that of ASM, even if the ASM itself is illegal, informal and corrupt.

In countries like the DRC, the deterioration of previously functional LSM ventures, notably state-owned enterprises (SOEs), has contributed to an increase in ASM as miners, driven by unemployment and poverty, have opportunistically gained access to abandoned mines. In some countries, the SOEs collapsed as a result of corruption and war but in other countries this can be attributed to interventions by government and multilateral financial institutions.

There is a body of material published which links the rise in ASM to the impact of Structural Adjustment Programmes by the International Financial Institutions (IFIs) and donors designed to address economic crises through the privatization of SOEs. This was described in Ghana following the privatization of projects in the Tarkwa area which reportedly resulted in over 300,000 miners previously employed in the formal sector resorting to ASM<sup>xlviii</sup>.

### **Regional economic impacts of ASM**

Mineral resources do not respect the geographical boundaries described by government, colonial powers, cartographers or mining registries. Neither the minerals nor the miners draw much distinction between the diamonds on either side of many African borders, however this is a key issue for the governments involved. The diamond fields of the DRC and Angola have geological coherence, and the same can be said of the contiguous diamond fields that stretch across the Central African Republic, the Republic of Congo and Cameroon.

Countries neighbouring resource-rich nations may have a long history of benefiting from trade in their neighbour's resources. This may be benign if not conflict-related and if it supports trade of other essential goods across the border. However it is likely to make a more significant contribution to the economy of the importing country than that of the exporter. If the material crosses the border clandestinely, then legal taxes will not be paid and the exporting country also loses the opportunity to improve the value of the product and hence its potential revenue. If the material enters the formal market of the importing country, undergoes value addition and is recorded in export statistics, it can be an important contributor to the national economy of the importer.



The trade statistics that exist for regional analysis of mineral flows are fraught with inaccuracies, gaps, and inconsistencies. However there is still enough information to give an indication of some of the anomalies related to ASM product flows and the impact this has on neighbouring countries' economies.

Whilst Ethiopia produces a significant proportion of the salt required by its domestic market, it also imports large quantities from Djibouti. Estimates of Ethiopia's reserves run to more than 3 billion tons of rock salt and over 290 million tons of salt in only one of its many brine lakes<sup>xlix</sup>. Whilst expansion of Ethiopia's salt production would be good for its own economy and could create further ASM salt mining employment, any reduction in its purchasing of salt from Djibouti would have a significant negative effect on that market.

The Common Market for Eastern and Southern Africa (COMESA) trade statistics record \$12,385,000 worth of exports of niobium/pyrochlore from Rwanda to Hong Kong, Belgium, UK and China in 2005. The same document records exports of niobium from DRC and Burundi to Rwanda, worth only \$176,031 and \$260,244 respectively. Rwandan production cannot account for this discrepancy and there are major questions concerning the raw product flow. However, leaving legal and conflict questions aside for the purposes of considering the economic aspect, this is \$12m worth of trading and value addition of a single mineral, mined by ASM sources, contributing to the national economy of the importing, value-adding country, rather than to the countries of origin of the mineral<sup>l</sup>.

A study carried out by DFID, COMESA and USAID in 2007<sup>li</sup> details some of the complex regional, economic relationships, dependencies, exploitations, and impacts of a range of commodities traded in the Great Lakes region, with a strong emphasis on ASM minerals.

### **Regional harmonisation of policies and practices**

One driver for minerals smuggling is the differing levels of export tax amongst countries in any region mean which encourage minerals to be smuggled to countries with lower fees for export. Harmonisation of export tax is frequently proposed as an important step to reduce such disparity (such as the economic

and customs agreement between the Mano River Union states – i.e. Guinea, Liberia and Sierra Leone) however tax harmonisation has political and economic complexities including implications for sovereignty and potential loss of revenue for specific countries (as per the example of Rwanda above) so this is not a straightforward process<sup>lii</sup>.

Other aspects of control also been proposed for harmonization including legal frameworks in relation to formalising and regulating the sector. Yet another proposal is to harmonise customs procedures as well as legal penalties and enforcement mechanisms.



## 5. ASM Productivity

### Relationship between artisanal, small-scale and large-scale mining

If mineral resources are to provide a high value economic return to the national economy, they must be exploited appropriately, in a market climate which values that mineral and recognises the cost of its extraction, and within a timeframe that permits effective and transparent management of revenues to ensure their investment in long-term socio-economic development.

As ore bodies present in myriad different forms, there are roles for all scales of extraction. Artisanal, small-scale and large-scale mining (LSM) are all appropriate approaches depending on the location, volume and value of the resource.

Using ASM techniques for industrial deposits is clearly inefficient in terms of resource management. ASM techniques which skim off the most accessible or valuable resources from a site ('high-grading') can reduce or destroy their potential commercial value.

In the same vein, problems obviously arise for LSM ventures which over-invest in small or low-grade ore bodies as this is inefficient and expensive. Sizeable concessions are granted to companies, on which there will only be one or two large-scale mines, yet those concessions may contain significant sub-commercial

resources that could be efficiently exploited using manual labour. Some legal frameworks disallow companies to relinquish, sub-let or transfer to ASM but in cases where this is legally possible, frameworks and incentives for LSM to appropriate and legally engage ASM should be explored.

The intermediary role of small-scale mining in this spectrum is of critical importance. Small-scale mining maintains the high employment potential of artisanal mining, but tends to be more regulated and many of the dangerous and destructive practices seen in artisanal mining can be prevented or better managed. In theory, small-scale mining, if fully regulated, also has the potential to be a credible sub-contract option for a large-scale mining company to exploit sub-industrial resources on concessions which do not warrant major capital investment but are still lucrative if mined appropriately and less expensively.



### Chapter Summary:

As mineral ores are found in a wide variety of forms, depths and grades, there is scope for an equally wide range of mining techniques, from artisanal to industrial. ASM mining and processing uses simple, sometimes inefficient, and often dangerous techniques. The use of mercury to recover gold is a serious issue for health and the environment. Interventions which improve ASM productivity can be very important however their design and implementation is challenging. Access to finance is a problem for ASM but it is important to enable formalisation and investment in improved techniques. ASM and large-scale mining are frequently incompatible and may result in conflict but there are also many companies trying hard to find ways to cohabit.

Left: Ex-artisanal miners work a drill rig on an LSM diamond exploration concession.

Table 4 ASM, SSM and LSM

	Artisanal mining	Small-scale mining	Large-scale mining
Resource type	Appropriate for small, shallow resources which can be accessed manually and where capital investment for large-scale mine development could not be recouped	Appropriate for resources where some degree of mechanisation is cost-efficient	Appropriate for large deposits which are most effectively accessed using industrial mining technology
Minerals	More frequent for higher value minerals where volume is lower	Suitable for various forms of minerals	Suitable for all forms of minerals
Labour	Highly labour intensive for unskilled workers	Can incorporate high-intensity manual labour approaches	Can incorporate high-intensity manual labour approaches
Revenue	Low individual revenues but potentially significant in terms of numbers	Improved potential for revenue through licensing, taxation, etc.	Significant revenue potential through licensing, state JVs, taxes, royalties, etc.

In Sierra Leone, near-surface diamonds are becoming increasingly difficult to find, and artisanal miners have to dig deeper. As a result of this increasing difficulty, and the improvement in security in the rural areas, a new medium-scale mechanized diamonds sub-sector is beginning to emerge. This may serve to maintain current export volumes for a while, since this technology is more efficient than traditional ASM. However, it also means increased competition for land and eventually a significant drop in demand for labour<sup>liii</sup>.

Overemphasis on large-scale mining, without also supporting and investing in ASM, presents the risk that an unbalanced sector will be created, in which valuable resources are wasted. Investment in improved artisanal mining and the development of the small-scale sector, along with increased emphasis on value-adding processing at ASM levels, will result not just in economic growth but also in improved longevity in resource use. This will also contribute to efforts to ensure that this economic growth benefits vulnerable and marginalized groups.

### ASM mining and processing

ASM is carried out in many different ways depending on tradition, geology, geography, the nature of the minerals, available resources, and the chosen balance between speed and control.

Exploration for artisanal mining sites uses a mix of tradition, opportunism, rumour, observation and luck. Artisanal miners may use signs of minerals in rivers. Artisanal miners searching for copper use different types of plants to indicate mineralised areas. Artisanal miners enter into abandoned LSM sites, and follow exploration teams. Minerals may be found by

accident and diggers can move great distances very quickly on the basis of stories of a big diamond or nugget of gold being found. Small-scale mining may also use the same indications, but may also be based on more formal methods, including geological prospection and drilling for samples.

Artisanal mining depends on the most basic tools (hammers, picks, shovels, buckets, wheelbarrows, etc) and manual labour for excavation. Different types of artisanal mining include:

- Recovery of alluvial material from river beds or banks
- Recovery of tailings from old processing plant discharges or rejected material
- Open pit mining, with or without benches to stabilise the pit walls
- Vertical or inclined shafts, off which tunnels or galleries may be excavated
- Irregular tunnels into hillsides following mineral veins
- Extraction from abandoned industrial mines, whether open pits or underground mines, which can include removal of ore-bearing pillars and other supports for underground galleries or destabilisation of pit walls
- Appropriation from LSM stockpiles of rejected or prepared materials

Small scale mining utilises some mechanisation but this is to facilitate, not necessarily to replace, manual labour. SSM operators may have resources for mine planning, development and management. It also covers a spectrum of methods:

- Recovery of riverine material may include the use of barges, drags, pumping equipment and underwater breathing apparatus

- Underground mining
- Recovery of tailings may include the use of bulldozers, trucks and other lifting equipment
- Open pit mining may use earth moving equipment to remove the overburden and waste material, to move stockpiles, and to manage the structure of the mine and site
- SSM may use explosives for blasting (ASM may also use explosives, albeit illegally)

Transport of materials from artisanal mines may depend entirely on head-loads, sacks on bicycles, donkeys, canoes and other manual means. This particularly applies to remote and inaccessible mines. Transport from small-scale mines can often use small trucks, as road access is usually necessary for any machines that need to be taken on site, however for remote mines material may be flown in an out though this is rare.

Artisanal processing of material and minerals is rudimentary, primarily consisting of breaking up material, washing and sorting it to improve the grade and concentration. In the case of gold, this is done with mercury and sometimes other chemicals (see the section on Mercury). Small-scale operations may use similar techniques for the sorting and grading process but may also have simple processing facilities that use physical or chemical processes to add value to the product.

### Health & safety

A critical issue in ASM is the frequent lack of health and safety standards in relation to mining, transport and processing standards. In many cases, basic standards are articulated by government through mine law or ASM regulations; however these are rarely disseminated and even more rarely enforced. A mine collapse in Ghana in mid-2006 killed nine artisanal miners, six of whom were women. In Burkina Faso in August of this year, over 30 ASM workers were killed when a mine near the border with Cote d'Ivoire collapsed following heavy rains. And at least 70 young artisanal miners were reported to have died in March when a tanzanite mine in northern Tanzania flooded<sup>vi</sup>.

### Box 2: Key Reference Document

*The Safety & Health in Small-scale Surface Mines Handbook produced by the ILO in 2001 (available in Swahili, English and French) includes guidance on accident prevention; hazards in the working environment; health, welfare and hygiene; first aid; protective equipment; safe practices; safe use of mechanized equipment; explosives and mine closure.*

ASM mines can be extremely dangerous, deep and physically unsupported, dug into loose ground or unstable slopes. ASM operations rarely have good personal protection or other safety equipment. Examples of particularly dangerous practices include diamond divers who spend long periods underwater, often in fast flowing rivers, with no proper equipment just a hosepipe in the mouth for air. Gemstone miners in Zambia have been known to enter deep shafts and galleries with a car inner tube around their neck as an emergency air supply. ASM miners working underground set charcoal fires in cracks to heat the rock which they shatter by throwing cold water on it (fire-setting). Not only does this risk asphyxiation by using all the available oxygen underground for their fires, but this is also a good way to cause cave-ins.

The reasons for such negligence and risk-taking are varied and include desperation, ignorance, lack of training resources, cost-cutting, speed, lack of access to safety equipment and the wherewithal to buy it, tradition, comfort, remoteness, lack of inspection, lack of law enforcement or deterrent penalties, lack of accountability, and human nature.

Any intervention that seeks to address ASM must look at the health and safety implication of the practices in and around the mine sites. When dangerous ASM areas have to be closed, or certain practices have to be banned, a campaign of public information dissemination is essential. This must identify local, influential actors who can explain the rationale and implications to their constituencies. Activities that are illegalised without sufficient explanation and local support for the ban are likely to continue regardless, just in a more clandestine and potentially even more dangerous manner.

## Mercury

The UN quotes that an estimated one quarter of the world's total gold supply is produced through ASM<sup>lvii</sup> however other sources consider this figure to be an overestimate. Artisanal miners wash gold-bearing silt, or mix powder produced by pounding gold-bearing rocks with water, to produce a concentrated liquid containing suspended particles of gold. This is mixed with mercury and the gold and mercury combine to form an amalgam. The amalgam is heated to burn off the mercury, leaving gold of around 80% purity. The mercury is released into the atmosphere and settles in the environment. This poses serious health issues either through direct inhalation or through the consumption of contaminated water, animals or crops.

As a consequence of its misuse, mercury amalgamation results in the discharge of an estimated 1,000 tons of mercury per annum which represents about 30% of the world's anthropogenic mercury releases<sup>lviii</sup>.

Extensive research and development work has been carried out on the use of mercury in gold ASM and generally provides options which fall into two categories: reduced and safer use of mercury, or elimination of mercury from the gold recovery process.

Reduced and safer use of mercury involves approaches for improving the efficiency of mercury use, recovery of mercury for re-use, prevention of waste mercury entering the environment, and improved handling techniques to reduce health risks of exposure to mercury vapour. Applications include improved sluice boxes (to increase gold capture), introduction of retorts (to recover mercury), use of gravity concentrators, shaking tables and others (to improve gold recovery), fume hoods (to reduce mercury vapour inhalation), and improved management techniques to reduce loss of mercury from the system.

A key organisation working on this approach is the Global Mercury Project of the United Nations Industrial Development Organization (UNIDO). UNIDO's approach to the problem involves replacing low recovery, high mercury consuming and discharging processes with environmentally safe and high-yield gold extraction alternatives that will greatly reduce or eliminate the use and discharge of mercury. Extensive awareness raising and training campaigns are conducted for

mining communities, in order to demonstrate the environmental and economic benefits of the newly introduced techniques. In parallel, monitoring systems are set up and the capacities of local laboratories are enhanced to ensure sustainability. In Africa, UNIDO has already started, or will carry out, projects in Ghana, Tanzania, Sudan, Tanzania and Zimbabwe.

In 2006, UNIDO produced a comprehensive *Manual for Training Artisanal and Small-Scale Gold Miners*. This manual covers all aspects of technical interventions for gold liberation, crushing and grinding, gravity concentration, sluices, panning, amalgamation, retorts, recycling mercury, cyanide management, environment and health issues, water and sanitation.

A project being carried out by the Blacksmith Institute in collaboration with the Global Mercury Project, Africaclean, the US Environmental Protection Agency (USEPA) and the Government of Senegal in Tambacounda, Senegal, combines the use of education and technology. Retorts were provided, tested, adapted and adopted when it was shown that they improved gold recovery. The participants in the training are responsible for dissemination of the new technology to others, and monitoring activities are designed to fit in with the normal trade patterns, rather than obstructing them.

Another approach is to entirely remove mercury from ASM. Mintek, South Africa's national mineral research organisation has developed a mercury-free gold process, iGoli, which uses pool acid and bleach to return 99% pure ASM gold. This is safer for the workers and the environment, and has the incentive of improved returns. The challenges with this system are to make it attractive, affordable and replicable for ASM groups.

### Improving productivity and value addition

Interventions to help ASM workers to improve productivity and to achieve higher, safer, more cost-effective recovery rates for the minerals in relation to effort and inputs have a very important role to play in improving ASM as a livelihood.

This can start from the very first stages of mine identification and development. ASM workers can spend huge amounts of time, effort and resources trying to develop low-grade or unsuitable mines.

During this time they incur debt and lose out on other opportunities. Assistance for improved identification of ASM resources could make a considerable contribution to their productivity. If government services can provide support on collection and analysis of geological information, and expert input into mine development, this could be of very significant value in improving ASM productivity.

In Sierra Leone, the Government established an Extension Services Unit within the MMR in 2004 for the provision of extension services to artisanal diamond and gold miners. The extension services include assisting artisanal miners in the proper identification and selection of reserve areas and claims, engineering advice on mine layout and development, and support on the use of modern production and safe mining techniques<sup>lix</sup>.

An example of improved technology making a difference is the Mineral Resource Governance Project (PRGM) which has been building the gemstone value chain through training gemologists and lapidary artists at the Gemology Institute of Madagascar (IGM). Local entrepreneurs have engineered a variety of low-cost lapidary tools (such as stone cutting wheels) that are essential for graduates of the IGM who wish to start their own workshop<sup>lx</sup>.

When technologies are to be used in any ASM intervention it is essential that their use can demonstrate practical results which can motivate their adoption. They must deliver benefits in terms of improved return of materials and revenue and/or reduced effort. Technologies must be simple, cheap and accessible, ideally with the potential to be produced or replicated locally. They must be easily maintained, replaced and must be sufficiently robust to survive the local climate and strenuous use. Experience has shown that factors such as reduced risks to health or environment are not key drivers for ASM workers to embrace a proposed technology, there have to be tangible and financial benefits.

A 2003 report by UNECA<sup>lxi</sup> notes that while technology interventions often have a positive impact at local level, their macro level impact is more problematic. Issues identified in this report include:

- poor understanding of the nature of the problem

- the ad-hoc nature of some of the programmes
- lack of funding and local infrastructure to support research, development and innovation of appropriate technology
- inadequate frameworks for diffusion and assimilation

As noted by one widely experienced expert in the field of ASM technological interventions and support “*don’t try to adapt the miners to your technology, adapt your technology to the miners*”.<sup>lxii</sup> If isolated from the social and economic context in which they are introduced, even the best technology solutions are likely to fail.

### Box 3: Key Reference Document

*The Compendium on Best Practices in Small-scale Mining in Africa by Antonio Pedro is essential reading to prepare for interventions looking at policy and technology in ASM (UNECA, 2002)*

The CFC has identified inadequate infrastructure, low productivity, untapped economies of scale and lack of support services as being among the most important “supply side” constraints that limit the competitiveness of commodity producers and exporters in developing countries. Moving up the value-added chain so that commodity processing takes place in producing countries is cited as essential for increasing returns through commodity markets. Fundamental to this is the need for better financing arrangements, financial services and credit schemes, especially for small commodity producers<sup>lxiii</sup>.

### Access to finance

Access to finance is essential to enable the formalisation, improved production, and strengthening of artisanal mining, and its potential transformation into small-scale mining. However such finance is difficult to come by at all levels.

Artisanal miners typically present a suite of factors which make them unattractive to lenders. First, they tend to be already in debt. Second, they are frequently migratory and ensuring potential repayment of credit is difficult. Third, they usually lack collateral. Fourth, they rarely have the capacity or expertise to be able to present a viable business plan for why they need the

credit or how it will be effectively used. Fifth, ASM is rarely well reported statistically and therefore does not allow for risk analysis by creditors. And finally, there is a dearth of lending institutions that provide this type of credit or support for ASM.

Given these constraints, artisanal miners usually resort to the most accessible local source of funds, namely pre-financing by traders, which further compounds the problems of debt as these loans may demand high rates of interest and sale of the product to the trader at a sub-optimal price for the miner.

There is clearly a need for innovative financing arrangements to address this conundrum. Training in savings and financial management should be a precursor to any projects which ultimately aim to provide credit to artisanal miners. ASM communities frequently have a significant amount of potential capital moving through the system; however this is widely dispersed and tends to be spent on short term needs, either for survival or for luxury items which relieve the tedium of the work. If artisanal miners are given support to recognise, save and harness the financial resources that already exist within their communities this can be an important first step towards increase economic viability.

Alternatives to direct finance can also be used. A recommendation made in Tanzania for practical steps to support ASM was that equipment should be made available on a hire-purchase basis (particularly for identification, cleaning and cutting of gems). This has been advocated and tested in countries like Ghana, Burkina Faso and Mozambique however success has been limited<sup>lxiv</sup>.

In June this year, the Nigerian Ministry of Mines and Steel Development established a \$10m facility to assist artisanal miners with funding from International Development Finance, a subsidiary of the World Bank. The fund will be used to formalize ASM, encourage the formation of cooperatives, and to provide training and access to finance with a significant programme to provide ASM development grants<sup>lxv</sup>.

## ASM – LSM conflicts

One of the aspects of ASM which keeps the issue in the media is the conflict between ASM and LSM. The relationship between the two starts from the point of exploration. Abandoned or active artisanal workings are an indicator of resources used by geologists when prospecting for minerals. In the same way, the arrival of a company's prospecting team in an area can stimulate artisanal mining activity. Thus interactions between mining companies and ASM workers can commence at a very early stage in a new mining project.

LSM and ASM are largely incompatible. Health and safety requirements, boundary control and security measures, blasting areas, construction of a mine, and safe mine management all preclude the presence of itinerant and informal workers on a concession. Once formal title is established and mine development is underway, the process of removing artisanal miners and maintaining this exclusion is a key point at which conflicts can occur.

These conflicts can be violent and even fatal. In September 2008, Barrick North Mara Gold Mine reported the deaths of two mine workers on its concession in Tarime District in Tanzania following incidents with intruders who had been invading the mine to grab gold ore, as well as illegal crushers working in the vicinity of the mine<sup>lxvi</sup>. Earlier this year, in a mine in Ghana, 37 miners were trapped underground after illegal miners stole a power cable, resulting in an explosion. In June, Gold Fields' subsidiary also in Ghana suspended operations at Damang, after open pit mines were invaded by 3,000 illegal miners<sup>lxvii</sup>.

## LSM strategies for addressing ASM challenges

It is often a significant challenge for LSM to find solutions to the presence of ASM on a concession. Approaches and steps which can be taken range from:

- forced evacuation of the site
- negotiated departure from the site, with or without resettlement and compensation
- negotiated co-habitation options including ceding sub-industrial parts of the concession (ideally supported with sharing geological information) however this is limited by legal issues of transferability of mining titles and rights



- purchasing arrangements whereby the ASM community becomes a legal/formal supplier (notably for tailings)
- providing access to technical support such as mineral processing facilities
- subcontracting to commercial small-scale mining ventures
- providing emergency rescue services if needed
- job creation schemes
- creation of alternative livelihoods, supplier businesses
- social development projects that improve the lives of the surrounding community including the ASM workers

Companies must determine the approach they are willing to take in relation to the desired outcome and on the basis of analysis and mitigation of risk. Various guides and tools are available to help with developing and implementing plans for this, notably the IFC Guide is currently producing a Guide for LSM-ASM relations.

In Ghana, AngloGold Ashanti is working with other mining companies, the Chamber of Mines and the National Minerals Commission to identify properties which are suitable for small-scale mining and to promote registration by miners in respect of operations on these properties. In Tanzania, the company is working with local government officials and community representatives at the Geita mine in an attempt to identify property which is appropriate to small-scale mining and to promote registration by ASM operators in terms of relevant legislation.

In 2008, Anglo Gold Ashanti will start a project to create 'model' small-scale mines on its concession in the DRC. These mines will process gold tailings, using trained manual labour and mercury reduction/elimination methods. The mines will employ a mix of community members, artisanal miners and ex-combatants. NGOs and USAID will support the project on issues of conflict resolution, legal dissemination, social development and transparency. The projects will recoup their costs but, thereafter, all profits will go to the community.

In 2008, Barrick Gold Tanzania Ltd invested \$2.5m to establish and fund an initiative in support of ASM. Under the initiative, small-scale miners will receive

support such as registration of cooperative societies, land acquisition, training and skill-imparting. Other supports include identifying and sourcing of mining technology as well as sourcing for sustained funding of the initiative<sup>lxviii</sup>.

### **Resettlement and compensation**

In the successive range of steps and approaches that can be taken, as described above, may include the removal of ASM communities and workers from the concession. The rights of resident communities to their land, and to legal compensation in the event of voluntary or involuntary resettlement, are included in many mining codes and international standards such as Safeguard 5 of the International Finance Corporation (IFC). However this does not always extend to ASM communities who, due to the now illegal nature of their activity, do not have to receive compensation for loss of livelihood. The IFC does not require mining companies in receipt of loan funding to implement Safeguard 5 for ASM communities in relation to the loss of their livelihood on the basis that this was 'illegal'.

As noted by Hoadley and Limpitlaw<sup>lxix</sup>, ASM communities are particularly difficult to resettle, as their traditional livelihoods and the land they practice it on, are difficult to replace. Resettlement should be avoided if at all possible, but if it is essential, resettlement plans involving ASM communities should be designed in such a way that the community has the opportunity to practice alternative forms of livelihoods and to move away from dependence on mining.



## 6. Market Access for ASM

### ASM Supply chains and value chains

A supply chain is the system of organizations, people, technology, activities, information and resources involved in moving a product or service from supplier to customer. A value chain is a chain of activities through which products pass in order to gain some value. Supply chains link value chains<sup>lxxi</sup>. A substantial body of work has been carried out on both aspects of ASM trading.

Obviously the supply and value chains for different minerals and in different countries vary widely, however some basic elements and transactions can be considered universal:

### Relationships in the ASM supply chain

In considering how to improve market access it is necessary to first understand how ASM actors currently access their markets and then to look at if and how this can be improved. It is important to note that relationships between the various actors throughout the chain are complex and not just based on simple transactions determined by the best deal.

Artisanal miners are frequently in an established relationship with their most immediate trader. Traders, known variously as ‘supporters’ and ‘*negociants*’ often provide debt financing to artisanal miners to pay for the costs associated with mining. These may include equipment, site access fees, taxes to local authorities and others including security services, transport costs, transfers to other mines, and subsistence during

Table 5 Actors in the ASM Supply & Value Chains

Actor	Role in Supply Chain	Role in Value Chain
ASM miner	Extraction of minerals	First step in transforming raw materials into saleable minerals
ASM processor	Washing, sorting, grading, amalgamating	First upgrade of quality and value
Transporter	Transfer of minerals from mine to first market	Transport costs enter into the sale price
Small local trader	Purchases from the miner so they do not have to leave the mine;	Collects product from several sources to increase efficiency of storage, security, transport
Large local or national trader / exporter	Purchases from several small traders; may supply the domestic market or may have licence to export	May have processing unit; trades in bulk
Importer	May be the final destination or import for transit	May have processing unit; trades in bulk; ultimately refines material to final product



### Chapter Summary:

ASM supply chains may be complex and may have evolved over time, therefore disrupting them may have unintended, negative consequences. The miners themselves are often at a disadvantage in the supply chain as they lack structures for representation, bargaining, and access to fair markets. Formalising ASM and assisting in the creation of associations such as co-operatives can be important but has a poor track-record of success in many areas, particularly in relation to high value minerals. ASM business associations and unions can also be helpful to ASM workers to improve their work conditions and income. Lack of knowledge of the value of minerals is a barrier to market, so training on valuation and the use of technology to improve information availability may be helpful.

Left: A gold trader in a town where over \$1m per month enters the local economy.

periods of mining when there is no income. In return, the trader expects to have preferential offers and a discounted price on the minerals, as well as, in some cases, payment of interest. The relationship can lead to significant debts which, at their most extreme, may be manifest as bonded labour and may even be passed on to subsequent generations. Whilst this relationship may be exploitative and illegal, it is often the only option available to miners to survive.

But this may also be a long-standing tradition and relationship which is difficult to change. It is often assumed that supporters and middlemen are the problem and should be eradicated. In Sierra Leone, diggers have been found to be reluctant to abandon their relationships with supporters who provide occasional but very important financial or political assistance in times of trouble. A report on the subject comes to the conclusion that *“trying to eradicate the supporter system without alternatives was naïve and probably futile”*<sup>lxxii</sup>.

A similar conclusion was drawn by the author in a project in Katanga, DRC, where a mining company offered to start buying material direct from artisanal miners so that they could get a better price than from their current traders. The artisanal miners were dismissive of this as an attractive option as the traders offered far more than just a sales outlet. They also organised the provision of all basic supplies of food, soap, salt, soft drinks, beer and whiskey to the camp, provided transport to town, and generally protected the miners from harassment.

In some areas there may be multiple buyers, making selection of trading partners easier for the miners. However in remote areas miners may have few choices. In the case of diamond mining, miners may retain special stones and shop around to try to get the best deal. However there is often a cartel arrangement between buyers to control this and price-setting is easily achieved through the mobile phone network.

The role of the supporter may be quite precarious if the miners cheat them out of the best material. They take the upfront risk but do not always benefit from the prize minerals. Traders have many mechanisms to protect their profit margins. This includes levying taxes such as *‘humidité’* to account for the extra weight of wet minerals, and using weights that

are slightly over the actual in order to pay a lower price for a larger quantity of material.

The money paid to the miners has to be split between the team involved in the mineral production, as well as to the other service providers that they have used, such as mineral sorters and transporters.

Traders, both small and large, have a network of buyers to whom they pass on the material. Miners rarely have access to this network, nor the expertise or resources to benefit from it.

State-owned enterprises or agents often play a key role as an ASM buyer. In Mozambique, the government Mining Fund plays a dual role in licensing and regulating ASM, as well as acting as a buyer, particularly in remote sites where the miners have restricted access to competitive pricing. In the DRC, the state-owned enterprise for copper, Gecamines, is a key buyer of ASM product.

A proposed study in the DRC by the University of Brussels will look at the potential to create an ASM ‘bourse’ or legal, collective market for ASM products as a clearing-house where lots produced by artisanal miners could benefit from organised pricing, bargaining power, etc.

There are important domestic markets for some ASM products, notably construction materials (sand, gravel, stone, etc.). For minerals destined for the export market, depending on the mineral, the number of export traders may be quite small. If profit margins are low, it is essential to trade in volume therefore there is not room in the market for many large traders. The costs of trading may be high – not just the physical transport costs but also the border taxes, the security pay-offs, and the opportunity cost of the time spent trading instead of producing. Market prices fluctuate therefore the export trade must have a financial buffer which means they can wait for the price to increase if necessary. Export traders may also try to make a profit on foreign exchange.

A study by the Egmont Institute revealed significant profits recorded between the ‘overseas buyer’ (national point of export) and the ‘final buyer’ (international point of import). In the DRC, this mark-up was estimated to be 700%, significantly higher than in countries where the ASM sector was more formalised.

It is important to note that marketing chains have often developed and evolved over years to adapt to the particular conditions and constraints of their social and economic environment. They have perfected their performance by a form of natural selection. The challenge of a development intervention is to first identify the constraints which may be changed and, second, to assist the adaptation so that it evolves in a direction which benefits the intended population groups<sup>lxxiii</sup>.

### **Key interventions to strengthen the miners' position**

Improved technology, value addition and access to finance have already been discussed as an important potential contribution to ASM strengthening. Other important interventions that contribute to improved market access include:

- Improved organisation of ASM
- Improved knowledge of values and markets
- Increased access to improved communications

### **ASM organisation**

Improved organisation and formalisation of ASM is cited in virtually every paper making recommendations within the ASM arena.

Artisanal miners cite an increasing complexity in the range of issues that they want to address through becoming more organised. At the simplest level, organisation is seen as a way of establishing and defending ASM rights. It is a way of accessing supplies through collective purchase, and to access materials or resources which may be restricted for individuals, such as explosives. The miners see organisation as a means of creating better trading conditions and, as organisations become more mature, this encompasses certification and access to international markets<sup>lxxiv</sup>.

Working in groups can confer significant advantages to ASM workers in terms of collective action and political leverage, improved productivity and market access. While the ASM sector in South America, for example, is highly organised in terms of associations but this is less evident in Africa. There is a range of structures which can be established to improve ASM organisation including cooperatives, business associations and unions.

The objective of government in organising ASM is to make the sector more identifiable including the potential for licensing and census; to improve potential for management and regulation; to create more effective channels of communication; and to create platforms whereby interventions can be more effectively delivered. Organised ASM is also easier to tax.

### **ASM Cooperatives**

Defining what is meant by a 'cooperative' in any given circumstance is very important as the term can imply certain conditions and benefits which are not always present. The ILO defines a cooperative as "*an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through jointly owned and democratically controlled enterprise*".

This is not always the case in ASM cooperatives. In Katanga in the DRC, for example, the main ASM cooperatives are actually associations of traders who control ASM activities. In order to work on a particular site, a miner may have to pay a fee to the cooperative as well as a tax per sack of material produced. These cooperatives, in theory, provide some funds in the case of accidents on the site, and contributions to the costs of funerals.

Some groups of artisanal miners form cooperatives in order to comply with the law in countries which require ASM to be structured, others to access services. In Mozambique, 61 cooperatives have been established as part of a pilot project. These groups are given support by the government on legal issues, technical assistance and training.

An interesting study was carried out in 2008 by Partnership Africa Canada to assess ASM diamond cooperatives in Sierra Leone<sup>lxxv</sup>. A USAID funded project focused on the development of cooperatives to achieve market-led change, legalization and miner empowerment was assessed for impact and important lessons were elaborated. The report records that the cooperatives were undemocratic; executive members were selected according to social status rather than merit; understanding was poor and member relations were not equal or fair. Production was similar to traditional systems, with gangs of younger workers managed by older, more powerful community members. The cooperatives aimed to help members move from dependence to independence. Instead, the

overall effort became little more than a classic top-down aid project. Capacity was weak, expectations were high, thefts occurred and many members were either unwilling or unable to contribute funds to the cooperative, meaning that there was no shared ownership. The report emphasises that any such intervention must be introduced with due attention to design, pacing, ownership, training and management.

#### **Box 4: Key Reference Document**

*Sierra Leone: Artisanal diamond cooperatives - success or failure? (PCA & DDI, 2008) gives a useful critique on a project to establish and support diamond mining cooperatives in Sierra Leone*

The nature of high value, low volume, and portable products such as diamonds or gold may create barriers to cooperative structures. A single stone may be of significantly higher value than the rest of a day's production and the finder may be reluctant to contribute this to the collective income. The same applies to a rich nugget or vein of gold. The market access and reward opportunities may, therefore, predicate against successful cooperative structures.

#### **Small-scale Mining Associations**

There are considerably more examples of effective associations in the small-scale mining arena than in the artisanal community. This may be because of the increased sophistication of these associations which represent the collective business interests of their members to government and the markets rather than trying to create a shared economic livelihood model. Examples include the Burkinabe Professional Miners Association, the Small Miners Association of Tanzania, the Namibian Small Scale Miners Association, the Small-Scale Miners' Association of Zimbabwe, and numerous associations in South Africa such as the African United Small Miners Association.

In Tanzania, the associations have further consolidated their membership and impact through the creation of umbrella bodies such as the Federation of Mining Associations of Tanzania (FEDEMA) and the Regional Mining Association (REMA).

There are also examples of mineral-specific associations such as the Emerald and Semi Precious Stones Mining Association of Zambia (ESMAZ) which has a membership base of 400 owners of emerald mines. ESMAZ has carried out workshops for its members on accountability, basic geology and accounts and book-keeping<sup>lxxvi</sup>.

There are several examples of women's associations including the Association of Zambian Women in Mining (AZWIM), South African Women in Mining Association (SAWIMA), the Zimbabwean Women Miners' Association and the Tanzania Women Miners Association (TAWOMA). Some of these are discussed in more detail in the next chapter.

In Namibia in August 2008, the Minister of Mines and Energy contributed N\$500,000 from the Minerals' Development Fund to the Erongo Region Small Miners Association (ERSMA), a body that protects and advances ASM interests. Following this commitment, the European Commission gave N\$8.3m through the Rural Poverty Reduction Programme for the Erongo Region and Shell Namibia donated a further N\$50,000 towards strengthening the financial capacity of the association. The Minister further pledged the same amount of money to other mining associations across the country, saying the funds would help support and strengthen the small miners' activities<sup>lxxvii</sup>.

In Sierra Leone in 2008, a Chamber of Mines has been established with a strong emphasis on ASM.

#### **Unions and syndicates**

Unions also exist in ASM and are another form of organization which can improve ASM rights and representative, though these are far less developed and active in Africa than in other parts of the world. The Mineworkers Union of Zambia is actively trying to sensitize the workers in the small-scale mines to join unions in order to exercise their right to collective bargaining to have the right to a living wage. DFID supported the creation of the United Mineworkers Union in Sierra Leone. The Diamonds for Development participants suggest establishing a regionally based trade union in West Africa with autonomous national branches to allow diggers to move between mines and effectively represent their voices locally and internationally<sup>lxxviii</sup>.

## Improving ASM knowledge and capacity

Knowledge of markets and commodity prices may help in enabling artisanal miners to have a stronger bargaining position for their materials, but this is not certain. Miners in remote rural areas may have few choices about whom they trade with and even if they know the value of their product, they may have little ability to command a better price. Certain commodity prices are well known to the mining communities, particularly in areas where there is cell phone coverage. If there are multiple traders in the area there may be some flexibility and offers of better prices to attract clients, however the miner-trader relationship is often very strong and not easily transferable just on the basis of price.

Where knowledge of the value of the product has the greatest potential to improve the prices artisanal miners receive is in relation to diamonds and other gemstones. But even this may be limited. The value of a diamond is variable depending on the key qualities and features of the stone, but also on the interest of, and access to, the potential buyer. Even if the miners have an improved knowledge of the value of the stone, they still need to be able to get to the right buyer.

The Diamond Development Initiative has identified training in diamond valuation for ASM miners and traders as a key activity to improve livelihoods and market access. The Peace Diamond Alliance provided such training in Sierra Leone but it has not been possible to identify and attribute improved prices to this training.

## Technology and market access

Thanks to the advent of the internet and mobile phones, even the smallest trader can easily find the international market price of a mineral which can provide some bargaining power depending on the situation and degree of choice of traders.

Another potentially important new development in market access is the internet. Searching the 'alluvial gold dust' section of internet trading websites, such as [www.africa.tradeholding.com](http://www.africa.tradeholding.com), shows a new and interesting branch of the ASM supply chain. For example one 'Chief Konate' in Benin posts his offer as: *"We are gold groupement / cooperatives from West Africa, known as Africa Gold Dust, we produce alluvial gold dust in big quantities. Presently we have a*

*considerable quantity of pure gold dust. Upon agreement buyer is to proceed to Benin inspect and have the product analyzed to ascertain quality/purity after which buyer is responsible for the export cost which is 10% of the total value"*.

The Ghanaian Akwatia Small Scale Miners Association advertises its product on [www.goldminershq.com](http://www.goldminershq.com). Rough diamonds produced by *"honest bushmen; small-scale miners; artisanal miners; village women diamond unions; and local diamond traders"* are available on [www.momohdiamond.com](http://www.momohdiamond.com).

On such websites, ASM minerals ranging from gold to coltan, from tanzanite to uranium, are being sold from countries across the continent. Whilst clearly unregulated and just as open to abusing ASM workers as any other market outlet, on-line marketing is increasingly popular and has been praised by the Kalomo Miners Association in Zambia as the best method for selling gemstones mined by its small-scale miner members<sup>lxxvix</sup>.

## Domestic ASM markets

ASM activity for certain industrial minerals, construction materials (clay, sand, stone, etc) and resources such as salt are important to domestic markets in Africa. These may go un-noticed or un-recorded but may be widely carried out in small quarries and along roadsides. Whilst precious minerals such as gold and diamonds are largely for export, other products are traded within national borders or with African neighbours. Some of these products and their markets have a greater potential for growth, sustainability, and are less susceptible to rapid price fluctuations, than some other minerals mined by ASM.

UNECA notes that ASM's potential as an instrument of rural development and poverty alleviation is particularly noteworthy in relation to the exploitation and processing of industrial minerals (e.g. clays for use in ceramics, fertilizers, mica for use in paints)<sup>lxxx</sup>.

An example is "Rocks for Crops", which involves the extraction and processing of nutrient-rich minerals for agricultural inputs and fertilizers.

In relation to these markets, gender issues also need to be given priority as women are frequently employed in this type of ASM. Interventions that support all ASM workers, but perhaps with a an

emphasis to ensure equal access to finance, technology and markets for women could contribute to improving livelihoods from ASM quarrying, construction materials, agro-minerals and minerals such as salt.

In the village of Keana, Nigeria, where 100% of the mining workforce is comprised of women, revenues generated from salt mining have enabled mothers to sponsor their children to attend school at rates well above surrounding communities<sup>lxxxix</sup>.

In Malawi the government does not extend finance resources specifically to ASM, however an exception was made for the Lirangwe (Women) Limemakers Association (which was funded by the European Union) with a view to promoting women entrepreneurs. The women in the Association were provided with funding to purchase mills<sup>lxxxix</sup>.



## 7. Certification of ASM Minerals

### Why certify ASM products?

When considering how best to improve the livelihoods of artisanal miners and ASM workers, certification is often proposed as a means to guarantee improved living, work and trading conditions. Certification provides third party assessment and guarantee that a particular product, production method or supply chain conforms to a given set of social, environmental, political, economic or ethical criteria. Certification is a means by which buyers can seek to ensure that the products that they purchase are produced and traded in accordance with these criteria.

#### Box 5: Key Reference Document

*Certification and Artisanal and Small-Scale Mining: An Emerging Opportunity for Sustainable Development, produced in 2008 by CASM (the Communities and Small-scale Mining Unit of the World Bank and DFID), details the background to the emergence of minerals certification as a tool for stimulating sustainable development in artisanal mining communities.*

Before certification enters into any ASM policy or planning, it is essential to be sure that this is an appropriate intervention. Assurance as to products'

provenance or pedigree can be provided by government through legal instruments, by companies through their trading and corporate social responsibility standards, and through voluntary standard-setting by multi-stakeholder groups such as certification bodies<sup>lxxxiii</sup>.

The first recourse before introducing certification systems should be law enforcement. In many countries in Africa, there is already national legislation which, if enforced, would legally address many of the issues which plague ASM.

Certification systems should explicitly promote law enforcement and should not distract from this critical issue by creating parallel sets of standards. Certainly, producers and buyers have a key role to play in ensuring that good standards of production and trade are observed, however the primary responsibility for this should not be shifted from government to the market, particularly not if the compliance mechanism is voluntary, as is the case for most certification systems.

There are issues which are not addressed by the law, or that are open to interpretation and in this case, certification can provide supplementary and specific guidance, notably on issues such as fair trade



### Chapter Summary:

Certification has the potential to improve the marketability of ASM products however it is essential to establish the need, the criteria, the stakeholders and the mechanisms. Before deciding on the use of certification, other options should be explored to ensure this is the right choice. There are a wide range of social and environmental issues championed by certification, but it is most effective if the objectives are simple. Determining the origin of a mineral requires a traceability system. The main system for revenue transparency which could apply to ASM is the EITI. Specific systems for gold already exist, and a new system for industrial minerals is in development. Certification in ASM is relatively new so there is little analysis of impact to date but premiums appear to be rare.

Left: Kimberly Process paperwork being completed for \$170,000 worth of diamonds.

which is a complex and subjective issue and is rarely articulated in legal instruments.

A table of the main current certification systems relevant to ASM in Africa, including their origins and participants, is given at the end of this chapter.

### **Certification criteria**

One of the key challenges in creating useful certification systems is the setting of the criteria by which ASM operations can obtain their licence. Existing criteria under which certification systems operate include, but are not limited to:

- Minerals that are not mined or traded under conditions of war, or to fund conflict
- Decent work conditions
- Environmental and 'green' issues
- Mercury free gold treatment
- Sustainability issues, defined in the CASM document as *"minerals are produced in ways that demonstrably contribute to achieving the economic, social and environmental sustainability of the localities where the minerals were mined and processed, without undermining the sustainability of communities elsewhere"*
- Child labour free products
- Fair trade where ASM workers receive an improved income
- Transparency of revenues and tax payments

The terms 'ethical' and 'responsible' are used and interpreted by different systems to encompass a wide range of issues but need to be clearly defined if they are to have a practical role in certification.

### **Certification features**

ISEAL, the International Social and Environmental Accreditation and Labelling Alliance, is an "association of leading voluntary international standard-setting and conformity assessment organisations that focus on social and environmental issues." It has developed a Code of Good Practice for the development of social and environmental accreditation schemes. This sets out procedures for developing environmental and social standards and conformity assessment procedures.

The process of developing a certification system requires articulation of objectives; rigorous assessment of needs and feasibility; engagement of stake-

holders; definition of criteria and mechanisms; development of finance and management systems and resources; pilot testing, results reporting and building a constituency of support.

Levin (2008) presents a short checklist of features for effective certification systems:

- Simple– the criteria, process and guarantees must be clear. A risk for certification systems is that they may be overly aspirational in relation to the reality on the ground
- Productive – the system must be effective, must realise its objectives and demonstrate a positive impact
- Financially independent & sustainable over time
- Legitimate amongst key stakeholders – the system must have relevance to all actors and must gain their confidence,
- Applicable in a variety of contexts

Thus, if a certification scheme is to be included in any ASM intervention, it should be appropriate to the issues, have a significant and multi-sectoral constituency of support, have the potential to get to scale relatively quickly, deliver clear and measurable benefits to the actors involved, and be independently audited and evaluated. Certification systems should not create exclusive elite, but rather should demonstrate benefits and thereby encourage participation which can move the whole sector in a positive direction.

### **Traceability**

If illegal transactions are to be eliminated from ASM trade, traceability of materials is an important element. However, this is extremely difficult in practice as ASM materials may be produced by workers, often clandestinely, across a wide geographical area and consolidated by traders as they move up the supply chain making it progressively more difficult to determine origin.

The technical and practical aspects of traceability are, therefore, very difficult. Techniques which have been proposed include mineral 'fingerprinting' (analysing radioactivity, exact content, size and type of particles, etc); blending of 'tracers' into shipments of minerals; and cross-checked record keeping from the source to the ultimate destination of the product.

There are also socio-economic and political deterrents to the effectiveness of traceability systems in ASM. Traceability can lead law enforcement agents and inspectors to sites where poor or illegal practices are used, which in turn could result in fines or prosecution. It facilitates taxation. It exposes illegal actors and profiteers in the supply chain, thereby disrupting their income. Thus there are many powerful pressures which have little interest in seeing traceability systems succeed. When these economic forces are coupled to political resources, the enabling environment for success is considerably compromised.

In order to overcome these deterrents, there must be clear incentives for the miners and traders to support traceability. For the miners themselves, any motivation must include the potential for improved income and working conditions. For legal buyers linked to the formal supply chain, the motivation will be improved or continue market access and opportunities. For responsible government concerned with national revenues and economic development, the incentive will be improved tax returns and investment in their minerals trade. However, the greatest challenge is to find motivations for the illegal 'spoilors'. In this case, change must be clearly linked to effective law enforcement and a shift in the balance of the market which marginalises illegal activity and simply makes it harder and more expensive to do. Erosion of profit margins for illegal actors is what makes the difference, but also creates risks.

### Transparency

In 2008, a study was carried out by DFID to look at the potential for implementation of the most widely recognised transparency tool, the Extractive Industries Transparency Initiative (EITI), in relation to ASM in the DRC. The report found three particular areas the EITI can help to increase transparency in the state's interaction with ASM, namely license fees, tax payments and export charges. However, the essential preconditions for the EITI to achieve efficiency and effectiveness in implementation in relation to ASM include a legal basis conducive to ASM formalization, the political support of the government, a private sector committed to accountability, as well as knowledgeable and vibrant civil society organizations to ensure the credibility of the EITI process<sup>lxxxiv</sup>.

One practical example of how transparency can be introduced to ASM production comes from Anvil

Mining in the DRC. From 2006-2008, the company purchased copper tailings from artisanal miners working in a river bed on its concession. The company traded directly with the 200 traders, or *negociants*, who represented the 5,000 miners on the site. Government agents from the Ministry of Mines service for ASM helped to manage the site and, at the point of sale to the *negociants*, Anvil deducted the legal tax due to the state. This tax revenue was recorded and paid into a government bank account. Whilst this was not certified, nor formally designated as an EITI initiative, it was one example of LSM-ASM-Government collaboration to introduce legal and transparent processes to ASM trading.

### Standard Zero

The Association for Responsible Mining, ARM, is an independent, international and multi-institutional organization to bring credibility, transparency and legitimacy to the development of a framework for responsible artisanal and small-scale mining.

ARM has worked with a network of partners to develop 'Standard for Fair Trade Gold and Associated Silver and Platinum' which is a set of principles gleaned from the Fairtrade Labeling Organisations International (FLO) standards for small agricultural producers, but adapted to ASM. It follows the characteristic fair trade grouping of social, economic, labour, and environmental development standards, with specific requirements for fair traders and jewelers. Within Standard Zero, gold can be certified as "Premium" if neither mercury nor cyanide is used in processing.

Following successful implementation in South America, ARM plans to hold a series of development workshops with ASM partners to set objectives; assist organisations with self-assessments; provide tool kits for analysis of operations and finances; provide technical support and capacity building; share information; and establish Standard Zero certification in a network of pilot ASM projects in Africa.

### Certified Trading Chains

The German government is currently developing a project based on the concept of Certified Trading Chains (CTCs) which will link local mineral suppliers in developing countries to mineral consumers in industrialized countries. This will be a site-based certification system which will initially focus on tin,

tantalum, tungsten and other related minerals in the Great Lakes Region. The project launches in Rwanda in 2008, and in the DRC in 2009.

The CTC requires responsibilities and transparency on both sides. CTCs are to be independently audited and based on a verifiable system of indicators adapted to the local context of ASM<sup>lxxxv</sup>.

### Impact of certification

A key area which is lacking in relation to the analysis and promotion of certification systems for ASM practices and products is an evaluation of the certification systems already in existence. There is little substantive information available on what proportion of ASM minerals are covered by, and how many ASM workers are benefitting from, certification.

The Kimberly Process Certification Scheme (KPCS) is a joint governments, industry and civil society initiative to stem the flow of rough diamonds used by rebel movements to finance wars against legitimate governments. The KPCS imposes extensive requirements on its members to enable them to certify shipments of rough diamonds as 'conflict-free'. It is the most ubiquitous and successful certification system currently operational for ASM materials. A review of its functioning and impact was carried out in 2006 after three years of operation<sup>lxxxvi</sup>. The report indicated that the Kimberley Process has been successful in curbing the flow in conflict diamonds down to less than 0.2% of the world's total annual production of diamonds by volume (total production being in the range of 160 million carats pa).

There is evidence, therefore, of the positive impact of the KPCS in relation to its specific, focussed aim of reducing the trade in conflict diamonds. But this is an exception as there is little other independent evaluation available to give informed opinion on the impact of other certification systems. It is postulated that certification is more effective in relation to precious metals and gemstones which are used in the jewellery business as it is easier to make an emotional connection to the mineral in this sector, whereas in industrial minerals it is more challenging to connect the buyer to the market.

A factor in assessing the success of certification systems is whether or not the producers can attract a price premium for their certified product. This benefit is frequently promoted by certification systems,

particularly in relation to fair trade. However there are not yet many examples of this being effective in ASM. The international price for diamonds is constant regardless of origin. There is no price premium for certified diamonds other than Canadian diamonds which attract a premium of 10% as being guaranteed 'conflict-free'<sup>lxxxvii</sup>.

Certification in ASM is still in very early phases and lessons should be learned from other sectors such as food, textiles, etc, where consumer choice and market mechanisms to respond to purchaser criteria are more developed. However what is already clear in ASM is that there is a risk of a proliferation of certification systems which could create confusion in the market as each vies to gain market recognition and to establish its brand. Synergies, shared objectives, collaboration, and good communications are all essential when designing or selecting certification systems.

A very useful new tool will be the UNCTAD Sustainability Claims Portal. "Sustainability Claims" are defined as "*distinctive signs or labels borne by products according to which their supply chains from production to consumption comply with sustainable agricultural practices*". Sustainability claims include fair-trade, organic standards, environmental standards, labour conditions, CSR, geographical indications, etc. The portal will generate discussions on sustainability claims, with a view to promoting sustainability, enhancing accountability, increasing transparency on trade in agricultural commodities marketed under sustainability claims; define requirements for organic production, fair-trade, environmental and social accountability schemes. The portal will also provide consumers with a central access point to existing sustainability schemes a clear presentation of relevant minimum requirements to small producers and cooperatives by filling the gaps among current sectoral programs.<sup>lxxxviii</sup> This could also make an important contribution to the process of assessing the impact of certification systems and generating lessons for use in ASM.

Table 6 Certification system directly impacting on ASM

System	Origin	Stakeholders	Focus	Status	Criteria													
Diamond Development Initiative (DDI) Standards	Standards emerged from the Kimberley Process to strengthen the developmental impacts associated with artisanal diamond mining in Africa <a href="http://www.ddiglobal.org">www.ddiglobal.org</a>	Civil society, consumers, diamond industry, governments, and I/NGOs,	Gather and disseminate information on ASM; promote better understanding and solutions for regulation, marketing channels, production, and ASM organization; and promote wide participation with government, donors, and industry, and development orgs.	Active – has produced standards for Sierra Leone, DRC in draft	Labour, health & safety	✓	Environment		Mercury		Land rights		Child labour		Fair trade		Transparency	✓
Green Gold	Inspired by the success of fair-trade tea and coffee, sustainable development group, Oro Verde, worked with local people in 12 sites to develop a set of environmental and social criteria for artisanal small-scale gold mining <a href="http://www.greengold-oroverde.org">www.greengold-oroverde.org</a>	ASMs, civil society groups, consumers, gold industry, and environmental agencies	Demands compliance with socially and environmentally responsible practices by imposing a rigorous certification process on all mining methods.	Nearly 200 Afro-Colombian mining families have signed up under the initiative to date.	Labour, health & safety	✓	Environment	✓	Mercury	✓	Land rights		Child labour	✓	Fair trade		Transparency	
Kimberley Process Certification Scheme (KPCS)	The KPCS document sets out the requirements for controlling rough diamond production and trade. The KPCS entered into force in 2003, when participating countries started to implement its rules <a href="http://www.kimberleyprocess.com">www.kimberleyprocess.com</a>	Civil society groups, consumers, diamond industry, and governments	To prevent or stem the flow of conflict diamonds from entering the legitimate diamond supply chain	Active in 48 member states; represents 74 countries	Labour, health & safety		Environment		Mercury		Land rights		Child labour		Fair trade		Transparency	✓
Mwadui Principles	The Mwadui Community Diamond Partnership (MCDP) developed a set of “Mwadui Principles” and agreed to demarcate an area within the Williamson Diamonds lease for MCDP diamond digging <a href="http://www.debeersgroup.com">www.debeersgroup.com</a>	Civil society groups, diamond industry, governments, and I/NGOs	Alleviating poverty and formalizing the artisanal diamond mining sector that has grown in the area around the Williamson Diamond mine in Tanzania. Shareholders have agreed to demarcate an area within the company's lease for MCDP digging activities and to establish a local Diamond Valuation Centre	Active	Labour, health & safety	✓	Environment	✓	Mercury		Land rights		Child labour		Fair trade		Transparency	✓
Standard Zero	Set of draft principles and standards produced by a technical committee under the coordination of the Association for Responsible Mining, ARM ( <a href="http://www.communitymining.org">www.communitymining.org</a> )	Civil society groups, consumers, gold industry, governments, and I/NGOs	Certifies that gold from artisanal and small-scale miners meets social, environmental and human rights standards, and provides added economic benefit to local communities	Active - to launch in Africa in 2009	Labour, health & safety	✓	Environment	✓	Mercury		Land rights		Child labour		Fair trade		Transparency	✓



## 8. Women, Gender and ASM

### Women in the ASM workforce in Africa

It is estimated that women constitute 40-50% of the ASM workforce in Africa<sup>lxxxix</sup> which means that around 4m women work in and around mines. This varies from country to country, with a significant majority of ASM being carried out by women in Southern regions of Burkina Faso, some areas of Mali, and the western regions of Ethiopia as well as in areas of Uganda, Kenya and Guinea. Women frequently use ASM as a supplementary income source, often seasonally, and their presence around the mines may be less visible, so they may be excluded from estimates and the number of women in the mines may be even higher.

In order to update the estimates of women in ASM in Africa, the new country statistics provided in this report (see Appendix A) have been used but the previously calculated percentages quoted in the seminal paper by Hinton, et al, have been used, with some new additions:

Table 7 Women in ASM

Country	No. women in ASM	% of women in ASM
Burkina Faso	90,000	45%
Ghana	112,500	45%
Guinea	70,000	70%
Kenya	80,000	80%
Malawi	6,000	10%
Mali	200,000	50%
Mozambique	60,000	30%
South Africa	500	5%
Tanzania	375,000	25%
Uganda	90,000	60%
Zambia	18,000	30%
Zimbabwe	250,000	50%

Throughout the continent, women play a much bigger role in ASM than in LSM. Given this huge role it is extremely important to accord particular consideration to gender issues in designing ASM policies and interventions.

#### Box 6: Key Reference Document

*A comprehensive overview of women and gender issues in ASM is given by Jennifer Hinton, et al, in Chapter 11 entitled Women and Artisanal Mining: Gender Roles and the Road Ahead, published in The Socio-Economic Impacts of Artisanal and Small-Scale Mining in Developing Countries, edited by Gavin Hilson (2003)*



#### Chapter Summary:

Women may constitute up to half the ASM workforce in Africa. They fulfil a wide range of roles including digging, transporting, washing, sorting, processing and trading. Women also provide services to mining areas including catering, sales of goods, and sex work. There is significant gender discrimination in ASM so a gender-sensitive approach is needed in project planning. Women are frequently paid less for the same work as men. Women face a range of risks in the mines, particularly relating to health and sexual violence. When women are obliged to bring their young children into the mines, this can have negative effects on the children's health, access to education, and future development. However women also take advantage of opportunities in the mines, including the creation of associations which can generate social benefits.

Left: Women preparing food for sale to artisanal miners.

## Roles for women in ASM

Women carry out a full range of activities within ASM, both in the mines and in the provision of support services. In the actual mines, women dig, crush and pound rocks, wash and sort material, carry out processing such as amalgamation of gold, and transport materials.

Women are often involved in trading of minerals also, and in some cases they may become powerful mine owners or chiefs.

Outside the mines, women provide services as suppliers to the camps. This can include sales of goods, restaurant and hotel businesses, and employment as sex workers.

## Gender discrimination in ASM

Women in ASM suffer discrimination in relation to opportunities, and pay and are often required to surrender high value products. USAID reported that in Sigui in Guinea, men typically take control of 80% of the profits generated by the women who work alongside them doing the same tasks<sup>xc</sup>.

There is a relationship between levels of technology use or mechanisation and the numbers of women employed in ASM. Typically, women work in less mechanised ASM operations. As the mechanisation increases, the number of women involved reduces<sup>xci</sup>. This may be due to assumptions that women do not have the technical skills or cultural 'suitability' to operate machinery or may be due to the formalising of work structures which focus on recruitment of men. It may also be that as income generation opportunities improve, men dominate the new and better paid options while women are relegated to the lower income activities. Another contributing factor may be that women have greater difficulties in accessing capital to purchase equipment. In Tanzania, women have to have their husband's permission before applying for a loan<sup>xcii</sup>.

In some countries and for some minerals, women are excluded from the actual mines for a variety of reasons including superstition that they will make the ore disappear. In some cases observed in the DRC, a woman may be a chief of an ASM camp and a mine and yet not be allowed to enter the mine except on certain auspicious days following fetish ceremonies. Such cultural taboos are reported from ASM commu-

nities in many other countries, including Zambia and Mozambique. Other reasons for banning of women from mines include concerns for health and safety and the pragmatic reasoning of some mine owners that women create a distraction for the male workers.

Women in mining may be subject to discriminatory international and national laws in the name of 'protection' such as the ILO's 1930s ban on women working underground and during night-shifts, which are followed by many countries<sup>xciii</sup>. In the DRC, despite the fact that the Mining Code does not discriminate against anyone working in the mines on the basis of gender, local authorities may produce legislation prohibiting the presence of women in the mines.

As noted in Chapter 3 on Government and ASM, land rights and mineral titles are fundamentally important determinants of the success or struggle of ASM workers. Another layer of challenge is added for women in countries where land rights are not equitable for men and women. In such cases, women have little opportunity to genuinely develop strong livelihoods within ASM. Hinton, et al, note that *"policies that restrict or deter women from obtaining concessions or land rights further contribute to the feminization of poverty"*.

## Risks for women in ASM

Whilst everyone in the sector faces challenges, the security, health, and social risks posed to women can be particularly acute and include:

- Health risks due to lack of sanitation in camps, malnutrition, and physical trauma from the difficulty of the manual labour. Women in mining camps can suffer miscarriages due to injury and stress
- Exposure to mercury vapours, particularly in countries where amalgamation is considered to be a women's activity and is carried out in the home
- Sexual and Gender-Based Violence (SGBV) and abuse in the mines, is a serious risk for women working in ASM. SGBV can take many forms. A recent study carried out in the DRC, which has the worst rate of rape and sexual abuse in the world, identified that ASM situations pose significant risks of SGBV for women and children



- Family break-up, polygamy, and abandonment due to the highly migratory nature of ASM
- Exposure to, and involvement in, disruptive and damaging behaviour due to the high levels of alcohol and drug abuse in ASM camps
- The risk of HIV/AIDS and other STDs due to prostitution and the risk profile of ASM activities (large concentrations of migratory young men, family separation for prolonged periods, high levels of military presence, lack of awareness, no condom use)

Physical risks and ailments can have social implications which seriously compromise women's status within the family and the community. In Uganda, women working as salt-miners spend long periods of time standing in concentrated salt water which, over time, results in genital corrosion and miscarriages. When this occurs, women may be abandoned by their husbands. The same happens to women working in mines and quarries who have rough hands and skin and may be divorced or abandoned for being unattractive to their husbands<sup>xciiv</sup>.

### Implications for children

Women are frequently obliged to bring their children with them to the mines, and to live with them in mining camps. This can be due to the fact that children are too young to be left alone, there is no one else to care for them, or the distance to the mine is too great. The idea of providing crèche facilities for children near mines has been proposed by the ILO<sup>xcv</sup>.

Their physical presence in the mine can be a major contributor to the phenomenon of child labour in mining as the children are given tasks to do within the mine. If they become habituated to this; if the income they generate is essential to the family; or if the mine is remote from any schools; these children can be excluded from education. It is important that initiatives aiming to remove children from mines consider if and how the mothers are engaged in and around the mines. Finding ways to supplement the mothers' income, or otherwise support them to improve their household finances, may have a direct impact on the welfare and labour status of the children.

Children are vulnerable to accidents, exposure to toxins, disease due to lack of sanitation, exploitation and predation as a result of their presence in the mine accompanying their mothers.

The issue of labour in the mines can be particularly difficult for young girls as they typically also have to follow in their mothers' footsteps and, from a very early age, assume many domestic household duties including carrying water and firewood, preparing food, cleaning, and caring for younger children. Thus they already have a work burden even before they enter the mines. An ILO study on girls in ASM notes that *"From a young age, girls are suffering from the double burden of an increasingly hazardous and arduous workload and the domestic responsibilities in the home. Trapped between these twin pressures, girls in small-scale mining communities are especially vulnerable as their schooling inevitably suffers and their physical and emotional well-being is under threat."*<sup>xcvi</sup>

Projects aiming to address child labour in ASM should have a component which focuses on the parents, specifically the mothers. The economic and social status of women impacts profoundly on whether or not children are present and working in the mines.

### Opportunities for women in ASM

There are many ways in which women can profit from engagement in and around ASM. As noted above, they can assume many different roles and may have particular skills and qualities to contribute to certain tasks. For example, women are often considered to be better diamond sorters than men. They can be more dextrous, more patient and assiduous, and are often considered to be more honest.

Another interesting opportunity for women within ASM may lie in certification and market access, particularly in the precious metals and gemstones markets aimed at jewellery where women are primary consumers and could have an empathetic predisposition to products branded as coming from women's ASM businesses. However this depends on organisation and skills development which are often denied or inaccessible to ASM women.

In the DRC, Pact is carrying out a programme to assist women working in ASM mines and living in communities around mines to improve their situation

and opportunities. The 'WORTH' programme provides literacy skills and financial management training, and helps groups of women to form to collectively save a weekly income. This group fund can then be used to start micro-enterprises, with assistance from social development programmes of mining companies and USAID. This programme is also proving to be successful with women currently working in ASM who want to leave the mines for a different future.

### Gender sensitive approaches

A gender-sensitive approach to project planning and implementation analyses the different needs, challenges and opportunities faced by men and women. Interventions should be structured to recognise inequalities, monitor change, and reinforce progress. Women must be involved in all aspects of consultation, and must be empowered to participate fully and equally in decisions regarding the allocation and utilisation of benefits.

If women are not included, they may fail to access the benefits of the intervention. For example, many mercury awareness campaigns in the past have targeted men, and their education and literacy levels tend to be higher, women are often less aware of the risks of mercury than their male counterparts<sup>xcvii</sup>.

If women are disempowered or discriminated against by law, an advocacy component may be required within a project. In relation to ASM, this particularly includes issues such as women's right to own land and resource.

It is also important to note that women need men's support to achieve gender equity. Men may resist change through hostility, tokenism, trivialisation, sabotage or other efforts to avoid the implications of women's improved equity within the community. There are risks for women, and indeed for the stability of the whole community, during a period of power shift associated with gender rebalancing. Women may be socially rejected, may suffer negative or violent backlash, family structures and roles may be challenged, and family breakup may ensue<sup>xcviii</sup>.

### Women's ASM associations

Where women do manage to create formal ASM organisations or associations, they are frequently multi-dimensional, fulfilling a direct role in relation to mining and trading, but also having a social purpose

or impact. Their mining function may be coupled with one for youth support, financial management, legal dissemination, information sharing, solidarity or community assistance.

In Gulu, Uganda, the women of Laroo have formed an association to manage their quarry. They have put in place strict regulations regarding access and management. As a result of this show of strength and economic success, the social power dynamic has shifted somewhat and women are enjoying greater participation and empowerment in other aspects of social life and decision-making<sup>xcix</sup>.

Examples of other, more formal, women's associations include:

- The South African Women in Mining Association (SAWIMA)
- The Tanzania Women Miners Association (TAWOMA).
- The Malawi Association of Women Miners
- The Zimbabwean Women Miners' Association
- The Association of Zambian Women in Mining (AZWIM)

The South African Women in Mining Association (SAWIMA) was launched in December 1999 to assist informal mining groups to obtain mineral rights and run mining businesses/ operations and to promote female empowerment in the mining sector in accordance with provisions of the SA Mining Charter. SAWIMA carries out training, holds meetings and conferences to share experiences, and gives a platform to South African women miners to address their concerns to governments and the private sector. Such organizations have an important role to play in addressing gender issues in ASM.

## 9. Alternative Livelihoods and Diversification

### Sustainability

ASM is a critically important livelihood activity on which perhaps 6% of the population of Africa depends. But ASM is ultimately an unsustainable activity by the very nature of the fact that it is based on extraction on non-renewable resources. Therefore, even if ASM could be regulated, formalised, given technical support, achieve fair prices and good market access, in the end this can only be for a period of time. In some cases ASM can exist for decades, even centuries. But in others, the life of the mine can be extremely short, and ironically may be made even shorter if ASM techniques and access improved.

This leads to two key questions. First, can ASM contribute to sustainability and, second, how can people be moved from ASM to other more sustainable livelihoods?

Based on the UK Department for International Development, DFID's guidance on sustainable livelihoods, Hoadley and Limiplaw proposed that ASM should increase the sustainability of poor people's livelihoods in four inter-related ways:

- improving the community's ability to cope with, and recover from, shocks and stresses
- improving economic effectiveness, or the use of minimal inputs to generate a given amount of output

- promoting ecological integrity by ensuring that livelihood activities do not irreversibly degrade natural resources within a given ecosystem; and
- enhancing social equity, which suggests that promotion of livelihood opportunities for one group should not reduce options for other groups, either now or in the future.

Therefore, effective and environmentally sound ASM, whether as a main livelihood or as a coping mechanism in times of stress, has an important role to play, providing that it does not compromise the potential for future generations. This latter caveat is a difficult one to fulfil given that the resources themselves are non-renewable and their use certainly does limit future options.

There are many examples of how ASM related revenues stimulate other livelihood opportunities and not just in direct relation to service provision around the mine itself. Significant quantities of gold are exported illegally from northern DRC to Uganda. An interesting market dynamic has been observed where the major traders in the area transform their gold into cash and travel to a major trade centre such as Dubai or Shanghai where they purchase containers worth of consumer goods for freight transport via Mombasa, road through Kenya and Uganda, back to the DRC.



### Chapter Summary:

ASM is an inherently unsustainable activity. It can be made to last longer, but ultimately it is based on the exploitation of non-renewable resources. ASM can stimulate trade flows and important economic opportunities in supply businesses. Finding ways to help people transition out of ASM into other livelihoods is challenging as ASM incomes may be comparably higher than others, ASM offers a daily income, miners may be indebted, excluded from other opportunities, or unskilled for anything else. Some miners want to stay in mining, particularly in high value commodities. There is an important link between ASM and agriculture. The LSM sector offers potential employment and secondary business opportunities but developing viable small businesses is not always easy.

Left: Ex-artisanal mining women sorting maize from their cooperative farm.

There is currently a vibrant trade in motorbike kits (110 per container), which are assembled by young men who are trained as skilled workers in workshops all along the Aru/Arua border. From Ariwara the bikes are sold all over northern DRC and, even after transaction, shipping and assembly costs, they generate 50% profit for the trader. This is one (perhaps unusual) example of repatriation of economic opportunity, even though the initial trade may be largely illegal.

Finding ways to help ASM workers to develop non-mining incomes and livelihoods must be a fundamental part of any policy to address ASM. The issue of scale, however, is an important consideration and this has major implications for the timeline for transition. The number of people working in ASM is vast. Many of them will, eventually, leave ASM of their own accord when there are simply no more accessible minerals to mine. Planned programmes for transition are currently only at the local, project level, funded by individual mining companies, development agencies, or some national government initiatives. There is little joined-up thinking, and even less by way of a collaborative framework with targets, resources and milestones.

### Constraints and barriers to exit

In designing viable alternative livelihood options for ASM communities, there is a range of critical constraints which needs to be considered as these factors may create challenges or deterrents that constrain miners from choosing or staying with these alternative options and projects.

These factors include:

- Artisanal miners often have debts which have to be paid before they can leave ASM
- Every artisanal miner who leaves ASM reduces the income of other actors in the supply chain which can result in disruption of vested interests; artisanal miners may be pressured into remaining in ASM by traders and others

- High commodity prices can make alternatives less attractive and less competitive
- Some forms of ASM (such as diamond mining) are addictive. The ‘casino mentality’ describes artisanal miners’ belief that they will find a very valuable stone or resource and creates a gamblers’ commitment to continued mining
- ASM typically delivers a daily income to miners and others. Other livelihoods, such as agriculture, may involve a long lead-time and investment before returning a profit
- Many ASM workers may have been in the sector for a long time and therefore may have been excluded from education or training opportunities and may have limited skills and confidence to enter new activities
- People who have difficulty integrating into mainstream society and economy, for example ex-combatants, may find the lifestyle associated with ASM to be more familiar and easier to enter
- Just as access to finance for ASM is limited, so it is for those wanting to leave ASM and to start a new activity

Even without exceptionally high commodity prices or the deterrents of transition, ASM can still be more lucrative than other sources of income. A study carried out by the Mineral Resource Governance Project in Madagascar<sup>ci</sup> found the following differences between annual incomes for ASM and other livelihoods in mineral producing areas:

Table 8 Comparative incomes from ASM & other livelihoods

Livelihood	Precious stones	Gold
ASM	2,500,000 Ariary (\$1,520)	6,000,000 Ariary (\$3,650)
Agriculture	500,000 Ariary (\$300)	700,000 Ariary (\$425)
Livestock rearing	1,500,000 Ariary (\$910)	2,100,000 Ariary (\$1,275)

A USAID-sponsored study in Tanzania found that ASM miners earned on average six times more than the average wage from farm labour <sup>cii</sup>.

### **Opportunities within the LSM sector**

As ASM sometimes occurs in areas where formal mining activity is also underway, the role of LSM in creating alternatives is extremely important. The first and most obvious is in job creation. As contact usually starts at the exploration stage, artisanal miners can be employed by prospection teams to provide manual labour, land clearance, camp support, security services and other activities. These jobs may be temporary or may create further opportunities within the company during the subsequent stages of mine development and construction, both of which are labour-intensive.

Creating local supply opportunities which can absorb large numbers of ASM workers can be an important way of creating new livelihood opportunities within the new markets provided by LSM. Some companies actively rise to this challenge and opportunity, for example, Freeport McMoRan's Tenke Fungurume Mine in Katanga, DRC, has set the target of creating four jobs in the community for every one job in the mine. Many companies also support the principle of local sourcing of materials and this can create further opportunities such as:

- Quarrying, production of gravel and building blocks
- Production of other construction materials such as bricks, fencing, tiles, road reinforcement materials
- Market gardening and other local food supplies for the mine canteen and community
- Small businesses to produce other goods and materials such as sewing factories for overalls and ore sample bags

Another important intervention which can create alternative sources of income for artisanal miners and other community members is the use of High Intensity Manual Labour on infrastructure projects such as road construction. This can often be a challenge for LSM companies as they tend to work on tight timelines and need mechanised approaches to carry out work quickly to meet their mine development schedule. However road rehabilitation and maintenance may be an ongoing activity where manual labour is appropriate as the duration of the project is longer and the deadlines less urgent.

### **Challenges in depending on LSM-based alternatives**

But LSM mining is no more sustainable than ASM as the challenge of non-renewability remains, therefore all interventions that are undertaken need to constantly plan for the impact of mine closure and emphasise those activities which can survive when the resource is exhausted and the major economic powerhouse of the area, the mine, is closed. This is a worldwide challenge, which is neither restricted to Africa nor to ASM.

Another complication that LSM creates is that of magnetic attraction of people to the mining area, based on the new economic opportunities and social development benefits, which increases the population, puts pressure on the resident communities and their resources, and draws people away from other areas and activities which may be inherently more sustainable for the long term.

To counteract this, LSM must work in partnership with government planning to determine how resources and revenues can be managed to ensure development of other parts of the region rather than those directly around the mine. This is difficult, as the expectations of the immediately adjacent communities are high and companies are often reluctant to dilute their social development effort across a wide area where it is less visible and less closely associated with their own needs in relation to securing their 'social licence to operate'. This is allied to the question of the use of mining royalties, decentralisation and other macroeconomic and development challenges related to resource revenue management.

### **ASM, agriculture and food security**

The relationship between agriculture and ASM is important. ASM often degrades agricultural land and resources such as water. ASM may attract people away from agriculture and, if a 'rush' occurs at a critical time in the agricultural season, the crops for the year may be destroyed, abandoned, or consumed by migrants leaving the original community destitute. ASM can attract the most physically capable away from a village, leaving behind the older, weaker members who have less capacity to manage their fields.

At a time when food security is an issue of increasing global concern, there is a need for serious effort to go into strengthening agriculture to make it a

viable and attractive alternative for ASM workers. This may have particular viability if a seasonal transition is used – so that for part of the year ASM is the main income source, and for part of the year it is agriculture. Of course this will not work if the best season for both coincides. The challenges of transition can be managed but this requires multi-party input and approaches to address all the critical elements. Land rights and access, assistance for survival during transition, support for agricultural inputs and training, support for the creation of community agricultural structures, ensuring transport and access to markets are all components to create an enabling environment for transition.

In a study on sapphire ASM in Madagascar, miners were asked what they had done before mining. 54% of the miners had previously been farmers. Miners were also asked what they *planned* to do with their earnings, only 17% planned to invest the money in equipment to help their sapphire work, whereas 38% planned to buy land and cattle, and 20% planned to build a house in their homeland.<sup>ciii</sup>

### **ASM and enterprise development**

Supporting artisanal miners to set up alternative businesses is often touted as a way to support diversification of livelihoods. This has potential, however there are some basic factors which must be included in any project or programme to develop Small, Micro or Medium Enterprises (SMMEs).

The first is that most people in the world are either self-employed at a subsistence level, or they are the employees of someone else. The proportion of people who are actually employers is far smaller. The first, essential ingredient for a successful SMME is entrepreneurial spirit. Other elements such as business planning, access to finance, business development support, access to markets, etc, can all be provided through development programmes, but they will only be successful if the individuals identified have the drive and enthusiasm to create a business.

This equally applies to programmes designed to assist with the transition of the retrenched workers of state-owned enterprises during structural adjustment. If such workers are not provided with viable alternative livelihoods, there is potential for them to turn to ASM. However, workers who have been employed all their lives in often paternalistic

state monopolies may have little inclination or aptitude for the significant personal investment and energy required to establish a new business enterprise. It may be more effective to identify key individuals who have the potential to create business that can generate employment for others and to invest in them, rather than to disperse resources widely and to risk creating a portfolio of highly dependent and often struggling small enterprises.

ASM workers may face significant challenges in relation to literacy, skills, understanding of financial management and social stigma, so programmes should include and address these basic issues before introducing the technical elements of capital, training and business development.

Such skills and programmes for diversification do not have to be addressed separately from programmes that aim to support ASM strengthening. If ASM workers are given the training and support they need to work more efficiently and effectively in ASM, they can then apply these skills to diversification as the resource dwindles or other opportunities become apparent.

The concept of “mining clusters”, where growth is stimulated through the concentration of functionally-linked enterprises, has been promoted by UNECA as a way to advance livelihoods and economic development in mining areas. Although there would seem to be opportunities for “micro-cluster” development in ASM, considerable support is needed including training and equipment for downstream and upstream activities; provision of necessary infrastructure; improved relationships between authorities, miners and other sector stakeholders; and appropriate systems of taxation<sup>civ</sup>. Explicit support for these “innovation nuclei” should become central to livelihood development in the ASM sector<sup>cv</sup>.

## 10. Designing ASM Interventions

### Pre-planning ASM interventions

The world of ASM interventions is awash with clichés and generalisations. It is easy to fall into the traps that such sweeping statements can create. Avoiding such pitfalls can only be achieved through a comprehensive and accurate understanding of the particular ASM situation that any policy or program intends to address.

Critical elements in successful pre-planning include such obvious (but often neglected) observations such as:

- ASM communities are made up of individuals, each with their own drivers, constraints, concerns and personal opinions
- ASM, even if driven by and causing poverty, is often a livelihood chosen by people with free will and a desire to self-determine their futures
- Artisanal miners often have a strong, even patriotic desire to exploit their national resources rather than to see the government hand them all over to foreign companies. As such, ASM and ‘the right to mine’ can have popular support

It seems obvious but one of the most important elements in project planning is the direct and compre-

hensive inclusion of ASM communities themselves in the process. ASM mining and trading is made up of a complex web of interactions between all players and it is essential to have everyone playing their role if the intervention is to work. Disrupting the system will create unintended consequences, some of which may be worsen peoples’ conditions or compromise their security. The perspective and opinion of people at all points in the chain is relevant and important. In analysing these comments, it is essential to recognise the constraints and agendas which may influence their replies and find various approaches, conducive mechanisms, and forums which can make open, free participation possible.

This is underscored in work by Hilson, et al, which stresses that policy, technological and educational initiatives taken to address ASM may be marginally effective if designed and implemented without careful analysis of mine community dynamics, the organization of activities, operators’ needs and local geological conditions<sup>CVI</sup>.

Any policy intervention requires a detailed analysis of the political economy and institutional environment of ASM, the micro realities facing those engaged in the sector, and the development of a locally owned process, before appropriate and



### Chapter Summary:

ASM has a range of specific social features which need to be considered carefully in project planning. ASM communities are complex entities with layers of dependencies and agendas which may be challenging to fully appreciate; therefore even well-intentioned projects that disrupt the status quo can have negative impacts. People-focused, multi-disciplinary, multi-sectoral and holistic approaches must be used if interventions are to be successful. The role of the ASM community itself in designing projects is of critical importance. Managing expectations and focusing on clear deliverables is key. There are many lessons to be learned from other ASM interventions, and toolkits available to assist with participative project design. Conflict and gender-sensitive approaches are also important.

Left: Ex-artisanal miners running new gravel-making business on an LSM contract.

sustainable policy interventions can be identified<sup>cvi</sup>. It is of critical importance to establish a baseline by carrying out comprehensive research into the actors, dynamics and economics.

The *Toolkit for Implementing of Artisanal Small-scale Mining Baseline Surveys in Africa*, produced by CASM in 2005, was designed to help researchers, practitioners, policy makers and project managers to fulfil this essential step. Its use can help to build a more comprehensive understanding of the social, economic, political, governance, environmental and technological aspects of the activity and its impact on poverty reduction. It also provides the knowledge base and data required for designing and implementing policies and assistance programs adequate to reduce poverty and achieve social, economic and environmental sustainability. Finally, it enables identification of a set of indicators suitable for monitoring and measuring progress toward these developmental objectives over time<sup>cvi</sup>.

### Project planning

The general consensus in all contemporary literature on ASM is that people-focused, multi-disciplinary and holistic approaches must be used if interventions are to be successful. ASM is not an isolated activity carried out due to a discrete set of drivers. It is a product of, and contributor to, the socio, political and economic environment in which it occurs, both at the macro and micro level.

The following paragraphs describe some of the issues that need to be taken into consideration with each stakeholder group and context. However this should not be read as a top-down approach starting with government and ending with the communities. As noted above, the approach must be holistic.

At the macro level, the enabling environment for ASM interventions must be understood and, as far as possible, it must be made conducive to ASM regulation, strengthening and transition. Interventions must be grounded in the reality and dynamism of economic conditions, commodity markets, prices, drivers, etc, to create realistic economic opportunities and incentives.

At the national level, inclusion of the government at all steps in the process is essential to ensure that the intervention fits with national policy, recognises

national priorities and capacity or resource constraints, has political support and can be sustainable after the life of the project.

Government has the role and responsibility for integrated planning and impact analysis in relation to all aspects of ASM regulation, strengthening and transition. Without integration, the consequences of interventions can be unintentionally negative. A recent ban on the export of raw stones from Madagascar, intended to improve the national return on minerals, was implemented without parallel investment in the national capacity for cut and polishing, causing a significant downturn in revenues. Similarly, a ban on the export of raw copper ore from Katanga in the DRC did achieve its desired impact of improving control on illegal trading however it also led to a proliferation of unregulated smelters with serious detrimental environmental impacts.

Along with national legislation, regulation, economics and social development, consideration must then be given to the ASM trading chain and all the actors and relationships therein. Consultation is essential. Assumptions and inappropriate value judgements will create very weak foundations for interventions. Even if the ultimate objective is to reduce the presence or influence of certain actors, it must be recognised that this may not be popular or possible within the given timeframe.

At every point, the process must be participatory and transparent. ASM communities can be suspicious of outside interventions and intentions, as can other actors if a group works too closely or exclusively with ASM groups. Working with miners associations or any formal grouping can help to improve communications, cooperation, distribution of inputs, providing peer-support in training, and making collective decisions about the use of resources.

Interventions that involve technological or business components must be designed with appropriate expertise which understands the environment and the actors. As noted in Chapter 5 on ASM Productivity, projects should aim for specific, low-cost interventions to make a practical difference in living standards and economic growth and which are integrated with other aspects of livelihood improvement. Incentives are essential to ensure that initiatives will have traction with the ASM community, but must not be so



substantial that they then inspire new entrants to take up ASM to gain these benefits. Projects with an economic focus must be based on accurate market information that will enable the creation of genuinely viable projects, not ones which require subsidies or champions to survive in the long term.

Other, practical points which have been identified in ASM projects and reports and should be considered include:

- Use experiences already gained within other ASM programs
- Identify interventions that can grow to the necessary scale
- Determine realistic timelines and budgets recognising that transition from ASM to more formal economic activity and development will take considerable time
- Manage expectations, of which there will inevitably be many
- Ensure a strong element of capacity building. Avoid assumptions that any of the actors will have the resources, knowledge or skill to participate in the project in the way that it is planned
- Keep projects simple and focussed so that there is a good chance of achieving some clear targets and demonstrating some beneficial impacts
- Design projects to be flexible and responsive where ASM is dynamic and where the situation and issues are likely to change during the course of the project
- Bear in mind that people are busy, poor, and may have 'project fatigue'. Respect their schedules to ensure that they can continue to make a living

### **Conflict sensitive approaches**

A key approach to include in all project planning is gender-sensitivity (see Chapter 8), however it is also important to consider conflict sensitive approaches. One of the most important elements in ASM interventions is to analyse, understand and mitigate risks. ASM is a difficult and often dangerous lifestyle and it can be fraught with abusive relationships and powerful actors for whom there is a great deal at stake. The best intended interventions can inadvertently create risks for the very people they intend to assist. It can also compromise the security of staff and jeopardise relations within a country. At a much more local level,

any project that changes access to resources, incomes, etc, even to support vulnerable and disadvantaged groups, has the potential to be divisive within a community.

Conflict sensitive approaches, such as the 'Do No Harm' framework, can help to avoid these unintended consequences requires incorporating. This methodology recognises that when working in a situation of actual or potential conflict, project interventions have to take into consideration that specific environment. The project's resources will become part of this context, its policies and guidelines will be perceived as being supportive to specific groups, and the behaviour of its staff will influence the mentality and the attitudes of the population<sup>cix</sup>.

### **Tools & resources**

There are several excellent sources of toolkits, case studies and other ASM related resources available, notably on the websites of CASM, IFC CommDev, and ICMM. Some of the key tools are summarised in Table 10.

Table 9 Toolkits & Resources Relevant to ASM

Toolkit or Guide	Source	Focus & Purpose
Monitoring Government Policies <sup>cx</sup>	Catholic Agency for Overseas Development (CAFOD), Christian Aid & Trócaire, 2008	Designed to improve civil society organizations in Africa by providing information and tools regarding policy monitoring as a way of making a difference in societies.
Community-Driven Tools for Data Collection and Decision Making: The PISA Action Guide <sup>cxl</sup>	Pact, Inc., 2004	Participatory Information Systems Appraisal (PISA) represents a shift in the predominant way of thinking about information for economic and social development. Developed in Mongolia by Pact, PISA adapts a well developed family of Participatory Rural Appraisal (PRA) tools for today's information-intensive economy, where new information and Communication Technologies (ICT) are increasingly promoted as tools for poverty alleviation and sustainable human development.
Community Development <sup>cxli</sup>	World Bank Group, Energy Sector Management Assistance Programme (ESMAP), ICM, 2005	Provides tools intended for use throughout the project cycle and which cover the assessment, planning, management, and evaluation phases of community development as well as stakeholder relationships
Community Development <sup>cxlii</sup>	IFC, 2001	Serves as a resource guide in establishing effective community development programs. Also includes 3 in-depth case studies that demonstrate different ways of doing community development innovatively and effectively.
Livelihoods and Conflict <sup>cxlv</sup>	USAID, 2005	Identifies the key issues and methods for understanding the common impact of conflict on livelihoods and the ways one can address the most vital needs of those affected by conflict. The toolkit applies livelihoods analysis chiefly in situations of violence or serious conflict involving destruction of homes and displacement of persons
Minerals and Conflict <sup>cxv</sup>	USAID, 2004	Designed to examine the relationship between valuable minerals, such as diamonds or coltan, and violence; discuss lessons learned in developing programs to deal with 'conflict commodities'; present a range of program options; provide a survey instrument that identifies key questions related to minerals and conflict; and identify relevant USAID mechanisms and implementing partners. Monitoring and evaluation tools are being developed.
HIV/AIDS & Mining <sup>cxvi</sup>	World Bank, 2008	Designed to address gender issues and HIV/AIDS in mining
Sustainability Reporting Guidelines <sup>cxvii</sup>	Global Reporting Initiative (GRI), 2006	GRI "G3" Guidelines for Sustainability Reporting were released in 2006 following several years of research, development, and consensus-seeking by multi-stakeholder technical working groups, each assigned to focus on different parts of the Guidelines ending with a period of public participation and comment.
Resource Endowment Toolkit	ICMM, UNCTAD, World Bank, 2006	Designed to enable mining companies and other stakeholders in the mining industry to assess local, regional and national socio-economic impacts of mining. The toolkit also deals with how mining operations affect governance structures, institutions and policy changes at different levels of government.
Extractive Industries Transparency Initiative: Sourcebook <sup>cxviii</sup>	UK Department for International Development (DFID), 2005	Provides an illustrative guide to assist countries wishing to implement the initiative, and companies and other stakeholders wishing to support implementation from extractive industries (oil, gas and mining) contribute to sustainable development and poverty reduction, as part of a broader goal to improve the social stability and investment climate of resource-rich nations.
Planning for Integrated Mine Closure <sup>cxix</sup>	ICMM, 2008	Provides an Integrated Mine Closure Planning Toolkit for the mining and metals sector. The toolkit is intended to be used to promote a more disciplined approach to integrated closure planning and to increase the uniformity of good practices across the sector. The concepts apply equally well to both large and small companies

## 11. Recommendations

### General ASM recommendations

Proposing recommendations for ASM policies and programmes is challenging as they need to be holistic and integrated, yet they must also be targeted and realistic. The scale of what needs to be done to legislate, formalise, and support transition out of ASM is too vast for any single agency to undertake, and good initiatives can get lost if they are not networked and linked to other projects and actions. This is an instance where the most effective approach will be for a range of actors to undertake a suite of complementary initiatives, each of which can address certain elements and, by their implementation and impact, can contribute to the enabling environment of the other projects.

A wide range of activities and interventions have already been recommended by various actors and agencies and these feature in most ASM reports and declarations. These have been researched, discussed, piloted, refined, discounted, retested therefore there is much information available on what the ASM-related community considers necessary. Based on this, Table 10 provides a summarised, indicative list of initiatives which may be undertaken to achieve the specific goals identified under the broad objectives of legislating/regulating and formalising/ developing ASM, as well as supporting transition out of ASM to other, more sustainable livelihoods.

As mentioned frequently, these activities should not be selected and implemented in isolation from each other, nor from the context in which they occur. The success of some activities may be predicated on others being in place or underway, and this will vary from country to country, and from site to site. Synergies between different agencies which can complement and support the approach of the others are essential.

In considering any of these activities, and how the CFC or other agencies might contribute to achieving the objectives, reference should be made Chapter 10, Designing ASM Interventions, for lessons from a wide range of ASM projects which have both succeeded and failed, and for reference to toolkits and resources. These points should be considered in the organisation's own project planning process.

It should be stressed that this objective of this Chapter is not to prescribe definitive actions for CFC members, rather to present widely accepted

agreement of what could and should be done, and to stimulate discussion on how these might fit with the CFC's objectives and resources.

### ASM and the CFC

The CFC focuses on specific commodity problems or opportunities which cut across national boundaries. The CFC primarily engages in projects, which are suited for demonstrative and replicable measures for transferring technology, promoting investment in new end-use areas, introducing new commercial products and disseminating scientific research and development findings. Features of CFC interventions include:

- Development of public-private partnerships in which private companies contribute technical, commercial and financial inputs to CFC-funded projects
- Pooling of available technical knowledge to promote problem solving through collaborative institutional approaches
- Explicit and dynamic reference to implications on global markets for the commodities concerned and promoting equilibrium between supply and demand with a view to sustaining real income from commodity production
- Consideration of the environmental implications of commodity production and trade

In considering the CFC's core competencies and advantages in relation to ASM, it would seem that activities to support improved ASM organization, productivity, technology, and market access could be the most suitable. The CFC's expertise in business development and livelihood diversification would also make a significant contribution to considering means to support transition out of inherently unsustainable ASM. However, as noted previously, the objectives of ASM formalization and the creation of alternatives can only be successful if carried out in the appropriate legislative environment therefore inclusion of appropriate project elements, connections to other initiatives, and partnerships to address relevant policy issues is also necessary.

All project proposals to the CFC have to be submitted through the appropriate International Commodity Body (ICB) and there are three groups dedicated to minerals. The International Lead & Zinc

Table 10 Recommendations

Approach	Goal	Objectives
Legislation & Regulation of ASM	ASM operating within an appropriate and effective legal framework	<ul style="list-style-type: none"> <li>• ASM law &amp; regulations developed, known &amp; respected</li> <li>• Health &amp; safety improved</li> <li>• Illegal acts &amp; practices reduced</li> <li>• Peace monitored &amp; maintained</li> <li>• Human rights respected</li> </ul>
	Land & resource access & rights for ASM established	<ul style="list-style-type: none"> <li>• Appropriate resources legally allocated to registered ASM operations</li> <li>• Procedures developed, known &amp; respected</li> <li>• Security of tenure for ASM</li> <li>• Transferable titles from LSM to ASM</li> <li>• Transferability and use of ASM titles as collateral</li> </ul>
	Increased public revenues generated by ASM	<ul style="list-style-type: none"> <li>• ASM returning taxes to the state</li> <li>• ASM royalties used for social development</li> <li>• ASM royalties repatriated locally</li> <li>• Increased transparency &amp; reduced corruption</li> <li>• Improved traceability of minerals</li> <li>• Decreased illegal trade flows</li> </ul>

Activities & project elements recommended in ASM reports & declarations	Examples of actors & potential partners (see Appendix B)
<ul style="list-style-type: none"> <li>• Review ASM within mining policy, law &amp; regulations</li> <li>• Disseminate mine law, labour law, child labour law, gender-based violence law, gender equity law, information on mine life cycle (improving understanding of non-renewability and sustainability)</li> <li>• Monitor ASM miners &amp; sites, issue licences (with appropriate incentives to stimulate registration)</li> <li>• Facilitate the establishment of accountable ASM committees on sites as point of communications, monitoring, accountability; provide training on representation, dialogue &amp; conflict resolution</li> <li>• Establish / train ASM inspectorate</li> <li>• Establish / disseminate grievance mechanisms</li> <li>• Establish a gender desk within the mining ministry; develop and implement a plan to improve gender equity in ASM</li> <li>• Monitor &amp; report issues of security, arms, human rights, conflicts in &amp; around ASM areas</li> </ul>	<ul style="list-style-type: none"> <li>• National Governments</li> <li>• ASM miners &amp; traders, traditional authorities</li> <li>• IFIs (through projects for Government capacity strengthening)</li> <li>• Intergovernmental bodies (eg. AMP, IGFMMMSD)</li> <li>• UN Agencies (in relation to rights, vulnerable groups, security, labour)</li> <li>• ASM organisations (eg. CASM, DDI)</li> <li>• Bilateral donors</li> <li>• NGOs</li> </ul>
<ul style="list-style-type: none"> <li>• Review &amp; adjustment of legislation &amp; process regarding determining and allocating mine &amp; land rights</li> <li>• Establish system &amp; technical support for identification of ASM sites; set aside land for ASM</li> <li>• Simplify (and decentralise) ASM licensing procedures; ensure community engagement in license application reviews</li> <li>• Enable transfer of sub-commercial resources from LSM to ASM; identify &amp; clarify obligations of LSM</li> <li>• Enable transfer of ASM titles and their use as collateral</li> <li>• Review and clarify customary &amp; statutory land rights and access in relation to community rights to resources</li> <li>• Review and, if necessary, redress law to extend equal land &amp; mineral rights to women</li> </ul>	<ul style="list-style-type: none"> <li>• National Governments</li> <li>• ASM miners &amp; traders, traditional authorities</li> <li>• IFIs (through projects for Government capacity strengthening)</li> <li>• CASM</li> <li>• Private &amp; multi sector bodies developing best practices (eg. IFC, ICMM)</li> </ul>
<ul style="list-style-type: none"> <li>• Carry out capacity &amp; needs assessments with appropriate technical training of government agents, monitor, evaluate</li> <li>• Tracking &amp; management system for ASM production &amp; taxation</li> <li>• Disseminate information on legal taxes</li> <li>• Establish formal grievance system for corrupt practices; train ASM committee on tax issues</li> <li>• Identify / develop appropriate traceability systems; pilot EITI for ASM projects</li> <li>• Build mechanism and capacity for decentralised participatory management systems for ASM revenues</li> <li>• Strengthen community capacity for participation &amp; monitoring</li> <li>• Review regional taxes, customs procedures, incentives, penalties, to identify points at which it is possible to reduce illegal ASM trade where harmonisation or other collaborative approaches could be beneficial</li> </ul>	<ul style="list-style-type: none"> <li>• National Governments</li> <li>• ASM miners &amp; traders</li> <li>• IFIs (through projects for Government capacity strengthening)</li> <li>• EITI</li> <li>• Kimberley Process</li> <li>• Certification projects</li> <li>• CASM</li> <li>• Regional trade &amp; development bodies (eg. COMESA, SADC)</li> </ul>

Table 10 Recommendations

Approach	Goal	Objectives
Legislation & Regulation of ASM	Environment protected	<ul style="list-style-type: none"> <li>• Reduced environmental impact of ASM</li> <li>• Protected water table &amp; water sheds</li> <li>• Protected agricultural &amp; other land</li> <li>• Improved community health in relation to environment</li> <li>• Protected forest &amp; biodiversity</li> <li>• Reduced mercury use &amp; contamination</li> </ul>
	Strengthened ASM organisations	<ul style="list-style-type: none"> <li>• Associations, co-ops or other groups formed</li> <li>• Improved channels of contact with/for ASM</li> <li>• Improved representation for ASM to government, companies, traders, others</li> </ul>
Formalising ASM Improving Economic value of ASM Socialising Benefits from ASM	Improved ASM resource access	<ul style="list-style-type: none"> <li>• ASM operators access to capital</li> <li>• ASM operators business skills developed</li> <li>• ASM workers access to practical support</li> <li>• ASM workers debts reduced</li> </ul>
	Improved ASM productivity	<ul style="list-style-type: none"> <li>• Improved recovery of minerals</li> <li>• Increased value addition</li> </ul>
	Improved ASM markets	<ul style="list-style-type: none"> <li>• Increased return to miners</li> <li>• Improved knowledge of mineral values</li> <li>• Increased transparency in pricing</li> <li>• Increased access to competitive buyers</li> </ul>

## Activities & project elements recommended in ASM reports & declarations

## Examples of actors & potential partners (see Appendix B)

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>• Require ESIA with ASM licence application, provide guidance/ training on what this entails, including site rehabilitation</li> <li>• Develop, disseminate &amp; enforce appropriate penalties for failure to implement ESIA</li> <li>• Build capacity of government agents to understand, critique &amp; inspect the implementation of an EIA</li> <li>• Strengthen community capacity to participate in ESIA process</li> <li>• Improve community awareness &amp; resources related to community health, water, hygiene &amp; sanitation</li> <li>• Improve multi-stakeholder land-use planning &amp; zoning</li> <li>• Develop, disseminate &amp; enforce appropriate guidelines, alternatives &amp; penalties to prevent deforestation and destruction of biodiversity by ASM communities</li> <li>• Based on existing experiences, develop / adopt a scheme for mercury awareness &amp; reduction</li> </ul> | <ul style="list-style-type: none"> <li>• National Governments</li> <li>• ASM miners &amp; traders</li> <li>• IFIs (through projects for Government capacity strengthening)</li> <li>• Intergovernmental bodies (eg. AMP)</li> <li>• Private &amp; multi sector bodies developing best practices (eg. IFC, ICMM)</li> <li>• UN Agencies (eg. UNESCO, UNIDO Global Mercury Project, etc)</li> <li>• ASM organisations (eg. CASM, ARM)</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Legal definitions of associations, co-ops, other groups</li> <li>• Establishment of policies, processes, structures &amp; mandates for associations/ co-ops</li> <li>• Training &amp; resources for formation &amp; management of associations/ co-ops</li> <li>• Support for ASM union development</li> <li>• Training &amp; resources for organisational management</li> <li>• Training &amp; resources for negotiation, mediation, advocacy</li> <li>• Ensure equal opportunities for women to participate in training &amp; access to development</li> <li>• Research on success &amp; failure of ASM associations in Africa</li> </ul>  | <ul style="list-style-type: none"> <li>• NGOs</li> <li>• National Governments</li> <li>• ASM miners &amp; traders</li> <li>• UN Agencies (eg. ILO)</li> <li>• Bilateral donors</li> <li>• ASM organisations (eg. CASM, ARD, PDA, DDI)</li> <li>• Mineworkers unions</li> <li>• NGOs</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Training for literacy, savings, financial management skills</li> <li>• Assess previous examples, develop mechanisms for in-kind support to ASM groups in lieu of cash (hire purchase, etc)</li> <li>• Establish micro-credit schemes for ASM operators who are formalised</li> <li>• Business support services, training, centres</li> <li>• Ensure equal opportunities for women to access resources</li> </ul>   | <ul style="list-style-type: none"> <li>• National Government initiatives</li> <li>• ASM miners &amp; traders</li> <li>• IFI-funded projects</li> <li>• Intergovernmental bodies (eg. AMP)</li> <li>• Bilateral donors</li> <li>• Financial institutions &amp; microcredit lenders</li> <li>• ASM organisations (eg. CASM, ARM)</li> <li>• Private sector</li> <li>• NGOs</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Site technical support services &amp; training (geology, engineering, processing, etc) for ASM licensees</li> <li>• Technical service centres for ASM to propose, review, adapt &amp; collaboratively develop technologies, resources</li> <li>• Campaigns, training &amp; resources for safer ASM techniques</li> <li>• Resources for value addition facilities including cut &amp; polish centres</li> <li>• Ensure equal opportunities for women to access services &amp; development opportunities</li> </ul>  | <ul style="list-style-type: none"> <li>• National Government initiatives</li> <li>• ASM miners &amp; traders</li> <li>• IFI-funded projects</li> <li>• Bilateral donors</li> <li>• UN Agencies (eg. ILO, UNECA)</li> <li>• ASM organisations (eg. CASM, ARM)</li> <li>• Private sector</li> <li>• NGOs</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Training in mineral valuation</li> <li>• Explore, assess, refine, expand bourses, comptoirs, public auctions, &amp; other market mechanisms</li> <li>• Hold ASM trade fairs</li> <li>• Develop and disseminate technology developments in communications, virtual market access, etc.</li> <li>• Develop / adopt appropriate certification systems of scale &amp; impact</li> <li>• Develop public-private partnerships</li> </ul>   | <ul style="list-style-type: none"> <li>• National Government initiatives</li> <li>• ASM miners &amp; traders</li> <li>• IFI-funded projects</li> <li>• Bilateral donors</li> <li>• Intergovernmental bodies (eg. AMP)</li> <li>• Kimberly Process</li> <li>• Certification systems</li> <li>• UN Agencies (eg. UNCTAD, UNECA)</li> <li>• ASM organisations (eg. CASM, ARM, DDI)</li> <li>• Private sector (eg. CRJD)</li> <li>• NGOs</li> </ul> |

Table 10 Recommendations

Approach	Goal	Objectives
Formalising ASM Improving Economic value of ASM Socialising Benefits from ASM	Strengthened role for women	<ul style="list-style-type: none"> <li>• Improved status &amp; equity for women</li> <li>• Improved resources &amp; opportunities for financial management</li> <li>• Improved representation &amp; recognition</li> </ul>
	Protection for vulnerable groups	<ul style="list-style-type: none"> <li>• Reduced infants &amp; small children in mines</li> <li>• Reduced incidence of HIV infection</li> <li>• Improved mineral rights for indigenous peoples</li> </ul>
Transition from ASM to sustainable Alternatives	Alternative livelihoods developed	<ul style="list-style-type: none"> <li>• Jobs created in LSM sector</li> <li>• Reduced barriers to transition</li> <li>• Alternative livelihoods identified and transition assisted</li> </ul>



### Activities & project elements recommended in ASM reports & declarations

### Examples of actors & potential partners (see Appendix B)

- Training for literacy, savings, financial management skills, business development skills
- Support the creation of women's ASM associations
- Facilitate women's representation on the ASM committee
- Identify key roles where women may have competitive advantage & develop those skills
- Identify potential marketing niches for ASM women & provide the resources to develop that niche
- Support the creation of peer networks of support between women in ASM situations

- National Government initiatives
- ASM miners & traders
- IFI-funded projects
- Bilateral donors
- ASM organisations (eg. CASM)
- UN Agencies (eg. ILO, UNDP, UNECA)
- Private sector
- NGOs

- Programme to eliminate child labour (prevention, training & re-insertion)
- Programme for economic support to mothers in mines
- HIV-AIDS awareness campaign, VCT centres (possibly mobile), condom selling micro-enterprise
- Review of ASM mine & land law in relation to indigenous people & cultural heritage

- National Government initiatives
- ASM miners & traders
- IFI-funded projects
- Bilateral donors
- ASM organisations (eg. CASM, DDI)
- UN Agencies (eg. ILO, UNAIDS)
- Private & multi sector bodies developing best practices (eg. IFC, ICMM)
- NGOs

- Public-private partnerships with the private sector for job creation & local suppliers
- Insertion of HIMO components into infrastructure development or maintenance projects
- Market & economic development research to inform on sustainable livelihood options
- Training for literacy, savings, financial management skills, business development skills
- Provision of microfinance on completion of training
- Business support services, training, centres
- Development of agricultural programmes – which can be as part-time transition – to allocate land, provide training & inputs, create associations, develop communal facilities, & gain access to markets

- National Government initiatives
- ASM miners & traders
- IFI-funded projects (eg. ADB, IFC, Comm.Dev)
- Bilateral donors
- UN Agencies (eg. FAO, UNDP, ILO)
- Private sector
- Banks & microcredit
- CASM
- NGOs

Study Group (ILZSG) manages the portfolios of the International Copper Study Group (ICSG) and the International Nickel Study Group (INSG). It may be appropriate for the CFC, therefore, to consider ASM in industrial metals, rather than in precious metals and stones. This would be a major asset to ASM as the majority of interventions are focussed on gold and diamonds and increase expertise in other minerals is needed in ASM.

### **Timelines**

Any intervention by any agency should consider the current timelines and milestones which have been established for global social development. While a project does not have to be bound these parameters, it is, however, important to have evaluation and reporting points aligned with global efforts in order to contribute to tracking progress. Key dates include:

- 2010-2011: UNCSD review of progress of the Johannesburg Plan of Implementation for Agenda 21 and development of a plan for the way forward
- 2015: Assessment of achievement of the Millennium Development Goals
- 2015: Assessment of achievement of the goals in the Younde Vision Statement (refer to Chapter 2, page 18)
- 2050: Africa Mining Vision (being drafted by the AU)

## 12 Appendix A: ASM Statistics for Africa

### Limitations & assumptions

- The data available in the public and academic arena is incomplete, often based on estimates, often repeating unproven or out-dated sources. All sources used in this document are given in the electronic version of the table. Where possible, this data has been cross-checked, however it is certain that errors remain.
- Accurate data on ASM is difficult to source as few governments have comprehensive licensing or census information which includes ASM, primarily due to the often illegal, clandestine, migratory and seasonal nature of the work
- Data is likely to be underestimated
- Quarrying and construction materials ASM are under-reported and it should be assumed that some artisanal or small-scale quarrying takes place in most countries
- Input was received (with many thanks) from representatives of government, NGOs and mining bodies attending the CASM 8th Annual Conference in Brasilia in October, 2008
- Each ASM worker is assumed to support at least 5 dependents hence the dependence value is x6 to include the miner and his/her family
- National population data and % unemployment are from the CIA 2008 World Fact Book unless otherwise stated. This data is compromised as in some cases it refers to unemployment in relation to the formal economy; in others it estimates total underemployed. Where no source is given, the figure is an average of estimates.

Table 9 Toolkits &amp; Resources Relevant to ASM

Country	Mineral Extraction	Mined by ASM	Number of ASM
Algeria	Barite; cadmium; clays; coke; diatomite; feldspar; gold; gravel; gypsum; helium (liquid); iron; lead; lime; mercury; phosphate rock; pozzolan; salt; sand; silver; stone; sulfur; and zinc (2006) <sup>cxxi</sup>	Approx. 60 small- or medium-scale operations produce gypsum (2006) <sup>cxxii</sup>	5,000  <i>CASM 2005 estimate</i> < 50,000
Angola	Limestone; diamond; granite; marble; and salt (2006) <sup>cxxiv</sup>	Diamond (2008) <sup>cxxv</sup>	150,000  <i>CASM 2005 estimate</i> 50-150,000
Benin	Limestone; clay; gold; and gravel (2006) <sup>cxxviii</sup>	Gold (2003) <sup>cxxix</sup>	10,000  <i>CASM 2005 estimate</i> < 50,000
Botswana	Clay; coal; cobalt; copper; diamond; gemstones; gold; gravel; nickel; salt; sand; soda ash; and stone (2006) <sup>cxxxii</sup>	Diamond and gold (2006) <sup>cxxxiii</sup>	< 10,000  <i>CASM 2005 estimate</i> < 50,000
Burkina Faso	Limestone; dolomite; gold; granite; phosphate rock; pumice and other volcanic materials; salt; and stone (marble) (2006) <sup>cxxxvi</sup>	Clay; gold; kaolin; limestone; and phosphates (2002) <sup>cxxxii</sup>	200,000 (2005) <sup>cxxxviii</sup>  <i>CASM 2005 estimate</i> 150-400,000
Burundi	Cobalt; copper; gold; kaolin; limestone; nickel; peat; tantalum; tin; tungsten; uranium; and vanadium (2006) <sup>cxli</sup>	Gold (2000) <sup>cxliii</sup> ; nickel; peat; tantalum; tin; and tungsten (2006) <sup>cxliii</sup>	50,000  <i>CASM 2005 estimate</i> < 50,000
Cameroon	Limestone; clay; diamond; gold; gravel; pozzolana ash; sand; sapphire; silica sand; marble (2006) <sup>cxlvi</sup>	Diamond (2006) <sup>cxlvii</sup> and gold (2000) <sup>cxlviii</sup>	30,000  <i>CASM 2005 estimate</i> < 50,000 *15,000 gold miners (2007) <sup>cxlix</sup>
Cape Verde	Salt (2006) <sup>cii</sup>	Salt	Negligible  <i>CASM 2005 estimate</i> NA
Central African Republic	Copper; diamond; gold; graphite; ilmenite; iron ore; kaolin; kyanite; lignite; limestone; manganese; monazite; quartz; rutile; salt; tin; and uranium (2006) <sup>cliii</sup>	Diamond and gold (1998) <sup>cliv</sup>	400,000 <sup>clvi</sup>  <i>CASM 2005 estimate</i> 150-400,000

\*Of these commodities, only diamond and gold were produced in 2006 <sup>cliv</sup>

ASMs & Dependents (% pop)	National Population (% unemployed)	Comments on Economy – with references to LSM/ASM where data is available
30,000 (0.09%)	33,333,216 (13%)	The hydrocarbons sector is the backbone of the economy, accounting for roughly 60% of budget revenues, 30% of Gross Domestic Product (GDP) and over 95% of export earnings (2008) <sup>cxviii</sup> .
900,000 (7.18%)	12,531,357 (>50%)	Petroleum is the major driving force for the economy, accounting for about 51.7% of GDP, 96% of exports and 80% of government revenues. In 2006, the country ranked 7th among the world's leading producers of rough diamond by volume and fifth in terms of value (2006) <sup>cxvii</sup> . The country was the second ranked trading partner of the USA in sub-Saharan Africa (2006) <sup>cxvii</sup> .
60,000 (0.70%)	8,532,547 (57.8%) (2001) <sup>cxviii</sup>	As of 2006, the economy was primarily based on agriculture; cotton accounted for about 80% of export earnings and about 40% of the GDP. The mineral industry did not play a significant role in the country's economy (2006) <sup>cxviii</sup> .
60,000 (3.26%)	1,842,323 (7.5%)	Production of gem-quality diamond is the foundation of the country's economy. In 2006, it was the world's leading producer of diamond (by value) and the world's second ranked producer of diamond (in terms of volume). Nickel production accounted for about 2% of world production. Copper, gold, and soda ash production also had significant, though smaller, roles in the national economy (2006) <sup>cxviii</sup> . Diamond mining currently accounts for more than one-third of GDP and for 70-80% of export earnings (2008) <sup>cxviii</sup> .
1,200,000 (7.86%)	15,264,735 (77%)	513 kilograms of is gold produced annually by ASMs (2002) <sup>cxviii</sup> . Artisanal activity flourished after droughts in the mid-1980s forced farmers to find alternative sources of income. Now close to 200,000 people mine on a small scale to make a living, working on 200 sites throughout the country. They sell the gold for 50 CFA (US \$0.10) per gram to the government, making ASM gold the country's third largest export (2006) <sup>cxix</sup> .
300,000 (3.45%)	8,691,005 (60%) (2008) <sup>cxiv</sup>	The economy is predominantly agricultural with more than 90% of the population dependent on subsistence agriculture. Economic growth depends on coffee and tea exports, which account for 90% of foreign exchange earnings (2008) <sup>cxiv</sup> .
180,000 (0.97%)	18,467,692 (30%)	Numerous artisanal gold workings are known (producing around 1,500 kg/year). The annual ASM production is approximately 20,000 oz of gold, 12,000 ct of diamonds and various building materials. The government is currently examining the assistance it gives to the artisanal mining sector (2004) <sup>cl</sup> .
Negligible	426,998 (21%)	Mining contribution to the economy was minimal. Most of the country's mineral requirements were imported (2006) <sup>clii</sup> .
2,400,000 (54%)	4,444,330 (23%)	80,000 artisanal diamond minors ensured an annual production of approx. 500,000 carats, which corresponds to 50% of the country's exports (ffl 2000) <sup>clvii</sup> . Some 98% of diamonds and 100% of gold is produced by ASMs (2007) <sup>clviii</sup> . The WTO estimated that the mining sector accounted for about 7% of GDP; rough diamond and timber were the country's leading export products (2006) <sup>clix</sup> . The mining sector is generally limited to ASM; mining companies allow miners to exploit large portions of their land and then sell their production to collecting agencies. The exploitation of alluvial diamond deposits involves about 100,000 manual workers; 50,000 artisanal miners (who hire the manual workers, feed them, pay their wages and buy their permits in exchange for 50% of the output) <sup>clx</sup> .

Table 9 Toolkits &amp; Resources Relevant to ASM continuation

Country	Mineral Extraction	Mined by ASM	Number of ASM
Chad	Aggregate; gold; salt; sand; soda ash; and stone (2006) <sup>clxi</sup>	Diamond (1999) <sup>clxii</sup> and gold (2001) <sup>clxiii</sup>	100,000  <i>CASM 2005 estimate</i> 50-150,000
Cote d'Ivoire	Limestone; columbite; diamond; gold; gravel; sand; stone (crushed); sulphuric acid; and tantalite (2006) <sup>clxvi</sup>	Diamonds	100,000  <i>CASM 2005 estimate</i> 50-150,000
Democratic Republic of Congo	Limestone; cobalt; columbium (niobium); copper; diamond; germanium; gold; lime; pyrochlore; silver; stone; tantalum; manganese; tin; and zinc. Semi-precious stones (amethyst, tourmaline, garnet, others) (2005) <sup>clxx</sup>	Columbium (niobium); copper; diamond; gold; tantalum; tin; uranium, gravel, semi-precious stones (2005) <sup>clxxi</sup>	2,000,000 (2007) <sup>clxxii</sup>  <i>CASM 2005 estimate</i> > 400,000
Djibouti	Clays; granite; gravel; limestone; marble; salt; and sand (2002) <sup>clxxvi</sup>	Salt (2001) <sup>clxxvii</sup>	10,000  <i>CASM 2005 estimate</i> < 50,000
Egypt	Aluminium metal; asbestos; barite; cement; clays; copper; feldspar; fluorspar; gold (gravel; gypsum and anhydrite; iron; lime; manganese ore; nitrogen; phosphate; salt, sand; soda ash; stone; sulfur; talc; titanium; and vermiculite (2006) <sup>clxxix</sup>	NA	Negligible  <i>CASM 2005 estimate</i> > 50,000
Equatorial Guinea	Gold (2006) <sup>clxxx</sup>	Clay; gold; gravel; sand; and volcanic rock (2006) <sup>clxxxii</sup>	10,000  <i>CASM 2005 estimate</i> < 50,000
Eritrea	Basalt; limestone; clay; coral; gold; granite; gravel; gypsum; kaolin; lime; marble; pumice; quartz; salt; sand; and silica sand (2002) <sup>clxxxiv</sup>	Gold (2005) <sup>clxxxv</sup>	400,000 <sup>clxxxvi</sup>  <i>CASM 2005 estimate</i> > 400,000
Ethiopia	Anhydrite; clays; columbite-tantalite; diatomite; dolomite; feldspar; gemstones (amethyst, aquamarine, emerald, garnet, opal, peridot, quartz, sapphire, and tourmaline); gold; granite; gravel; gypsum; ignimbrite; lime; limestone; marble; ore and ore concentrate; platinum; pumice; quartz; rhyolite; salt rock; sand; sandstone; scoria; silica sand; silver; soda ash; and stone (2006) <sup>clxc</sup>	Gems; gold (2008) <sup>clxci</sup> , and salt (2002) <sup>clxcii</sup>	500,000 <sup>clxciii</sup>  <i>CASM 2005 estimate</i> > 400,000

ASMs & Dependents (% pop)	National Population (% unemployed)	Comments on Economy – with references to LSM/ASM where data is available
600,000 (5.93%)	10,111,337 (26.5%) (2006) <sup>clxiv</sup>	Small-scale local mining operations produced most of the country's solid minerals. International oil companies were involved in the exploration and production of crude oil. Agriculture generates 40% of GDP and provides a livelihood for 85% of population (2008) <sup>clxv</sup> .
600,000 (2.97%)	20,179,602 (45%) <sup>clxvii</sup>	The country is a Kimberley Process (KP) member but the government, in alignment with the UNSC Resolution, has itself suspended all official exports of rough diamonds to help support its efforts to restore social stability and ensure systems are in place to meet the KP requirements (>2007) <sup>clxviii</sup> . Despite government attempts to diversify the economy, it is still heavily dependent on agriculture and related activities, engaging roughly 68% of the population (2008) <sup>clxix</sup> .
12,000,000 (18.04%)	66,514,504 (82%) (2002) <sup>clxxiii</sup>	The country's official exports of diamonds totalled 30.2 million carats, valued at \$679 million. ASM (semi industrial) alluvial mines accounted for about 90% of the total, while exports from the state diamond mining company MIBA fell to only 2.2 million carats. More than half of the country's foreign exchange earnings are derived from the export of diamonds, and between 500,000-1 million people dig for them (2007) <sup>clxxiv</sup> . The country is a participant of the KP and currently produces approximately 8% of the world's diamonds (>2007) <sup>clxxv</sup> . ASM accounts for 90% of all mineral production in the DRC today.
60,000 (11.85%)	506,221 (71%)	The economy is based on service activities connected with the country's strategic location and status as a free trade zone in the Horn of Africa. The country has few natural resources and little industry (2008) <sup>clxxviii</sup> .
Negligible	81,713,520 (9.1%)	Egypt was a significant producer of natural gas and petroleum. The energy sector was the leading industrial activity in the country and accounted for 12% of the country's gross domestic product (GDP). Exports of petroleum and related products amounted to more than \$2.7 billion in fiscal year 2005 (the latest year for which data were available). Egypt was encouraging the production of natural gas. Natural gas accounted for almost 50% of all hydrocarbon usage in Egypt (2006) <sup>clxxx</sup> .
60,000 (9.73%)	616,459 (30%)	Offshore oil and natural gas production dominated the mineral industry. Hydrocarbons accounted for more than 90% of GDP. In 2006, the country ranked 7th (based on production volume) of all African crude oil producers (2006) <sup>clxxxiii</sup> .
2,400,000 (43.62%)	5,502,026 (20%)	Artisanal miners produce approx. half a tonne of gold a year (2008) <sup>clxxxvii</sup> . The economy is largely based on subsistence agriculture, with 80% of the population involved in farming and herding. ASM, which produced 550 kg of gold in 1998, plays an important role in revealing new potential areas for mining companies, and large-scale commercial production is expected to commence in 2008 <sup>clxxxviii</sup> . Despite difficulties for international companies in working with the government, a Canadian mining company signed a government contract in 2007 and plans to begin mineral extraction in 2010 (2008) <sup>clxxxix</sup> .
3,000,000 (3.63%)	82,544,840 (33%) (2008) <sup>cciv</sup>	In 2006, the country's share of global tantalum mine production amounted to 5%. Other domestically significant mining and mineral processing operations included cement, crushed stone, dimension stone, and gold. The country was not a globally significant consumer of minerals (2006) <sup>ccv</sup> . The economy is based on agriculture, accounting for almost half of GDP, 60% of exports, and 80% of total employment. The agricultural sector suffers from drought and poor cultivation practices. Coffee is critical to the economy with exports of some \$350 million in 2006 (2008) <sup>ccvi</sup> .

Table 9 Toolkits &amp; Resources Relevant to ASM continuation

Country	Mineral Extraction	Mined by ASM	Number of ASM
Gabon	Diamond; gold; manganese; (2006) <sup>ccvii</sup>	Diamond (2004) <sup>ccviii</sup> and gold (2006) <sup>ccix</sup>	25,000  <i>CASM 2005 estimate</i> < 50,000
Gambia	Clay; laterite; silica sand; and zircon/rutile concentrate (2006) <sup>cci</sup>	Quarry materials	5,000  <i>CASM 2005 estimate</i> < 50,000
Ghana	Limestone; diamond; gold; manganese; salt; and silver (2006) <sup>cciv</sup>	Diamond; gold (2002) <sup>ccv</sup> ; and salt (2006) <sup>ccvi</sup>	250,000  <i>CASM 2005 estimate</i> > 400,000
Guinea	Bauxite; cement; diamond; gold; and salt (2006) <sup>ccxi</sup>	Diamond and gold (2006) <sup>ccxii</sup>	100,000  <i>CASM 2005 estimate</i> 50-150,000  *50,000 gold washers produce four tons of gold pa in Sigiri (ffl 2000) <sup>ccxiii</sup>
Guinea Bissau	Limited to small-scale production of construction materials (2006) <sup>ccvii</sup>	Clays; granite; gravel; limestone; and sand (2006) <sup>ccxiii</sup>	ffl5,000  <i>CASM 2005 estimate</i> < 50,000
Kenya	Clays; limestone; diatomite; feldspar; fluor spar; gemstones (amethyst, aquamarine, cordierite, green garnet, ruby, sapphire, and tourmaline); gold; gravel; gypsum; iron ore; lead; lime; salt ; soda ash; stone (2006) <sup>ccxxi</sup>	Gold (2006) <sup>ccxxii</sup>	100,000  <i>CASM 2005 estimate</i> 50-150,000
Lesotho	Clay; diamond; and stone (quarry products) (2006) <sup>ccxxv</sup>	Clay; gravel; rock (crushed for domestic consumption); and stone (dimension) (2007) <sup>ccxxxi</sup>	<20,000  <i>CASM 2005 estimate</i> < 50,000
Liberia	Limestone; diamond; gold; sand; and stone (2006) <sup>ccxxx</sup>	Diamond (2007) <sup>ccxxxi</sup> and gold (2004) <sup>ccxxxii</sup>	100,000 (2008) <sup>ccxxxiii</sup>  <i>CASM 2005 estimate</i> 50-150,000



ASMs & Dependents (% pop)	National Population (% unemployed)	Comments on Economy – with references to LSM/ASM where data is available
150,000 (10.10%)	1,485,832 (21%)	The mineral industry was dominated by crude petroleum and manganese production. Undeveloped resources included iron ore, niobium (columbium), and phosphate rock. The oil sector now accounts for 50% of GDP (2008) <sup>cc</sup> .
30,000 (1.73%)	1,735,464 (61%) (2007) <sup>ccii</sup>	In 2006, mining was limited to the production of clay, laterite, silica sand, and zircon, and did not play a significant role in the country's economy. The country has no confirmed mineral or natural resource deposits and has a limited agricultural base. About 75% of the population depends on crops and livestock for its livelihood. Small-scale manufacturing activity features the processing of peanuts, fish and hides (ffl 2007) <sup>cciii</sup> .
1,500,000 (6.41%)	23,382,848 (11%)	ASM accounts for 67% of gold and 30% of diamonds produced in the country (2002) <sup>ccvii</sup> . Some 80% of total diamond production comes from the ASM sector (2002) <sup>ccviii</sup> . The contribution of the country's mining sector to the GDP increased from 1.3% in 1991 to an average of about 5% in recent years. Export earnings from minerals averaged 35%, and the sector was one of the largest contributors to government revenues through the payment of mineral royalties, employee income taxes, and corporate taxes. In 2005, gold production accounted for about 95% of total mining export proceeds (2006) <sup>ccix</sup> . The domestic economy continues to revolve around agriculture, which accounts for about 35% of GDP and employs about 55% of the work force (2008) <sup>ccx</sup> .
600,000 (6.12%)	9,806,509 (8%) (2007) <sup>ccxiv</sup>	ASM generates a turnover twice that of the cotton sector. The country possesses major mineral, hydropower, and agricultural resources and has almost half of the world's bauxite reserves, serving as the second-largest bauxite producer. The mining sector accounts for over 70% of exports (2008) <sup>ccv</sup> . It is believed that 70% of the active labor in the eastern region are women and around 90% of them are involved directly or indirectly in artisanal gold and diamond mining (2003) <sup>ccxvi</sup> .
30,000 (2%)	1,503,182 (12.4%) (2008) <sup>ccxix</sup>	Barring construction minerals, no mining operations are underway and no mineral products are produced or exported. However, potential exists for bauxite, phosphates, diamonds and gold (2001) <sup>ccxx</sup> .
600,000 (1.58%)	37,953,840 (40%)	5 tonnes of gold are produced annually by 2000 ASM panners (80% women), with proceeds supporting a population of approximately 10,000 (2002-03) <sup>ccxxiii</sup> . In 2006, the country played a significant role in the world's production of fluorspar (2%) and natural soda ash (3%). Other significant mineral processing operations included cement and petroleum refining. LSM and quarrying was estimated to employ more than 50,000 Kenyans in 2007 (2006) <sup>ccxxiv</sup> .
120,000 (5.64%)	2,128,180 (45%)	Artisanal diamond production was around 1,500 carats per year (2000) <sup>ccxxvii</sup> . The mining and quarrying sector was a marginal contributor to the GDP. Although the country was believed to have significant mineral deposits, attempts at exploitation continued to be limited owing to lack of investment interest (2006) <sup>ccxxviii</sup> . The economy is still primarily based on subsistence agriculture, especially livestock, although drought has decreased agricultural activity (2008) <sup>ccxxix</sup> .
600,000 (17.99%)	3,334,587 (85%)	98% of the country's gold and diamonds are artisanally produced. The country was officially accepted into Kimberley Process Certification Scheme (KPCS) in May 2007 (2007-08) <sup>ccxxxiv</sup> .

Table 9 Toolkits &amp; Resources Relevant to ASM continuation

Country	Mineral Extraction	Mined by ASM	Number of ASM
Libya	Clay; dolomite; gypsum; lime; limestone; nitrogen; salt; stone (2007) <sup>ccxxxv</sup>	NA	5,000  <i>CASM 2005 estimate</i> < 50,000
Madagascar	Beryllium; limestone; chromium; clay; feldspar; gemstones; gold; graphite; mica; salt; and stones (ornamental and other) (2004) <sup>ccxxxvii</sup>	Aquamarine; emerald; gold; ruby; sapphire; and tourmaline (2004) <sup>ccxxxviii</sup>	100,000  <i>CASM 2005 estimate</i> 50-150,000
Malawi	Clays, dolomite; gemstones; gravel; lime; limestone; salt; sand; stone (crushed for aggregate and other) (2007) <sup>ccxlii</sup>	Bricks; clay (2002) <sup>ccxliii</sup> ; gemstones (agate, amethyst, aquamarine, garnet, rhodolite, rubies, and sapphires); lime; salt; and sand (2007) <sup>ccxliv</sup>	60,000  <i>CASM 2005 estimate</i> 50-150,000
Mali	Gold; gypsum; and salt (2005) <sup>ccxlvii</sup>	Diamond; gold; and semi-precious stones (2002) <sup>ccxlviii</sup>	400,000  <i>CASM 2005 estimate</i> > 400,000
Mauritania	Limestone; gypsum; iron ore; salt (2005) <sup>ccli</sup>	No ASM activity	Negligible  <i>CASM 2005 estimate</i> < 50,000
Morocco	Antimony; arsenic; barite; cement; clays; coal; cobalt; copper; feldspar; fertilizers; fluorspar; gold; gypsum; iron ore; lead; manganese; mercury; nickel; phosphate rock; phosphoric acid; salt; silver; strontium minerals; talc; and zinc (2006) <sup>ccliv</sup>	Barite (2006) <sup>cclv</sup>	50,000  <i>CASM 2005 estimate</i> < 50,000
Mozambique	Aggregates; aluminium; cassiterite; clays; coal; gemstones (aquamarine, emerald, morganite, and tourmaline); graphite; sands (heavy mineral for tantalum); stone (dimension); and tantalite (2004) <sup>cclvii</sup>	Aggregates; clays; gemstones (aquamarine, emerald, morganite, and tourmaline); gold; sands (heavy mineral for tantalum); and stone (dimension) (1995) <sup>cclxviii</sup>	200,000 (2008) <sup>cclix</sup>  <i>CASM 2005 estimate</i> 150-400,000  *60,000 men (2001) <sup>cclix</sup> *60,000-70,000 illegally mine gems (2007) <sup>ccxi</sup>
Namibia	Copper; diamond (gem); fluorspar; gemstones; gold; lead; manganese; salt; silver; stone; sulfur; tantalite; tin; uranium; wollastonite; and zinc (2006) <sup>cclxv</sup>	Tantalum; and tin (2003) <sup>cclxvi</sup>	20,000 <sup>cclxvii</sup> (2008)  <i>CASM 2005 estimate</i> < 50,000
Niger	Coal; gold; gypsum; limestone; salt; tin; and uranium (2005) <sup>cclxix</sup>	Gold (2006) <sup>ccclxx</sup>	450,000  <i>CASM 2005 estimate</i> > 400,000

ASMs & Dependents (% pop)	National Population (% unemployed)	Comments on Economy – with references to LSM/ASM where data is available
30,000 (0.49%)	6,173,579 (30%)	The economy depends primarily upon revenues from the oil sector, which contribute about 95% of export earnings, about 25% of the GDP and 60% of public sector wages (2008) <sup>ccxxxvi</sup> .
600,000 (2.99%)	20,042,552 (23%) <sup>ccxxxix</sup>	ASMs represent 50% of all mining permits granted on Grande Ile (>2000) <sup>ccxl</sup> . Agriculture, including fishing and forestry, is a mainstay of the economy, accounting for more than 25% of GDP and employing 80% of the population (2008) <sup>ccxli</sup> .
360,000 (2.58%)	13,931,831 (30%) estimate	3.250 thousand tons of lime and 44 thousand tons of coal are produced by ASM annually (2002) <sup>ccxlv</sup> . The economy is predominately agricultural with about 85% of the population living in rural areas. Agriculture accounts for more than one-third of GDP and 90% of export revenues. The performance of the tobacco sector is key to short-term growth as tobacco accounts for more than half of exports (2008) <sup>ccxlvii</sup> .
2,400,000 (19.47%)	12,324,029 (30%)	1,700 tonnes of gold produced by ASMs annually (2002) <sup>ccxlix</sup> . Economic activity is largely confined to the riverine area irrigated by the Niger. About 10% of the population is nomadic and 80% of the labor force is in farming and fishing. Industrial activity is concentrated on processing farm commodities (2008) <sup>cc</sup> .
Negligible	3,364,940 (20%)	There is no ASM gold mining activity in the country as this requires water, which is not generally readily available (2006) <sup>cccli</sup> . Half the population still depends on agriculture and livestock for a livelihood, even though many of the nomads and subsistence farmers were forced into the cities by recurrent droughts in the 1970s and 1980s. Extensive deposits of iron ore account for nearly 40% of total exports (2008) <sup>cccliii</sup> .
300,000 (0.87%)	34,343,220 (10%)	In 2006, more than 80 mining companies operated in Morocco, and they produced more than 25 different commodities and employed more than 37,000 people. The mineral industry accounted for 35% of the value of foreign trade and about 6% of the gross domestic product (MBendi Information Services (2006) <sup>ccclvi</sup> .
1,200,000 (5.64%)	21,284,700 (21%)	More hydroelectric power is needed for additional investment projects in titanium extraction and processing and garment manufacturing that could further close the import/export gap (2008) <sup>ccclxii</sup> . The government is trying to control the tens of thousands of illegal miners by marketing of the illegally mined gems. It has issued marketing licences to buyers who purchase the gems directly from the miners. As a result, over 1,000 traders are licensed to buy and sell gemstones (2007) <sup>ccclxiii</sup> . To further support the rights and wellbeing of ASMs, the government will continue to publicize and monitor the environmental regulations applicable to mining (2006) <sup>ccclxiv</sup> .
120,000 (5.75%)	2,088,669 (5.2%)	The economy is heavily dependent on the extraction and processing of minerals for export. Mining accounts for 8% of GDP, but provides more than 50% of foreign exchange earnings. The country is the fourth-largest exporter of non-fuel minerals in Africa, the world's fifth-largest producer of uranium, and the producer of large quantities of lead, zinc, tin, silver, and tungsten. The mining sector employs about 3% of the population while about half of the population depends on subsistence agriculture for its livelihood (2008) <sup>ccclxviii</sup> .
2,700,000 (20.34%)	13,272,679 (17.3%) (2008) <sup>ccclxxi</sup>	Gold mining has traditionally been artisanal, providing a living for up to 500,000 people and producing around 1 ton of gold per year. The economy centers on subsistence crops, livestock, and some of the world's largest uranium deposits. Future growth may be sustained by exploitation of oil, gold, coal, and other mineral resources (2008) <sup>ccclxxii</sup> .

Table 9 Toolkits &amp; Resources Relevant to ASM continuation

Country	Mineral Extraction	Mined by ASM	Number of ASM
Nigeria	Barite; clays; feldspar; gold; gypsum; iron ore; lead; niobium; shale; stone (granite, limestone and marble); tin; and topaz (2006) <sup>cclxxxiii</sup>	Bauxite; clays; feldspar; gemstones; gold; gypsum; lead-zinc; niobium (columbium); ores; phosphate rock; salt (2002-03) <sup>cclxxxiv</sup> ; sand (2006) <sup>cclxxxv</sup> ; tantalum; tin; and tungsten barite (2002-03) <sup>cclxxxvi</sup>	500,000 (2008) <sup>cclxxxvii</sup>  CASM 2005 estimate 150-400,000
Republic of Congo	Diamond (mostly ASM); gold (mostly ASM); lime; magnesium; potash; and salt (2006) <sup>cclxxxix</sup>	Diamond (2007) <sup>cclxxxii</sup> and gold (2007) <sup>cclxxxiii</sup>	25,000  CASM 2005 estimate < 50,000
Rwanda	Limestone; columbite; tin; and tungsten (2006) <sup>cclxxxvii</sup>	Columbite; tantalite; and tin	50,000  CASM 2005 estimate 50-150,000
Sao Tome & Principe		Clay and volcanic rock (2005) <sup>ccxc</sup>	Negligible  CASM 2005 estimate NA
Senegal	Basalt; clay; gold; laterites; limestone; phosphate rock and related products; salt; and sand (2006) <sup>ccxciii</sup>	Gold (2007) <sup>ccxciv</sup>	10,000 (2007) <sup>ccxcv</sup>  CASM 2005 estimate < 50,000
Sierra Leone	Bauxite; limestone; diamond; gold; gypsum; ilmenite; rutile; and salt (2006) <sup>ccxcviii</sup>	Diamond (2006) <sup>ccxcix</sup>	300,000 (2008) <sup>ccc</sup>  CASM 2005 estimate 50-150,000
Somalia	Gypsum; salt; and sepiolite (meerschaum) (2002) <sup>cccv</sup>	Amethyst; aquamarine; emerald; sapphire; and zircon (2002) <sup>cccvi</sup>	10,000  CASM 2005 estimate < 50,000

ASMs & Dependents (% pop)	National Population (% unemployed)	Comments on Economy – with references to LSM/ASM where data is available
3,000,000 (2.05%)	146,255,312 (5.8%) (2006)	The government proposed to establish 10 mineral buying centres to help artisanal miners' market industrial minerals (2006) <sup>cclxxviii</sup> . The oil sector provides 20% of GDP, 95% of foreign exchange earnings, and about 80% of budgetary revenues. The largely subsistence agricultural sector has failed to keep up with rapid population growth; once Africa's most populous country and exporter of food, it now must import (2008) <sup>cclxxix</sup> . The solid minerals sector contributes a meager 0.01 per cent to the national economy; however the Mines and Minerals Act 2007 was recently amended to address ASM activities, to provide an investor-friendly environment and overcome the challenges impeding the growth of the sector (2008) <sup>cclxxx</sup> .
150,000 (3.84%)	3,903,318 (50%) <sup>cclxxxv</sup>	Artisanal miners are responsible for most of the country's gold production (2006) <sup>cclxxxv</sup> . The economy is a mixture of subsistence agriculture, an industrial sector based largely on oil and support services, and a government characterized by budget problems and overstaffing. Oil has supplanted forestry as the mainstay of the economy, providing a major share of government revenues and exports <sup>cclxxxvi</sup> .
300,000 (2.95%)	10,186,063 (15.5%) (2005) <sup>cclxxxviii</sup>	Nearly 90% of the population is engaged in (mainly subsistence) agriculture. It is the most densely populated country in Africa and is landlocked with few natural resources and minimal industry. Primary foreign exchange earners are coffee and tea (2008) <sup>cclxxxix</sup> .
Negligible	206,178 (32% average) (2005) <sup>ccxc</sup>	Mining did not play a significant role in the economy, which is primarily based on agriculture; cocoa accounted for about 95% of exports. Other economic activities included fishing and processing of local agricultural products (2005) <sup>ccxcii</sup> .
60,000 (0.47%)	12,853,259 (48%)	Phosphate rock production, which was processed and converted to phosphoric acid, dominated the country's mining sector. Phosphoric acid production accounted for about 3% of GDP and 10% of exports in 2005 (2006) <sup>ccxcvi</sup> . The phosphate industry has struggled for two years to secure capital, and reduced output has directly impacted GDP. In 2007, Senegal signed agreements for major new mining concessions for iron, zircon, and gold with foreign companies (2008) <sup>ccxcvii</sup> .
1,800,000 (28.6%)	6,294,774 (70%) (2005) <sup>ccci</sup>	ASM, which has occurred since the 1930s, reached its peak during the late 1960s when production reached about 2 million carats per year. According to KPSP statistics, diamond production was 603,566 carats in 2006, about a 72% increase from the 351,860 carats produced in 2002 (2006) <sup>ccci</sup> . ASM accounts for 90% of diamond exports and is the country's second largest employer after subsistence farming (2007) <sup>ccciii</sup> . Diamonds represent a resource of crucial importance to the country's future; it continues to be a participant of the KP and exported approximately \$125 million worth of diamonds (approximately 3% of the world's diamonds) in 2006 <sup>ccciiv</sup> .
60,000 (0.62%)	9,558,666 (53% average) (2007) <sup>cccvii</sup>	Agriculture is the most important sector, with livestock normally accounting for about 40% of GDP and about 65% of export earnings (2008) <sup>cccviii</sup> .

Table 9 Toolkits &amp; Resources Relevant to ASM continuation

Country	Mineral Extraction	Mined by ASM	Number of ASM
South Africa	Alusite; antimony; asbestos; cementitious products; chromium; clays; coal; cobalt; copper; diamond (gem and industrial); feldspar; fluorspar; gemstones; gold; gypsum; iron; lead; lime; magnesite; manganese; mica; mineral pigments (natural); nickel; nitrogen; perlite; phosphate rock; platinum; salt; sand (industrial or glass); silica; sodium sulfate; stone (granite, norite, slate, limestone, dolomite, quartzite, shale, aggregate and sand); silver; sulfur; talc; titanium; uranium; vermiculite; and zirconium (2005) <sup>cccix</sup>	Coal; diamond; gemstones; gold; kaolin; limestone; salt; sand; silver; stones (dimension); and talc (2002) <sup>cccix</sup>	10,000 (2002) <sup>cccxi</sup>  CASM 2005 estimate < 50,000
Sudan	Limestone; chromite; gold; gypsum; marble; salt; silver (2005) <sup>cccixv</sup>	Gold (2005) <sup>cccixvi</sup>	200,000  CASM 2005 estimate 150-400,000
Swaziland	Gold, clay, sand, aggregate; coal; ferrovanadium; and stone (quarry products) (2006) <sup>cccixviii</sup>	Gold, clay, sand, aggregate	10,000  CASM 2005 estimate < 50,000
Tanzania	Anhydrite; calcite; limestone; coal; copper; diamond; gemstones (amethyst, aquamarine, cordierite, garnet, ruby, sapphire, and tanzanite); gold; gravel; gypsum; lime; phosphate minerals; salt; sand; silver; and stone (aggregates, dolomite, limestone, and pozzolanic materials) (2006) <sup>cccxxi</sup>	Aggregates; diamond; gemstones; gold; gypsum; lime; limestone; salt; sand; stone (crushed and dimension); and tanzanite (2006) <sup>cccxxii</sup>  Artisanal miners accounted for most of the country's coloured gemstone production (2006) <sup>cccxxiii</sup>	1,500,000 (2008) <sup>cccxxiv</sup>  CASM 2005 estimate > 400,000
Togo	Diamond; limestone; and phosphate rock (2006) <sup>cccxxix</sup>	Diamond and gold (2007) <sup>cccxxx</sup>	15,000 (2008) <sup>cccxxxi</sup>  CASM 2005 estimate < 50,000
Tunisia	Barite; limestone; clays; fluorine; gypsum; iron; lead; lime; phosphate; rock; salt; silver; and zinc (2005) <sup>cccxxxiv</sup>	NA	Negligible  CASM 2005 estimate < 50,000
Uganda	Beryllium; clay; cobalt; columbium; copper (2008); gold; gypsum; iron ore; lime; limestone; pozzolanic materials; salt; sand; tin; tungsten; tantalum, columbium, vermiculite, garnet, tourmaline, fluorite, ksolin, marble (2005) <sup>cccxxxvii</sup>	Gold, clay and aggregates, tin, tantalum, niobium, tungsten, stone, sand, salt, semi-precious stones (2008) <sup>cccxxxviii</sup>	150,000 (2008) <sup>cccxxxix</sup>  CASM 2005 estimate 50-150,000  60% are women (2008) <sup>cccxi</sup>

ASMs & Dependents (% pop)	National Population (% unemployed)	Comments on Economy – with references to LSM/ASM where data is available
60,000 (0.12%)	48,782,756 (24.3%)	The country is one of the world's leading mining and mineral-processing countries. It is world's largest producer of platinum, gold, and chromium (2008) <sup>ccccxii</sup> . It was also the world's leading producer of andalusite, chromite, ferrochrome, vanadium, and vermiculite. The country was the world's third-ranked producer of rough diamond by value and the fifth-ranked producer of rough diamond by volume (2005) <sup>ccccxiii</sup> . 1.8-billion of gold is stolen from South Africa's mines each year according to the Institute for Security Studies. South Africa's National Union of Mineworkers reported that the provinces of Mpumalanga and the Northern Cape are the most affected by illegal miners, given that some mines in these areas are not rehabilitated properly. This results in many foreign illegal miners hiring locals to operate underground (2008) <sup>ccccxiv</sup> .
1,200,000 (2.98%)	40,218,456 (18.7%)	Agricultural production employs 80% of the work force and contributes a third of GDP (2008) <sup>ccccxvii</sup> .
60,000 (5.32%)	1,128,814 (40%)	Mining has declined in importance in recent years and, in 2006, the mineral industry was not a significant contributor to the country's GDP – only coal and quarry products are significant. Mineral activities accounted for about 2% of the GDP, an even smaller percentage of the value of exports, and about 1% of the work force (2006) <sup>ccccxix</sup> . The small, landlocked economy, subsistence agriculture occupies approximately 70% of the population. The manufacturing sector has diversified since the mid-1980s (2008) <sup>ccccxx</sup> .
9,000,000 (22.38%)	40,213,160 (11%) (2006) <sup>ccccxxv</sup>	ASMs annually produce 48 thousand tonnes of gemstones, 720 kilograms of gold, 97 thousand tonnes of salt, 120 thousand tonnes of limestone, 9 thousand tonnes of gypsum, and 93,205 carats of diamonds (2002) <sup>ccccxxvi</sup> . In 2006, the country was the world's only producer of tanzanite. It also played a significant role in the global production of gold, accounting for nearly 2% of the world's gold mine output. Other domestically significant mining and mineral processing operations included cement and diamond. The country was not a globally significant consumer of minerals or mineral fuels (2006) <sup>ccccxxvii</sup> . The economy depends on agriculture, which accounts for more than 40% of GDP, provides 85% of exports and employs 80% of the pop (2008) <sup>ccccxxviii</sup> .
90,000 (1.54%)	5,858,673 (32.9%) (2006) <sup>ccccxxiii</sup>	The economy is heavily dependent on both commercial and subsistence agriculture, which provides employment for 65% of the labor force (2008) <sup>ccccxxiii</sup> .
Negligible	10,383,577 (14%)	Progressive social policies have helped raise living conditions relative to the region. Real growth, which averaged almost 5% over the past decade, reached 6.3% in 2007 due to development in non-textile manufacturing, a recovery in agricultural production and strong growth in the services sector (2008) <sup>ccccxxv</sup> .
900,000 (2.87%)	31,367,972 (23%) (2005) <sup>ccccxli</sup>	As of 2000, the mining sector in Uganda was in a stage of infancy. Despite a favourable geological environment for mineral deposits and several identified prospect areas, the sectors contribution to the economy accounts for less than 0.7% of GDP and 7% of exports. Most actors in the sector are ASM with a significant absence of large-scale mining activity. Agriculture is the most important sector of the economy, employing over 80% of the work force. Coffee accounts for the bulk of export revenues (2003) <sup>ccccxlii</sup> .

Table 9 Toolkits &amp; Resources Relevant to ASM continuation

Country	Mineral Extraction	Mined by ASM	Number of ASM
Western Sahara	Antimony; arsenic; barite; cement; clays; cobalt; copper; feldspar; fertilizers; gold; gypsum; iron; lead; manganese ore; mercury; nickel; phosphate rock; phosphoric acid; salt; silver; strontium minerals; sulfuric acid; talc; and zinc (2006) <sup>cccxl</sup>	Construction materials	5,000  <i>CASM 2005 estimate</i> <50,000
Zambia	Clays; coal; cobalt; copper; gemstones (amethyst, beryl, emerald, garnet, and tourmaline) gold; gravel lime; limestone; sand; silver (2006) <sup>cccxliv</sup>	Gemstones (amethyst, emerald, garnet, sapphire, and tourmaline); quartz; sand; silver; and stone (dimension) (2002) <sup>cccxli</sup>	60,000  <i>CASM 2005 estimate</i> 50-150,000
Zimbabwe	Asbestos; limestone; chromite; clays; coal; cobalt; coke; copper; diamond; feldspar; fluorspar; gemstones (amethyst and emerald); gold; graphite; gravel; iron; kyanite; lithium; magnesite; nickel; nitrogen; perlite; phosphate rock; platinum; sand; silver; stone; sulphur; talc; tantalum; and vermiculite (2006) <sup>cccxlvi</sup>	Diamond; gold; and Tantalite (2002) <sup>cccxlvi</sup>	500,000  <i>CASM 2005 estimate</i> > 400,000



ASMs & Dependents (% pop)	National Population (% unemployed)	Comments on Economy – with references to LSM/ASM where data is available
30,000 (7.62%)	393,831 NA%	The economy is dependent on pastoral nomadism, fishing and phosphate mining. Interest in oil exploration contracts in areas offshore Western Sahara increased in 2006 (2006) <sup>ccccxiv</sup> .
360,000 (3.08%)	11,669,534 (50%)	The mining sector has been a prime mover of economic development in the country for over 70 years, with exports of mineral products contributing about 70% of total foreign exchange earnings. Mining has been generating between 6% and 9% of GDP and contributes about 40,000 jobs to total formal sector employment (2007) <sup>cccclvii</sup> .
3,000,000 (26.43%)	11,350,111 (80%)	Domestic and foreign companies that produced minerals or manufactured mineral-based commodities struggled to continue operations in Zimbabwe. The negative effects of hyperinflation, frequent electrical power outages; lack of foreign currency to fund equipment imports; and chronic shortages of food, fuel, skilled manpower, and spare parts adversely affected production operations. Despite the difficulties, Zimbabwe's diverse mineral output included about 4% of the world's asbestos and chromite production, 2% of the platinum-group metals and vermiculite production, and about 1% of the lithium production (2006) <sup>cccci</sup> .

## 13. Appendix B: ASM Related Alliances and Initiatives

Initiative	Origin	Focus
African Development Bank (ADB)	ABD is a regional multilateral development finance institution established in 1964 and engaged in mobilizing resources towards the economic and social progress of its Regional Member Countries <a href="http://www.afdb.org">www.afdb.org</a>	Dedicated to combating poverty and improving the lives of the continent's people and engaging in the task of mobilizing resources towards the economic and social progress of its members
Association for Responsible Mining (ARM)	ARM was initiated in 2004 by a network of independent organizations to promote responsible standards and criteria for ASM. It seeks to respond to consumer demand for responsibly produced minerals and metals, especially from fair trade and ethical markets <a href="http://www.communitymining.org">www.communitymining.org</a>	An independent, global-scale effort, and pioneer initiative, created as an international and multi-institutional organization to bring credibility, transparency and legitimacy to responsible ASM
Communities & Small-scale Mining (CASM)	CASM was established in 2001 in response to a critical need for integrated, multi-disciplinary solutions to the complex social and environmental challenges facing ASM communities, and improved coordination between those working in this sector <a href="http://www.artisanalmining.org">www.artisanalmining.org</a>	Dedicated to reducing poverty by supporting integrated sustainable development of communities affected by or involved in ASM
Council for Responsible Jewellery Practices	The Council is an INGO representing over 80 member companies across the gold and diamond supply chain <a href="http://www.responsiblejewellery.com">www.responsiblejewellery.com</a>	Focused on promoting responsible, ethical, social, human rights, and environmental business practices across the diamond and gold jewellery supply chain
Diamond Development Initiative (DDI)	Following discussion among NGOs, governments, labour, academics, and industry, the DDI was formally launched in 2005 to encourage better work environments and better prices for diamond miners <a href="http://www.ddiglobal.org">www.ddiglobal.org</a>	Advocacy on the behalf of ASM diamond miners to persuade governments, donor agencies and NGOs to engage on ASM issues, and to work more constructively in diamond producing regions
Extractive Industries Transparency Initiative (EITI)	The EITI is a globally recognized governance tool formed out of the need to set a global standard for mining companies to publish what they pay and for governments to disclose what they receive <a href="http://www.eitransparency.org">www.eitransparency.org</a>	To strengthen governance by improving revenue transparency and accountability in the extractives sector. Predominantly focused on the oil and gas sectors, it has recently begun to place more emphasis on LSM
Global Mercury Project	Established in 2002 with a vision to demonstrate ways of overcoming barriers to the adoption of best practices and pollution prevention measures that limit mercury contamination of international waters from ASM activities <a href="http://www.globalmercuryproject.org">www.globalmercuryproject.org</a>	To introduce cleaner technologies, train miners, develop regulatory mechanisms and capacities within government, conduct environmental and health assessments, and build capacity within participating countries to continue monitoring pollution after project implementation

Interventions	Status
<ul style="list-style-type: none"> <li>• Works to end poverty and improve livelihoods by promoting economic and social development through loans, equity investment and technical assistance;</li> <li>• Supports ASM communities by supporting CASM</li> </ul>	<p>The bank includes shareholders include 53 African countries and 24 non-African countries from the Americas, Asia, and Europe</p>
<ul style="list-style-type: none"> <li>• Sets fair trade standards for precious metals, diamonds, gems, other minerals;</li> <li>• Develops programs to provide producer support to ensure progressive compliance with the fair trade standards through building the capacity of a network of local partners in developing countries and facilitate enabling market conditions for fair trade jewellery; and</li> <li>• Communicates and lobbies for improved market access and policies for ASM</li> </ul>	<p>Over the next 5 years the association will continue developing standards for precious metals and gems</p> <p>In 2009 may expand activities to Africa</p>
<ul style="list-style-type: none"> <li>• Mitigates or eliminates the negative environmental, social &amp; cultural effects of ASM on affected communities;</li> <li>• Educates miners on health and safety risks;</li> <li>• Improves the policy environment and institutional arrangements governing ASM;</li> <li>• Increasing productivity and improves ASM livelihoods; and</li> <li>• Allows ASM communities alternative livelihoods through effective integrated use of their natural resources and biodiversity</li> </ul>	<p>CASM's three regional networks are in Asia, China and Africa. It is currently chaired by the UK's Department for International Development and is housed at the World Bank headquarters in Washington, D.C.</p>
<ul style="list-style-type: none"> <li>• Develops ethical, social and environmental standards for members to conduct their business; and</li> <li>• Promotes awareness and understanding of key ethical, social and environmental business responsibility issues</li> </ul>	<p>The Council aims to begin operation of its certification system in 2009</p>
<ul style="list-style-type: none"> <li>• Gathers and disseminating information on ASM diamond mining;</li> <li>• Promotes better understanding and solutions for government mining regulation, marketing channels, ASM production and organisation, legitimate and transparent distribution channels, free and open markets for ASM diamonds;</li> <li>• Promotes wide participation in the process including government donors, industry and development organizations; and</li> <li>• Encourages better work environments and better prices for diggers through education, access to credit and equipment, training in diamond valuation, environmental protection, streamline marketing, and improved labour laws</li> </ul>	<p>Projects are underway in Sierra Leone and the DRC on standards and guidelines and the prevention of child labour</p>
<ul style="list-style-type: none"> <li>• Supports improved governance in resource-rich countries through the verification and full publication of company payments and government revenues from oil, gas and mining;</li> <li>• Builds multi-stakeholder partnerships in developing countries in order to increase the accountability of governments and companies;</li> <li>• Verifies and publicises company payments and government revenues in the extractive sectors</li> </ul>	<p>The EITI has received political support from the governments of a number of developed and developing countries, the G8, the private sector and civil society, and the World Bank</p>
<ul style="list-style-type: none"> <li>• Reduces mercury pollution of international waters by emissions emanating from ASM gold mining;</li> <li>• Introduces cleaner technologies for gold extraction and trains user;</li> <li>• Develops capacity and regulatory mechanisms that will enable the sector to minimize mercury pollution;</li> <li>• Introduces environmental and health monitoring programs; and</li> <li>• Builds capacity of local laboratories to assess level &amp; impact of mercury pollution</li> </ul>	<p>Six countries have been formally participating in the GMP: Brazil, Lao PDR, Indonesia, Sudan, Tanzania, and Zimbabwe</p>

Initiative	Origin	Focus
Inter-governmental Forum on Mining, Minerals, Metals and Sustainable Development	The Forum is the institutional framework for the Global Dialogue on Mining/Metals and Sustainable Development, launched at the World Summit on Sustainable Development in 2002 <a href="http://www.globaldialogue.info">www.globaldialogue.info</a>	Co-sponsored by South Africa and Canada, the Global Dialogue was designed to fulfil the priorities for the mining, minerals and metals sector, whereby enhancing and promoting sustainable development
International Council for Mining Minerals & Sustainable Development (ICMM)	ICMM is a CEO-led organization representing many of the world's leading mining and metals companies as well as regional, national and commodity associations. ICMM members are committed to responsible production of the minerals and metals society needs <a href="http://www.icmm.com">www.icmm.com</a>	ICMM provides a platform for industry and other key stakeholders to share challenges and develop solutions based on sound science and the principles of sustainable development. Its vision is for a respected mining and metals industry that is widely recognized as essential for society and as a key contributor to sustainable development
International Finance Corporation (IFC) Comm.Dev.		
International Institute for Environment and Development (IIED)	IIED is an international policy research institute and non governmental body working for more sustainable and equitable global development <a href="http://www.iied.org">www.iied.org</a>	IIED provides expertise in achieving sustainable development at local, national and global levels
International Labor Organization (ILO)	Founded in 1919, the ILO is the tripartite UN agency that brings together governments, employers and workers of its member states in common action to promote decent work throughout the world <a href="http://www.ilo.org">www.ilo.org</a>	Devoted to advancing opportunities for decent and productive work in conditions of freedom, equity, security, and human dignity. Promotes rights at work, encourages decent employment opportunities, enhances social protection, and strengthens dialogue in work-related issues
International Program on the Elimination of Child Labour (IPEC)	Created in 1992 with goal of the progressive elimination of child labour, to be achieved through strengthening capacity of countries to deal with the problem and promoting a worldwide efforts to combat it <a href="http://www.ilo.org/ipec">www.ilo.org/ipec</a>	Prevention and elimination of all forms of child labour, targeting immediate action against worst forms of child labour
Madison Dialogue	Launched in 2006, by Earthworks, WWF, Partnership Africa Canada, Tiffany & Co. Foundation, CRJP, DDI, Jewellers of America and others, to promote communication and collaboration among companies, civil society and others <a href="http://www.madisondialogue.org">www.madisondialogue.org</a>	To encourage best practices, sustainable economic development, and verified sources of responsible gold, diamonds and other minerals.

Interventions	Status
<ul style="list-style-type: none"> <li>• Provides governments with a framework in which to discuss the opportunities provided by mining, minerals and metals and to respond to the challenges they pose; and</li> <li>• Shares experiences and information to consider and to provide advice and, where appropriate, makes recommendations for consideration by governments, intergovernmental bodies and others</li> <li>• Environmental stewardship: helps industry enhance its environmental performance;</li> <li>• Health and safety: improves safety performance and minimizing health risks in mining operations;</li> <li>• Materials stewardship: promotes the responsible production, use, re-use, recycling and disposal of materials:</li> <li>• Socio-economic development: contributes to the economic growth of host countries and communities; and</li> <li>• Resource endowment initiative: improves socio-economic contribution from mining</li> </ul>	<p>The donors and organizations which have supported the Global Dialogue Process include UNCTAD, UNDESA, DFID, and Canada's Department of Foreign Affairs and International Trade</p> <p>ICMM is made up of 18 of the largest mining and metals companies, and 30 association members</p>
<ul style="list-style-type: none"> <li>• Strengthens global institutions and processes for better governance;</li> <li>• Creates equitable property rights, strengthens local rights to land and natural resources through decentralisation, water for life, health, and productivity;</li> <li>• Supports sustainable trade and markets for equitable development, while strengthening corporate responsibility; and</li> <li>• Monitors the impact of northern government policy, while promoting inclusion and democratic deliberation</li> <li>• Advances fundamental principles and rights at work and international labour standards;</li> <li>• Generates employment and income opportunities;</li> <li>• Provides social protection and social security; and</li> <li>• Encourages social dialogue and tri-partisan approaches</li> </ul>	<p>Active African programs include Kenya, Lesotho, Tanzania, Uganda, and Zambia</p>
<ul style="list-style-type: none"> <li>• Works to the end slavery, sale and trafficking of children; the use of child soldiers; the procuring or offering of a child for prostitution; the procuring or offering of a child for illicit activities such as trafficking of drugs; and any work that is likely to harm the health, safety or morals of children</li> <li>• Participants in the Madison Dialogue work on a number of initiatives to promote sustainable development, best practices, and certification or assurance in the sector, including the Kimberley Process, the DDI, and IRMA</li> </ul>	<p>Currently operates in 88 countries. It is the largest program of its kind globally and the biggest single operational program of the ILO</p>

Initiative	Origin	Focus
No Dirty Gold	Consumer campaign launched in 2004 by Earthworks/Mineral Policy Center and Oxfam, to hold the gold industry accountable and to change the way gold is mined, bought and sold <a href="http://www.nodirtygold.org">www.nodirtygold.org</a>	Artisanal and small-scale miners, gold jewellers, and the environment
Partnership Africa Canada (PAC)	PAC was created in 1986 with the support of the Canadian International Development Agency (CIDA) and Canadian and African non-governmental organizations (NGOs). <a href="http://www.pacweb.org">www.pacweb.org</a>	Works in partnership with organizations in Africa, Canada and internationally to build sustainable human development in Africa
Peace Diamond Alliance (PDA)	PDA was formed in 2002 by a coalition of NGOs, ASM diggers and diamond traders from the Kono district of Sierra Leone. It exists to address smuggling and exploitation using the KP and connecting miners with legal buyers	The PDA aims to improve conditions for alluvial diamond ASM diggers and ensure that revenue from Sierra Leone's diamond mines fosters local development
Southern African Development Community (SADC)	Formed in 1980 as a loose alliance of nine states in Southern Africa, the Southern African Development Coordination Conference (SADCC), with the aim of coordinating development projects to lessen economic dependence on the then apartheid South Africa <a href="http://www.sadc.int">www.sadc.int</a>	Mandate is to promote sustainable and equitable economic growth and socio-economic development so that the region emerges as a competitive and effective participant in international relations and the world economy
UK Department for International Development (DFID)	The branch of the UK Government that manages Britain's aid to poor countries and works to eradicate extreme poverty <a href="http://www.dfid.gov.uk">www.dfid.gov.uk</a>	Works toward the achievement of the Millennium Development Goals - the United Nations targets for fighting poverty that must be met by 2015
United Nations Economic Commission for Africa (UNECA)	Established by the Economic and Social Council (ECOSOC) of the United Nations (UN) in 1958 as one of the UN's five regional commissions <a href="http://www.uneca.org">www.uneca.org</a>	To promote economic and social development of its Member States, foster intra-regional integration, and promote international cooperation for Africa's development
United Nations Industrial Development Organization (UNIDO)	Established in 1966, became a specialized agency of the UN in 1985. UNIDO has its own constitution, member states, policymaking organs, executive head, and budget. UNIDO uses voluntary contributions to finance developmental activities <a href="http://www.unido.org">www.unido.org</a>	To promote and accelerate the industrialization of the developing countries, with a main focus on promoting growth in the small and medium enterprise sector
World Bank	The World Bank is a key source of financial and technical assistance to developing countries. The bank is made up of two development institutions owned by 185 member countries: International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA) <a href="http://www.worldbank.org">www.worldbank.org</a>	To achieve global poverty reduction and improve living standards, the IBRD focuses on middle income and creditworthy poor countries. IDA focuses on the poorest countries in the world
World Business Council for Sustainable Development (WBCSD)	The WBCSD is a CEO-led, global association of some 200 companies dealing exclusively with business and sustainable development <a href="http://www.wbcd.org">www.wbcd.org</a>	To provide advocacy on and a platform for companies to explore sustainable development and to share knowledge, experiences and best practices
World Diamond Council	The World Diamond Council was created in 2000 by the World Federation of Diamond Bourses and the International Diamond Manufacturers Association. The organization consists of representatives from diamond manufacturing and trading companies. <a href="http://www.worlddiamondcouncil.com">www.worlddiamondcouncil.com</a>	To develop, implement and oversee the tracking system for the export and import of rough diamonds in order to prevent and reduce the exploitation of diamonds for illicit purposes such as war and inhumane acts

Interventions	Status
<ul style="list-style-type: none"> <li>• ASM environmental impacts: poisoned waters, solid waste, polluted air, and threatened natural areas;</li> <li>• ASM community impacts: endangered communities, disadvantaged women, violated human rights, and indigenous peoples;</li> <li>• ASM worker impacts: dangers and workers' rights; and</li> <li>• Economic and financial impacts</li> <li>• Strengthens African and Canadian efforts in research and policy dialogue relating to sustainable human development in Africa;</li> <li>• Facilitates, African, Canadian and international decision-makers, the adoption and implementation of policies to foster sustainable human development; and</li> <li>• Promotes understanding of and commitment to sustainable development in Africa</li> </ul>	
<ul style="list-style-type: none"> <li>• Organises small-scale informal alluvial diamond diggers into cooperatives, providing them with adequate capital to finance their mining activities and improving their working conditions; and</li> <li>• Educates diggers on the value of diamonds to reduce exploitation</li> </ul>	
<ul style="list-style-type: none"> <li>• Works toward development and economic growth, poverty alleviation, and enhancement of standards and quality of life for the people of Southern Africa;</li> <li>• Supports the socially disadvantaged through regional integration;</li> <li>• Evolves common political values, systems and institutions;</li> <li>• Promotes and defends peace and security; and</li> <li>• Promotes self-sustaining development on the basis of collective self-reliance, and the interdependence of Member States</li> <li>• DFID, along with the World Bank, initiated and contribute funding to CASM</li> </ul>	<p>The SADC region currently comprises fourteen member states: Angola, Botswana, DR Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, and Zimbabwe</p>
<ul style="list-style-type: none"> <li>• Supports trade and infrastructure;</li> <li>• Works toward achieving MDGs with a special emphasis on poverty reduction and growth;</li> <li>• Sustainable development and gender-based equality and issues; and</li> <li>• Promotes good governance and popular participation</li> </ul>	
<ul style="list-style-type: none"> <li>• Provides technical assistance to the ASM in developing countries;</li> <li>• Assesses the environmental and health impacts of mercury pollution caused by ASM gold miners;</li> <li>• Supports projects dealing with the introduction of cleaner technologies and mercury pollution abatement; and</li> <li>• Supports poverty reduction through productive activities, trade capacity-building, energy and environment</li> </ul>	<p>UNIDO holds a special place in the United Nations system as it is the only organization promoting the creation of wealth and tackling poverty alleviation through manufacturing</p>
<ul style="list-style-type: none"> <li>• Provides low-interest loans, interest-free credit and grants to developing countries for education, health, infrastructure, communications, etc.;</li> <li>• Participates in CASM in order to provide a forum for coordinated approaches to assess and address the problems and needs of small-scale miners</li> </ul>	<p>Members are drawn from more than 35 countries and 20 major industrial sectors. The Council also benefits from a global network of about 55 national and regional business councils and partners</p>
<ul style="list-style-type: none"> <li>• Participates in policy development for business to make an effective contribution to sustainable human progress;</li> <li>• Develops and promotes the business case for sustainable development;</li> <li>• Demonstrates the business contribution to sustainable development solutions by sharing leading edge practices among members; and</li> <li>• Contributes to a sustainable future for developing and transition nations</li> </ul>	
<ul style="list-style-type: none"> <li>• The Council has representation on the KP's working groups and is influential in determining the implementation of the process</li> </ul>	<p>The Council has around 70 members that represent jewellers, traders and manufacturers. There are also observers from the Governments of Belgium, Antwerp, South Africa and Israel</p>





## 14. Appendix C: Bibliography

- <sup>i</sup> Weber-Fahr, Monika, Strongman, John E., Kunanayagam Ramani, McMahon, Gary, Sheldon, Christopher (2003) Mining. Chapter 25 of *Macroeconomic & Sectoral Approaches*, Volume 2, World Bank
- <sup>ii</sup> Fisher, Eleanor (2007) *Occupying the Margins: Labour Integration and Social Exclusion in Artisanal Mining in Tanzania*. Development and Change, Institute of Social Studies, The Hague. Vol 38 Issue 4
- <sup>iii</sup> Amevor, Selorm (2008) National Coalition On Mining Calls for Immediate Implementation of CHRAJ Report. Public Agenda, Accra <http://allafrica.com/stories/200809081152.html>
- <sup>iv</sup> Dreschler, Bernd (2002) *Small-scale Mining and Sustainable Development within the SADC Region*. Santren/ITDG. Commissioned by MMSD project of IIED
- <sup>v</sup> Dreschler, Bernd (2002) *Small-scale Mining and Sustainable Development within the SADC Region*. Santren/ITDG. Commissioned by MMSD project of IIED
- <sup>vi</sup> Walsh, Andrew (2003) "Hot Money" and daring consumption in a northern Malagasy sapphire-mining town. *American Ethnologist*
- <sup>vii</sup> Common Fund for Commodities (2008) *Basic Facts 2007-2008*
- <sup>viii</sup> Inter-Agency and Expert Group on MDG Indicators led by the Department of Economic and Social Affairs of the United Nations Secretariat (2008) *The Millennium Development Goals Report*
- <sup>ix</sup> Commission on Sustainable Development (2008) *Sixteenth Session: Chairman's Summary - Part I. 5 - 16 May 2008*, New York
- <sup>x</sup> [www.amnesty.org](http://www.amnesty.org)
- <sup>xi</sup> Commission of African Union (2006) *Eighth Meeting of the African Committee of Experts on the Rights and Welfare of the Child*. Addis Ababa, Ethiopia. 27 November–1 December 2006
- <sup>xii</sup> Child Rights Information Network (2008) [www.crin.org](http://www.crin.org)
- <sup>xiii</sup> IRIN News (2006) *Gem Slaves: Tanzanite's child labour*. 06 Sep. [www.globalexchange.org](http://www.globalexchange.org)
- <sup>xiv</sup> UNAIDS (2008) *Report on the Global AIDS Epidemic*
- <sup>xv</sup> D'Souza, Kevin (2008) Peer review. Wardell Armstrong
- <sup>xvi</sup> D'Souza, Kevin (2008) Peer review. Wardell Armstrong
- <sup>xvii</sup> UN Department of Economic & Social Affairs, Division for Sustainable Development (2008) *Trends in Sustainable Development – Africa Report 2008-2009*
- <sup>xviii</sup> Cline, W.R. (2007) *Global Warming and Agriculture: Impact Estimates by Country*. Center for Global Development, Peterson Institute for International Economics
- <sup>xix</sup> Mutemeri, Nellie & Petersen, Francis (2002): *Small-scale mining in South Africa: past, present and future*. *Natural Resources Forum*, Vol. 26, No4
- <sup>xx</sup> Gouvernement du Royaume du Maroc (2008) *Portrait of Morocco – Economy – Mining* <http://www.maroc.ma/NR/exeres/7ED8943B-FA45-4C83-B711-73722AB9194A.htm>
- <sup>xxi</sup> Agencia de Informacao de Mocambique (2007) *Gem And Mineral Fair Opens*. <http://allafrica.com/stories/printable/200710260974.html>
- <sup>xxii</sup> Barry, M., (1996) *Regularizing Informal Mining: A Summary of the Proceedings of the International Roundtable on Artisanal Mining*. Organized by the World Bank, Industry and Energy Department Occasional Paper No. 6, Washington
- <sup>xxiii</sup> Samwel Njonanje (2008) *Ngeleja: Do not ignore role played by artisanal miners*. <http://www.ippmedia.com/ipp/guardian/2008/08/18/120785.html>
- <sup>xxiv</sup> Ghana News Agency (2008) *Newmont holds competition on mines safety*. <http://www.google.co.uk/search?hl=en&q=gna+ghana&meta=>
- <sup>xxv</sup> D'Souza, Kevin (2008) Peer review. Wardell Armstrong
- <sup>xxvi</sup> Dreschler, Bernd (2002) *Small-scale Mining and Sustainable Development within the SADC Region*. Santren/ITDG. Commissioned by MMSD project of IIED
- <sup>xxvii</sup> *Companies & Markets (2008) Angola Mining Report Q3 2008*
- <sup>xxviii</sup> Centre for Development Studies, University of Wales (2004) *Livelihoods and Policy in the Artisanal and Small-Scale Mining Sector - An Overview*.
- <sup>xxix</sup> Tegera, Aloys & Johnson, Dominic (2007) *Rules for Sale: Formal and informal cross-border trade in Eastern DRC*
- <sup>xxx</sup> Lungu, John & Shikwe, Adrian (2007) *Corporate Social Responsibility Practices in Small-Scale Mining on the Copperbelt*
- <sup>xxxi</sup> *Diamonds for Development (2006) The current state of diamond mining in the Mano River Basin and the use of diamonds as a tool for peace building and development*. *Diamonds for Development Su-Regional Conference, Liberia*
- <sup>xxxii</sup> O'Sullivan, Michael (2008). *Pers comm. Anvil Mining Ltd.*

- xxxiii EPIQ II & IRG (2005) Programmatic Environmental Assessment for USAID Support to Small-Scale Artisanal Mining Activities in Sierra Leone
- xxxiv International Alert, UNDP Liberia, Government of Liberia (2006) Report on the Proceedings of the 'Diamonds for Development' Sub-Regional Conference
- xxxv International Alert, UNDP Liberia, Government of Liberia (2006) Report on the proceedings of the 'Diamonds for Development' Sub-Regional Conference
- xxxvi EPIQ II & IRG (2005) Programmatic Environmental Assessment for USAID Support to Small-Scale Artisanal Mining Activities in Sierra Leone
- xxxvii D'Souza, Kevin (2008) Peer Review. Wardell Armstrong
- xxxviii Green (2006) Appui a la Gestion Decentralisee des Ressources Minerales de la Commune Rurale d'Antanimbary – Maevatanana. CASM 6th Annual Conference, Madagascar
- xxxix ICMM, World Bank, UNCTAD (2006) Tanzania: The Challenge of Mineral Wealth: Using resource endowments to foster sustainable development. series 09
- xl Davenport, Jade (2008) Challenges continue to hamper growth of African mining sector. Creamer Media's Mining Weekly <http://www.miningweekly.com/article.php?id=125977>
- xli African Mining Partnership (2007) Fourth Meeting of the African Mining Partnership. Pretoria Communiqué
- xlii Corporate Council for Africa (2007) CCA Africa Business Report - Market Research and Member Services Volume 4, Issue 68
- xliiii African Union (2008) Building a Sustainable Future for Africa's Extractive Industry: the Imperatives. AU Conference of Ministers Responsible For Mineral Resources Development. 1st Ordinary Session. 13-17 October, 2008. Addis Ababa, Ethiopia
- xliv Van Eck Global (2007) Market Vectors: The Investment Case for Africa
- xlv Van Eck Global (2007) Market Vectors: The Investment Case for Africa
- xlvi PriceWaterhouseCoopers (2008) Mining Deals 2007 Annual Review
- xlvii Banchirigah, Sadia Mohammed (2006) How have reforms fuelled the expansion of artisanal mining? Evidence from sub-Saharan Africa. Institute for Development Policy and Management (IDPM), School of Environment and Development, University of Manchester
- xlviiii Aryee, B.N.A. (2003) Small-scale mining in Ghana as a sustainable development activity: Its development and a review of the contemporary issues and challenges. In: The Socioeconomic Impacts of Artisanal and Small-Scale Mining in Developing Countries (edited by G.Hilson)
- xlix Geological Survey of Ethiopia (2008) [www.geology.gov.et](http://www.geology.gov.et)
- l Pact (2007) Researching Natural Resources and Trade Flows in the Great Lakes Region. Report to DFID, COMESA, USAID
- li DFID, COMESA, USAID (2007) Trading for Peace: Achieving security & poverty reduction through trade in natural resources in the Great Lakes area
- lii International Alert, UNDP Liberia, Government of Liberia (2006) Report on the Proceedings of the 'Diamonds for Development' Sub-Regional Conference
- liii Standard Times (2007) The Challenges In the Management Of The Mining Sector In Sierra Leone. <http://business.africanpath.com/article.cfm?articleID=46748>
- liiv Reuters (2007) Ghana gold pit collapse kills nine illegal miners <http://www.alertnet.org/thenews/newsdesk/L18255719.htm>
- liv RTE News (2008) Thirty gold miners killed in Burkina Faso. <http://www.rte.ie/news/2008/0810/burkinafaso.html>
- lvii International Diamond Exchange (IDEX) (2008) Floods sweep through tanzanite mines; more than 70 feared dead. [http://www.idexonline.com/portal\\_FullNews.asp?TextSearch=&KeyMatch=o&id=29931](http://www.idexonline.com/portal_FullNews.asp?TextSearch=&KeyMatch=o&id=29931)
- lviii Global Mercury Project (2006) Manual for Training Artisanal and Small-Scale Gold Miners. United Nations Industrial Development Organization, UNIDO
- lviii Sellou Diallo, M., Bakhom, A., Niang, K., Diouf, A. (2007) Artisanal Gold Mining in the Tambacounda Region of Senegal: Second Report on the Reduction of Mercury Emissions Through Appropriate Technologies Training. Senegal
- lix Sierra Leone Poverty Reduction Strategy Paper (2006) Annual Report
- lx Tilghman, Laura; Baker, Merrill, & Dickinson DeLeon, Sally (2007) Artisanal Sapphire Mining in Madagascar: Environmental and Social Impacts. Tiffany & Co. Foundation & University of Vermont
- lxi United Nations Economic and Social Council - Economic Commission for Africa (2003) Reports On Selected Themes in Natural Resources

- Development in Africa: Artisanal and Small-Scale Mining and Technology Challenges in Africa
- <sup>lxii</sup> Felix Hruschka (2008) Pers.comm. Association for Responsible Mining
- <sup>lxiii</sup> Common Fund for Commodities (2008) Basic Facts 2007-2008
- <sup>lxiv</sup> D'Souza, Kevin (2008) Peer Review. Wardell Armstrong
- <sup>lxv</sup> Vanguard News (2008) FG Acquires N1.7 Billion Facility for Artisanal Miners. Lagos <http://allafrica.com/stories/200806300704.html>
- <sup>lxvi</sup> Mugini Jaco (2008) Villagers attack Barrick Gold Mines in Mara. Daily News. <http://dailynews.habarileo.co.tz/columnist/index.php?id=7184>
- <sup>lxvii</sup> Brindaveni Naidoo (2008) Illegal Congolese miners being abused in Angola – NGO. <http://www.miningweekly.com/article.php?id=139039>
- <sup>lxviii</sup> Ford, Benjamin (2008) Sustainability of Africa's resource investment boom. Export Finance and Insurance Corporation
- <sup>lxix</sup> Hoadley, M. & Limpitlaw, D. (2005) The Artisanal and Small Scale Mining Sector and Sustainable Livelihoods. School of Mining Engineering, University of the Witwatersrand, South Africa
- <sup>lxx</sup> Porter, Michael (1985) Competitive advantage: Creating and Sustaining Superior Performance [http://en.wikipedia.org/wiki/Supply\\_Chain](http://en.wikipedia.org/wiki/Supply_Chain)
- <sup>lxxi</sup> Levin, Estelle and Turay, Ansumana Babar (2008) Sierra Leone: Artisanal diamond cooperatives - success or failure? Partnership Africa Canada & Diamond Development Initiative
- <sup>lxxii</sup> Kuleshov, Andrey (2008) Peer Review. Common Fund for Commodities
- <sup>lxxiii</sup> Christian Echavarría (2008) Pers.comm. Association for Responsible Mining
- <sup>lxxiv</sup> Levin, Estelle and Turay, Ansumana Babar (2008) Sierra Leone: Artisanal diamond cooperatives - success or failure? Partnership Africa Canada & Diamond Development Initiative
- <sup>lxxv</sup> Lungu, John & Shikwe, Adrian (2007) Corporate Social Responsibility Practices in Small-Scale Mining on the Copperbelt
- <sup>lxxvi</sup> Sibeene, Petronella (2008) Small Miners Launch Interest Body. New Era/All Africa Global Media, Windhoek <http://www.zibb.com/article/3815656/Small+Miners+Launch+Interest+Body>
- <sup>lxxvii</sup> Diamonds for Development (2006) The current state of diamond mining in the Mano River Basin and the use of diamonds as a tool for peace building and development. Diamonds for Development Su-Regional Conference, Liberia
- <sup>lxxviii</sup> The Zambia Marketer (2006) Industry News – Briefs. <http://www.langmead.com/marketer/Q106/index.html>
- <sup>lxxix</sup> ECA (2004) Minerals Cluster Policy Study in Africa – Pilot Studies of South Africa and Mozambique. UN Economic Commission for Africa ECA/SSD/05/08
- <sup>lxxx</sup> Hinton, Jennifer J. (2005) Communities and Small Scale Mining: An Integrated Review for Development Planning. CASM
- <sup>lxxxi</sup> Dreschler, Bernd (2002) Small-scale Mining and Sustainable Development within the SADC Region. Santren/ITDG. Commissioned by MMSD project of IIED
- <sup>lxxxii</sup> Levin, Estelle (2008) Clarifying Certification – Language, Components & Process. Presentation 8th Annual CASM Meeting. Resource Consulting Services
- <sup>lxxxiii</sup> Garrett, Nicholas (2007) The Extractive Industries Transparency Initiative (EITI) & Artisanal and Small-Scale Mining (ASM): Preliminary Observations from the Democratic Republic of the Congo (DRC)
- <sup>lxxxiv</sup> Wagner, Markus (2007) Certified Trading Chains in Mineral Production. Federal Inst. for Geosciences & Natural Resources (BGR)
- <sup>lxxxv</sup> Ad Hoc Working Group on the Review of the Kimberley Process Certification Scheme (2006) The Kimberley Process Certification Scheme Third Year Review
- <sup>lxxxvi</sup> Shawn Blore (2008) Pers.comm. Egmont Institute
- <sup>lxxxvii</sup> Faye, Djidiack (2008) Briefing for civil society on UNCTAD's Sustainability Claims Portal. UNCTAD Special Unit on Commodities
- <sup>lxxxviii</sup> Hinton, Jennifer J, Veiga, Marcello M. & Beinhoff, Christian (2003) Women and Artisanal Mining: Gender Roles and the Road Ahead. As: Ch.11 in The Socio-Economic Impacts of Artisanal and Small-Scale Mining in Developing Countries. Swet publ., ed. G.Hilson, The Netherlands
- <sup>lxxxix</sup> USAID (2000) Mining for Gold in Siguirí: A Close Look at a High-Risk Population. Report on Guinea
- <sup>xc</sup> Lahri-Dutt, Kuntala (2008) Presentation 8th Annual CASM Meeting in Brasilia, Brazil. Australian National University
- <sup>xc</sup> Lahri-Dutt, Kuntala (2004) Women and ASM – Issues and Priorities, Presentation at the 3rd CASM Annual General Meeting, Colombo, Sri Lanka
- <sup>xc</sup> Lahri-Dutt, Kuntala (2006) Gender mainstreaming in the extractive industries: an overview. Research School of Pacific and Asian Studies, The Australian National University

- <sup>xciv</sup> Hinton, Jennifer (2008) Pers.comm.
- <sup>xcv</sup> D'Souza, Kevin (2008) Peer Review. Wardell Armstrong
- <sup>xcvi</sup> ILO (2007) Girls in mining: Research findings from Ghana, Niger, Peru and the United Republic of Tanzania. Bureau for Gender Equality, International Programme on the Elimination of Child Labor
- <sup>xcvii</sup> Hinton, Jennifer J, Veiga, Marcello M. & Beinhoff, Christian (2003) Women and Artisanal Mining: Gender Roles and the Road Ahead. As: Ch.11 in The Socio-Economic Impacts of Artisanal and Small-Scale Mining in Developing Countries. Swet publ., ed. G.Hilson, The Netherlands
- <sup>xcviii</sup> Mutemeri, Nellie (2008) Pers.comm.
- <sup>xcix</sup> Hinton, Jennifer (2008) Pers.comm.
- <sup>c</sup> Hoadley, M. & Limpitlaw, D. (2005) The Artisanal and Small Scale Mining Sector and Sustainable Livelihoods. School of Mining Engineering, University of the Witwatersrand, South Africa
- <sup>ci</sup> Phillips, Lucie (2006) Wealth at the Bottom of the Pyramid. CASM 6th Annual Meeting, Madagascar
- <sup>cii</sup> Phillips, L.C., H.Semboja, G.P.Shukla et al., (2001) Tanzania's Precious Minerals Boom: Issues in Mining and Marketing, African Economic Policy Discussion Paper Number 68, Equity and Growth through Economic Research (EAGER)
- <sup>ciii</sup> Tilghman, Laura; Baker, Merrill, & Dickinson DeLeon, Sally (2007) Artisanal Sapphire Mining in Madagascar: Environmental and Social Impacts. Tiffany & Co. Foundation & University of Vermont
- <sup>civ</sup> UNECA (2002) Compendium on Best Practices in Small-scale Mining in Africa, UNECA
- <sup>cv</sup> Hinton, Jennifer J. (2005) Communities and Small Scale Mining: An Integrated Review for Development Planning. CASM
- <sup>cvi</sup> Hilson, Gavin; Hilson, Christopher J. and Pardie, Sandra (2006) Improving awareness of mercury pollution in small-scale gold mining communities: Challenges and ways forward in rural Ghana. Institute for Development Policy and Management (IDPM), School of Environment and Development, University of Manchester; Department of International Relations, University of Toronto; Department of Geology, University of Ghana
- <sup>cvi</sup> Centre for Development Studies, University of Wales (2004) Livelihoods and Policy in the Artisanal and Small-Scale Mining Sector - An Overview.
- <sup>cvi</sup> CASM (2005) Toolkit for Implementing of Artisanal

## 15. Data Sources for Appendix A & B

- cix <http://www.internationalbudget.org/MonitorGovPol.pdf>
- cxix <http://www.commddev.org/content/document/detail/1937/>
- cxii <http://info.worldbank.org/etools/docs/library/238377/1342CDT.pdf>
- cxiii [http://www.ifc.org/ifcext/sustainability.nsf/Content/Publications\\_GoodPractice\\_CommunityDevelopment](http://www.ifc.org/ifcext/sustainability.nsf/Content/Publications_GoodPractice_CommunityDevelopment)
- cxiv <http://www.commddev.org/content/document/detail/989/>
- cxv [http://www.usaid.gov/our\\_work/cross-cutting\\_programs/conflict/publications/docs/CMM\\_Minerals\\_and\\_Conflict\\_2004.pdf](http://www.usaid.gov/our_work/cross-cutting_programs/conflict/publications/docs/CMM_Minerals_and_Conflict_2004.pdf)
- cxvi <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTOGMC/o,,contentMDK:20249109~pagePK:210058~piPK:210062~theSitePK:336930,00.html>
- cxvii <http://www.commddev.org/content/document/detail/642/>
- cxviii <http://www.commddev.org/content/document/detail/926/>
- cxix <http://www.commddev.org/content/document/detail/2185/>
- cxx Figures gathered from CIA World Fact Book 2008 unless otherwise specified
- cxix <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-ag.pdf>
- cxix <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-ag.pdf>
- cxix <https://www.cia.gov/library/publications/the-world-factbook/geos/ag.html>
- cxix <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-ao.pdf>
- cxix [http://www.miningmx.com/mining\\_fin/466466.htm](http://www.miningmx.com/mining_fin/466466.htm)
- cxix <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-ao.pdf>
- cxix <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-ao.pdf>
- cxix <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-bn-uv-tp.pdf>
- cxix <http://minerals.usgs.gov/minerals/pubs/country/2003/bncvcttomybo3.pdf>
- cxix <http://www.gpn.org/data/benin/benin-analysis.pdf>
- cxix <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-bn-uv-tp.pdf>
- cxix <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-bc.pdf>
- cxix <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-bc.pdf>
- cxix <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-bc.pdf>
- cxix <https://www.cia.gov/library/publications/the-world-factbook/geos/bc.html>
- cxix <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-bn-uv-tp.pdf>
- cxix [http://www.artisanalmining.org/UserFiles/file/AMS\\_finalreport\\_13.pdf](http://www.artisanalmining.org/UserFiles/file/AMS_finalreport_13.pdf)
- cxix <http://www.imf.org/external/pubs/ft/scr/2005/cro5338.pdf>
- cxix [http://www.artisanalmining.org/UserFiles/file/AMS\\_finalreport\\_13.pdf](http://www.artisanalmining.org/UserFiles/file/AMS_finalreport_13.pdf)
- cxix <http://www.irinnews.org/report.aspx?reportid=61334>
- cxix <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-by.pdf>
- cxix <http://minerals.usgs.gov/minerals/pubs/country/2000/bycnmimpfrrwsemyboo.pdf>
- cxix <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-by.pdf>
- cxix [http://www.afdb.org/pls/portal/docs/PAGE/ADB\\_ADMIN\\_PG/DOCUMENTS/OPERATIONSINFORMATION/BURUNDI%20COUNTRY%20STRATEGY%20PAPER\\_SEPTEMBER%202008\\_o.PDF](http://www.afdb.org/pls/portal/docs/PAGE/ADB_ADMIN_PG/DOCUMENTS/OPERATIONSINFORMATION/BURUNDI%20COUNTRY%20STRATEGY%20PAPER_SEPTEMBER%202008_o.PDF)
- cxix <https://www.cia.gov/library/publications/the-world-factbook/geos/by.html>
- cxix <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-cm-cv.pdf>
- cxix <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-cm-cv.pdf>
- cxix [http://64.233.169.104/search?q=cache:AsOEjVFM1DYJ:www.diplomatie.gouv.fr/en/ministry\\_158/publications\\_2288/international-cooperation-and-development\\_2289/reperes-serie\\_2290/supporting-sustainable-development-through-local-enterprises\\_2723/supporting-the-artisanal-mining-sector\\_3259.html+benin+%22artisanal+mining%22&hl=fr&ct=clnk&cd=1&gl=cd](http://64.233.169.104/search?q=cache:AsOEjVFM1DYJ:www.diplomatie.gouv.fr/en/ministry_158/publications_2288/international-cooperation-and-development_2289/reperes-serie_2290/supporting-sustainable-development-through-local-enterprises_2723/supporting-the-artisanal-mining-sector_3259.html+benin+%22artisanal+mining%22&hl=fr&ct=clnk&cd=1&gl=cd)
- cxix <http://www.nationsencyclopedia.com/Africa/Cameroon-MINING.html>
- cxix <http://www.mbendi.co.za/indy/ming/af/ca/pooos.htm>
- cxix <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-cm-cv.pdf>
- cxix <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-cm-cv.pdf>
- cxix <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-ct-iv-to.pdf>

- cliv <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-ct-iv-to.pdf>
- clv <http://minerals.usgs.gov/minerals/pubs/country/1998/9205098.pdf>
- clvi D'Souza, Kevin (2008) Peer review. Wardell Armstrong
- clvii [http://64.233.169.104/search?q=cache:AsOEjVFM1DYJ:www.diplomatie.gouv.fr/en/ministry\\_158/publications\\_2288/international-cooperation-and-development\\_2289/reperes-serie\\_2290/supporting-sustainable-development-through-local-enterprises\\_2723/supporting-the-artisanal-mining-sector\\_359.html+benin+%22artisanal+mining%22&hl=fr&ct=clnk&cd=1&gl=cd](http://64.233.169.104/search?q=cache:AsOEjVFM1DYJ:www.diplomatie.gouv.fr/en/ministry_158/publications_2288/international-cooperation-and-development_2289/reperes-serie_2290/supporting-sustainable-development-through-local-enterprises_2723/supporting-the-artisanal-mining-sector_359.html+benin+%22artisanal+mining%22&hl=fr&ct=clnk&cd=1&gl=cd)
- clviii <http://assets.panda.org/downloads/congobasinmining.pdf>
- clix <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-ct-iv-to.pdf>
- clx The Economist
- clxi <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-cd.pdf>
- clxii Usgs 1999 chad
- clxiii <http://64.233.169.104/search?q=cache:rxREWFm5IZMJ:www.mbendi.co.za/indy/ming/mingch.htm+mining+industry+chad&hl=fr&ct=clnk&cd=1&gl=cd>
- clxiv <http://64.233.183.104/search?q=cache:XVarpWz1aFUJ:www.africafocus.org/docso6/econo601.php+chad+africa+economy+unemployment&hl=fr&ct=clnk&cd=7&gl=de>
- clxv <https://www.cia.gov/library/publications/the-world-factbook/geos/cd.html>
- clxvi <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-ct-iv-to.pdf>
- clxvii <https://www.cia.gov/library/publications/the-world-factbook/geos/iv.html>
- clxviii <http://diamondfacts.org/conflict/background.html#ivory>
- clxix <https://www.cia.gov/library/publications/the-world-factbook/geos/iv.html>
- clxx <http://minerals.usgs.gov/minerals/pubs/country/2005/cgmybo5.pdf>
- clxxi <http://minerals.usgs.gov/minerals/pubs/country/2005/cgmybo5.pdf>
- clxxii The World Bank, Democratic Republic of Congo Growth with Governance In the Mining Sector, November 2007
- clxxiii Business in Africa, February 2002
- clxxiv [http://www.pacweb.org/e/images/stories/documents/drc\\_annual%20review\\_2007-eng.pdf](http://www.pacweb.org/e/images/stories/documents/drc_annual%20review_2007-eng.pdf)
- clxxv <http://diamondfacts.org/conflict/background.html#ivory>
- clxxvi <http://minerals.usgs.gov/minerals/pubs/country/2002/djeretsomybo2.pdf>
- clxxvii <http://64.233.169.104/search?q=cache:AeL6VQSusMEJ:www.saudiaramcoworld.com/issue/200102/djibouti-a.future.in.arabic.htm+Djibouti+and+artisanal+mining&hl=fr&ct=clnk&cd=12&gl=cd>
- clxxviii <https://www.cia.gov/library/publications/the-world-factbook/geos/dj.html>
- clxxvix <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-eg.pdf>
- clxxx <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-eg.pdf>
- clxxx1 <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-ek.pdf>
- clxxxii <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-ek.pdf>
- clxxxiii <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-ek.pdf>
- clxxxiv <http://minerals.usgs.gov/minerals/pubs/country/2002/djeretsomybo2.pdf>
- clxxxv <http://memory.loc.gov/frd/cs/profiles/Eritrea.pdf>
- clxxxvi D'Souza, Kevin (2008) Peer review. Wardell Armstrong
- clxxxvii <http://74.125.45.104/search?q=cache:IN-8moTLhGoJ:www.mineweb.com/mineweb/view/mineweb/en/pages04%3Foid%3D53130%26sn%3DDetail+eritrea+Artisanal+and+Small-Scale+Mining&hl=fr&ct=clnk&cd=10&gl=cd>
- clxxxviii Economist Intelligence Unit
- clxxxix <https://www.cia.gov/library/publications/the-world-factbook/geos/er.html>
- cx <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-et.pdf>
- cxci [http://www.artisanalmining.org/UserFiles/file/CASM\\_Fairtrade\\_Final.pdf](http://www.artisanalmining.org/UserFiles/file/CASM_Fairtrade_Final.pdf)
- cxcii <http://minerals.usgs.gov/minerals/pubs/country/2002/djeretsomybo2.pdf>
- cxci1 D'Souza, Kevin (2008) Peer Review. Wardell Armstrong
- cxci2 <http://www.oecd.org/dataoecd/13/35/40577702.pdf>
- cxci3 <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-et.pdf>
- cxci4 <https://www.cia.gov/library/publications/the-world-factbook/geos/et.html>
- cxci5 <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-gb.pdf>
- cxci6 <http://minerals.usgs.gov/minerals/pubs/country/2004/gbmybo4.pdf>



- ccxli <https://www.cia.gov/library/publications/the-world-factbook/geos/ma.html>
- ccxlii <http://www.nationsencyclopedia.com/Africa/Malawi-MINING.html>
- ccxliii [http://www.artisanalmining.org/UserFiles/file/AMS\\_finalreport\\_13.pdf](http://www.artisanalmining.org/UserFiles/file/AMS_finalreport_13.pdf)
- ccxliv <http://www.nationsencyclopedia.com/Africa/Malawi-MINING.html>
- ccxlv [http://www.artisanalmining.org/UserFiles/file/AMS\\_finalreport\\_13.pdf](http://www.artisanalmining.org/UserFiles/file/AMS_finalreport_13.pdf)
- ccxlvi <https://www.cia.gov/library/publications/the-world-factbook/geos/mi.html>
- ccxlvii <http://minerals.usgs.gov/minerals/pubs/country/2005/mlmrngmybo5.pdf>
- ccxlviii [http://www.artisanalmining.org/UserFiles/file/AMS\\_finalreport\\_13.pdf](http://www.artisanalmining.org/UserFiles/file/AMS_finalreport_13.pdf)
- ccxlix [http://www.artisanalmining.org/UserFiles/file/AMS\\_finalreport\\_13.pdf](http://www.artisanalmining.org/UserFiles/file/AMS_finalreport_13.pdf)
- ccli <https://www.cia.gov/library/publications/the-world-factbook/geos/ml.html>
- ccli <http://minerals.usgs.gov/minerals/pubs/country/2005/mlmrngmybo5.pdf>
- cclii [http://www.miningreview.com/archive/mra\\_3\\_2006/pdf/MRA%203%202006%20-%20NORTH%20-AFRICA%20-%20MAURITANIA%20PG%2054-58.pdf](http://www.miningreview.com/archive/mra_3_2006/pdf/MRA%203%202006%20-%20NORTH%20-AFRICA%20-%20MAURITANIA%20PG%2054-58.pdf)
- ccliii <https://www.cia.gov/library/publications/the-world-factbook/geos/mr.html>
- ccliv <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-mo-wi.pdf>
- cclv <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-mo-wi.pdf>
- cclvi <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-mo-wi.pdf>
- cclvii <http://minerals.usgs.gov/minerals/pubs/country/2004/mzmybo4.pdf>
- cclviii <http://minerals.usgs.gov/minerals/pubs/country/1995/9227095.pdf>
- cclix [Mozambique Vice Minister of Mines, CASM 8th Conference, October 2008](#)
- cclx [http://www.communitymining.org/pdf/Chapter%2011%20Women%20in%20Artisanal%20Mining%20\\_Hinton%20et%20al.pdf](http://www.communitymining.org/pdf/Chapter%2011%20Women%20in%20Artisanal%20Mining%20_Hinton%20et%20al.pdf)
- cclxi <http://allafrica.com/stories/200710260974.html>
- cclxii <https://www.cia.gov/library/publications/the-world-factbook/geos/mz.html>
- cclxiii <http://allafrica.com/stories/200710260974.html>
- cclxiv [http://siteresources.worldbank.org/INTPRS1/Resources/Mozambique\\_PRSP\(May2-2006\).pdf](http://siteresources.worldbank.org/INTPRS1/Resources/Mozambique_PRSP(May2-2006).pdf)
- cclxv <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-wa.pdf>
- cclxvi <http://minerals.usgs.gov/minerals/pubs/country/2003/wamybo3.pdf>
- cclxvii [Pers.comm. N.Mutemuri, October 2008](#)
- cclxviii <https://www.cia.gov/library/publications/the-world-factbook/geos/wa.html>
- cclxix <http://minerals.usgs.gov/minerals/pubs/country/2005/mlmrngmybo5.pdf>
- cclxx <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-mr-ng.pdf>
- cclxxi <http://www.oecd.org/dataoecd/13/4/40578324.pdf>
- cclxxii <https://www.cia.gov/library/publications/the-world-factbook/geos/ng.html>
- cclxxiii <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-ni.pdf>
- cclxxiv [http://www.communitymining.org/pdf/Chapter%2011%20Women%20in%20Artisanal%20Mining%20\\_Hinton%20et%20al.pdf](http://www.communitymining.org/pdf/Chapter%2011%20Women%20in%20Artisanal%20Mining%20_Hinton%20et%20al.pdf)
- cclxxv <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-ni.pdf>
- cclxxvi [http://www.communitymining.org/pdf/Chapter%2011%20Women%20in%20Artisanal%20Mining%20\\_Hinton%20et%20al.pdf](http://www.communitymining.org/pdf/Chapter%2011%20Women%20in%20Artisanal%20Mining%20_Hinton%20et%20al.pdf)
- cclxxvii [Pers.comm. L.Adie. October 2008](#)
- cclxxviii <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-ni.pdf>
- cclxxix <https://www.cia.gov/library/publications/the-world-factbook/geos/ni.html>
- cclxxx <http://www.thetidenews.com/article.aspx?qrDate=01/03/2008&qrTitle=Turning%20solid%20minerals%20to%20%E2%80%98black%20gold%E2%80%99&qrColumn=BUSINESS>
- cclxxxi <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-cf.pdf>
- cclxxxii <http://64.233.169.104/search?q=cache:MwhITGtdzCU:www.mineweb.co.za/mineweb/view/mineweb/en/page43%3Foid%3D26678%26sn%3DDetail+republic+of+Congo+brazzaville+%22artisanal+mining%22&hl=fr&ct=clnk&cd=10&gl=cd>
- cclxxxiii <http://64.233.169.104/search?q=cache:AJuff9qbkLI:spilpunt.blogspot.com/2007/04/congo-brazzaville.html+Congo+brazzaville+%22artisanal+mining%22&hl=fr&ct=clnk&cd=6&gl=cd>
- cclxxxiv [http://64.233.183.104/search?q=cache:xwDB\\_n6zinYJ:web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/AFRICAEXT/CONGOEXTN/o,,contentMDK:20195777~pagePK:1497618~piPK:217854~theSitePK:349199,oo.html+republic+of+congo+estimated+unemployment+rate&hl=fr&ct=clnk&cd=7&gl=cd](http://64.233.183.104/search?q=cache:xwDB_n6zinYJ:web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/AFRICAEXT/CONGOEXTN/o,,contentMDK:20195777~pagePK:1497618~piPK:217854~theSitePK:349199,oo.html+republic+of+congo+estimated+unemployment+rate&hl=fr&ct=clnk&cd=7&gl=cd)
- cclxxxv <http://minerals.usgs.gov/minerals/pubs/>



- country/2006/myb3-2006-cf.pdf
- cclxxxvi <https://www.cia.gov/library/publications/the-world-factbook/geos/cf.html>
- cclxxxvii <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-rw.pdf>
- cclxxxviii [www.mifotra.gov.rw/documents/Policy-Draft-eng.doc](http://www.mifotra.gov.rw/documents/Policy-Draft-eng.doc)
- cclxxxix <https://www.cia.gov/library/publications/the-world-factbook/geos/rw.html>
- ccxc <http://minerals.usgs.gov/minerals/pubs/country/2005/bnuvtpmybo5.pdf>
- ccxci [http://siteresources.worldbank.org/INTPRS1/Resources/SaoTomePrincipe\\_PRSP\(Jan2005\).pdf](http://siteresources.worldbank.org/INTPRS1/Resources/SaoTomePrincipe_PRSP(Jan2005).pdf)
- ccxcii <http://minerals.usgs.gov/minerals/pubs/country/2005/bnuvtpmybo5.pdf>
- ccxciii <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-ga-pu-sg.pdf>
- ccxciv <http://www.artisanalmining.org/userfiles/file/SummaryReport.pdf>
- ccxcv <http://www.artisanalmining.org/userfiles/file/SummaryReport.pdf>
- ccxcvi <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-ga-pu-sg.pdf>
- ccxcvii <https://www.cia.gov/library/publications/the-world-factbook/geos/sg.html>
- ccxcviii <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-li-sl.pdf>
- ccxcix <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-li-sl.pdf>
- ccc [Egmont Institute, CASM 2008, October 2008](#)
- ccci [http://64.233.183.104/search?q=cache:Fvu2aTjCZG8J:www.goodmagazine.com/section/Provocations/we\\_shouldnt\\_pay\\_africans\\_to\\_die\\_in\\_iraq+sierra+leone+estimated+unemployment+rate&hl=fr&ct=clnk&cd=17&gl=cd](http://64.233.183.104/search?q=cache:Fvu2aTjCZG8J:www.goodmagazine.com/section/Provocations/we_shouldnt_pay_africans_to_die_in_iraq+sierra+leone+estimated+unemployment+rate&hl=fr&ct=clnk&cd=17&gl=cd)
- cccii <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-li-sl.pdf>
- ccciii [http://www.khulsey.com/jewelry/kh\\_jewelry\\_diamond\\_mining.html](http://www.khulsey.com/jewelry/kh_jewelry_diamond_mining.html)
- ccciv <http://diamondfacts.org/conflict/background.html#ivory>
- ccciv <http://minerals.usgs.gov/minerals/pubs/country/2002/djeretsomybo2.pdf>
- cccvi <http://minerals.usgs.gov/minerals/pubs/country/2002/djeretsomybo2.pdf>
- cccvii [http://64.233.183.104/search?q=cache:Pn48VMLe5AMJ:www.markacadeey.com/maqaalo/maqaal\\_yaxya\\_20070701.htm+somalia%27s+estimated+unemployment+rate&hl=fr&ct=clnk&cd=1&gl=cd](http://64.233.183.104/search?q=cache:Pn48VMLe5AMJ:www.markacadeey.com/maqaalo/maqaal_yaxya_20070701.htm+somalia%27s+estimated+unemployment+rate&hl=fr&ct=clnk&cd=1&gl=cd)
- cccviii <https://www.cia.gov/library/publications/the-world-factbook/geos/so.html>
- cccix <http://minerals.usgs.gov/minerals/pubs/country/2005/myb3-2005-sf.pdf>
- cccix [http://www.artisanalmining.org/UserFiles/file/AMS\\_finalreport\\_13.pdf](http://www.artisanalmining.org/UserFiles/file/AMS_finalreport_13.pdf)
- cccxi [http://www.artisanalmining.org/UserFiles/file/AMS\\_finalreport\\_13.pdf](http://www.artisanalmining.org/UserFiles/file/AMS_finalreport_13.pdf)
- cccxi <https://www.cia.gov/library/publications/the-world-factbook/geos/sf.html>
- cccxiii <http://minerals.usgs.gov/minerals/pubs/country/2005/myb3-2005-sf.pdf>
- cccxiv [http://www.miningweekly.com/article.php?a\\_id=139039](http://www.miningweekly.com/article.php?a_id=139039)
- cccxi <http://minerals.usgs.gov/minerals/pubs/country/2005/sumybo5.pdf>
- cccxi <http://minerals.usgs.gov/minerals/pubs/country/2005/sumybo5.pdf>
- cccxi <https://www.cia.gov/library/publications/the-world-factbook/geos/su.html>
- cccxi <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-lt-wz.pdf>
- cccxi <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-lt-wz.pdf>
- cccxi <https://www.cia.gov/library/publications/the-world-factbook/geos/wz.html>
- cccxi <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-tz.pdf>
- cccxi [http://www.artisanalmining.org/UserFiles/file/AMS\\_finalreport\\_13.pdf](http://www.artisanalmining.org/UserFiles/file/AMS_finalreport_13.pdf)
- cccxi <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-tz.pdf>
- cccxi <http://www.ippmedia.com/ipp/guardian/2008/08/18/120785.html>
- cccxi <http://www.eisa.org.za/WEP/tan7.htm>
- cccxi [http://www.artisanalmining.org/UserFiles/file/AMS\\_finalreport\\_13.pdf](http://www.artisanalmining.org/UserFiles/file/AMS_finalreport_13.pdf)
- cccxi <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-tz.pdf>
- cccxi <https://www.cia.gov/library/publications/the-world-factbook/geos/tz.html>
- cccxi <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-ct-iv-to.pdf>
- cccxi <http://74.125.45.104/search?q=cache:DYoLVVWocQMJ:www.nationsencyclopedia.com/Africa/Togo-MINING.html+togo+Artisanal+mining&hl=fr&ct=clnk&cd=4&gl=cd>
- cccxi [CASM 2008](#)
- cccxi <http://www.imf.org/external/pubs/ft/scr/2008/cro8144.pdf>
- cccxi <https://www.cia.gov/library/publications/the-world-factbook/geos/to.html>
- cccxi <http://minerals.usgs.gov/minerals/pubs/country/2005/tsmybo5.pdf>

- cccxxxv <https://www.cia.gov/library/publications/the-world-factbook/geos/ts.html>
- cccxxxvi <https://www.cia.gov/library/publications/the-world-factbook/geos/ug.html>
- cccxxxvii <http://minerals.usgs.gov/minerals/pubs/country/2005/ugmyb05.pdf>
- cccxxxviii [http://www.artisanalmining.org/UserFiles/file/CASM\\_Fairtrade\\_Final.pdf](http://www.artisanalmining.org/UserFiles/file/CASM_Fairtrade_Final.pdf)
- cccxxxix Pers.comm. J.Hinton. October 2008
- cccxl Pers.comm. J.Hinton. October 2008
- cccxli <http://www.newvision.co.ug/D/8/459/461855>
- cccxlii [http://www.energyandminerals.go.ug/PF\\_MSDTA03.pdf](http://www.energyandminerals.go.ug/PF_MSDTA03.pdf)
- cccxliii <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-mo-wi.pdf>
- cccxliv <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-mo-wi.pdf>
- cccxlv <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-za.pdf>
- cccxlivi [http://www.artisanalmining.org/UserFiles/file/AMS\\_finalreport\\_13.pdf](http://www.artisanalmining.org/UserFiles/file/AMS_finalreport_13.pdf)
- cccxlvii [http://siteresources.worldbank.org/INTZAMBIA/Resources/zm\\_prsp\\_06.pdf](http://siteresources.worldbank.org/INTZAMBIA/Resources/zm_prsp_06.pdf)
- cccxlviii <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-zi.pdf>
- cccxlix [http://www.artisanalmining.org/UserFiles/file/AMS\\_finalreport\\_13.pdf](http://www.artisanalmining.org/UserFiles/file/AMS_finalreport_13.pdf)
- ccccli <http://minerals.usgs.gov/minerals/pubs/country/2006/myb3-2006-zi.pdf>



