Sierra Leone
Mining Sector Reform
A Strategic Environmental and Social Assessment

July 10, 2008

Sustainable Development Unit
West Africa
and
Environment Department

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Acronyms and Abbreviations

ACC   Anti-Corruption Commission
ADMS  Alluvial Diamond Mining Scheme
AM    Artisanal Mining
ASM   Artisanal and Small-Scale Mining
CBO   Community-Based Organization
CDAP  Community Development Action Plan
CGG   Campaign for Good Governance
CSO   Civil Society Organization
CSR   Corporate Social Responsibility
DACDF Diamond Area Community Development Fund
DACO  Development Assistance Coordinating Office
DFID  UK Department for International Development
EA    Environmental Assessment
EFA   Effective Financial Assurance
EIA   Environmental Impact Assessment
EITI  Extractive Industries Transparency Initiative
EMP   Environmental Management Plan
EPA   Environmental Protection Act
ESIA  Environmental and Social Impact Assessment
GDP   Gross Domestic Product
GOSL  Government of Sierra Leone
IFC   International Finance Corporation
IFI   International Financial Institution
INGO  International Non-Governmental Organization
KH    Koidu Holdings
KP    Kimberley Process
LSM   Large-Scale Mining
MAFS  Ministry of Agriculture and Food Security

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<td>MDAs</td>
<td>Ministries, Departments and Agencies</td>
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<td>MEP</td>
<td>Ministry of Energy and Power</td>
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<td>Ministry of Finance</td>
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<td>MHS</td>
<td>Ministry of Health and Sanitation</td>
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<td>MIGA</td>
<td>Multilateral Investment Guarantee Agency</td>
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<td>MLCP</td>
<td>Ministry of Lands and Country Planning</td>
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<td>MLGCD</td>
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<td>MLIRSS</td>
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<td>MLSSIR</td>
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<td>MMA</td>
<td>Mines and Minerals Act</td>
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<td>MML</td>
<td>Majestic Mining Ltd.</td>
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<td>MMR</td>
<td>Ministry of Mineral Resources</td>
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<td>MSWGCA</td>
<td>Ministry of Social Welfare, Gender and Children’s Affairs</td>
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<td>MWHTM</td>
<td>Ministry of Works, Housing and Technical Maintenance</td>
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<td>NACE</td>
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<td>NFHR</td>
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<td>NGO</td>
<td>Non-Governmental Organization</td>
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<td>NMJD</td>
<td>Network Movement For Justice and Development</td>
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<td>PCDP</td>
<td>Public Consultation and Disclosure Process</td>
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<td>RAP</td>
<td>Resettlement Action Plan</td>
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<td>SESA</td>
<td>Strategic Environmental and Social Assessment</td>
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<td>SLANGO</td>
<td>Sierra Leone Association of Non-Governmental Organisations</td>
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<td>SLDC</td>
<td>Sierra Leone Diamond Company</td>
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<td>SLIS</td>
<td>Sierra Leone Information Systems</td>
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<td>Sierra Leone Minerals Ltd.</td>
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<td>Sierra Leone Selection Trust</td>
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<td>Sierra Minerals Ltd.</td>
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<td>Small-Scale Mining</td>
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<td>Tinap</td>
<td>Tinap for Justice</td>
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<td>UNCCD</td>
<td>United Nations Convention to Combat Desertification</td>
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<td>UNDP</td>
<td>United Nations Development Program</td>
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<td>UNICEF</td>
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<td>UMU</td>
<td>United Mineworkers’ Union</td>
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<td>USAID</td>
<td>United States Agency for International Development</td>
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<td>WHO</td>
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# Sierra Leone Mining Sector Reform

* A Strategic Environmental and Social Assessment

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Executive Summary

Background

1. The Strategic Environmental and Social Assessment (SESA) of the mining sector in Sierra Leone was undertaken in response to the Government of Sierra Leone's (GOSL) request for assistance in developing its Minerals Policy. The SESA will help meet long-term country development by integrating environmental and social considerations in mining sector reforms. The crucial aspect of the SESA process is that the environmental and social priorities for mining reforms were identified by stakeholders in the four regions of the country. This report — the culmination of a sequence of workshops and analytic work — provides a summary of the findings of the SESA process and makes recommendations on the policy, institutional, and governance changes required to address environmental and social priorities in reform of the Sierra Leone mining sector. The SESA pays particular attention to political economy issues such as the potential capture or watering down of reforms by groups having vested interests or the danger of selective implementation of new policies and regulations due to pressure from powerful interest groups. It helps to identify innovative solutions to some of the potential problems and the limitations of new mining policies in a situation where institutional and governance capacity are likely to be weak for some time.

The Mineral Sector in the Sierra Leonean Economy

2. Sierra Leone has a long history of mining, the sector having featured prominently in the country's economy since the early 1930s. Diamonds, rutile, and bauxite are currently being mined by major mining companies, after an interruption from 1995 to 2005 due to the civil war. The country's established diamond fields cover over one-quarter of the country, mainly in the southeastern and eastern regions. Sierra Leone has good potential for additional discoveries of mineral deposits. It is estimated that within a decade, the successful realization of its large-scale mineral potential could yield an annual production above US$ 370 million. Direct and indirect employment in the large-scale mines could reach about 38,000 people, with an estimated 300,000 people (including dependents and extended families) deriving their livelihoods from these mines. Additionally, with an improved environment for artisanal mining, alluvial diamond and gold production could increase due to higher resource recovery and processing efficiency.

3. Sierra Leone's dependence on the mining sector is reflected by its high contribution to GDP (20 percent) and registered exports (90 percent) throughout the 1990s, when mining and quarrying provided a livelihood for more than 250,000 people, and employed about 14 percent of the labor force. Fiscal revenues peaked at 8 percent of GDP in 1990 but declined to less than 2 percent after the closure of the two large mines in 1994. Mining's importance to fiscal revenues will increase considerably with the reopening of these mines as well as the opening of the Kimberlite diamond mine in 2003 and could greatly surpass the pre-civil war figure if the country's mining potential is as estimated. Most mining fiscal revenue goes directly into central government revenue and is used for budgetary support. There have been attempts more recently to designate some
part of this revenue to the mining areas and communities for their development through the Diamond Area Community Development Fund (DACDF), by which a certain proportion of the export levy on diamonds is given to the community, but most local benefits still come indirectly. However, large-scale and, to a much lesser extent, mechanized small-scale mining companies, do contribute directly to social and economic benefits in mining areas through employment, development of infrastructure, and some limited provision of social services.

4. Sierra Leone's mineral resources are managed by the Ministry of Mineral Resources (MMR). Despite the importance of mining to the economy, the capacity of the MMR is grossly inadequate. Although taxes paid to government from licenses and other functions are substantial (over US$ 7 million in 2004), financial support to the Ministry is far short of meeting its operational requirements. The environment section of MMR is not staffed. Salaries are extremely low for all workers.

5. The National Commission for the Environment and Forestry (NaCEF) has a key role to play in the mining sector, given that it is the main agency in charge of monitoring and enforcing environmental regulations. NaCEF was only formed about one year ago; it has a legal status but no formal institutional structure except that it comprises both the Environmental and Forestry Divisions, which maintain a semblance of their structures under previous ministries. Its legal and regulatory framework is mired in confusion. The 2000 Environmental Protection Act and the 1998 Forestry Act and regulations do not allude to the Commission and give considerable powers to bodies that have now been rendered non-functional, such as the Environmental Board. The Government has apportioned funds to the Commission in its latest budget, but they are far short of meeting its requirements. Note, however, that recently (late June 2007), the Cabinet passed a new NaCEF Act, which will regularize its functions. The Act still has to be passed by Parliament, which will not meet before the early autumn of 2007 due to elections, and new regulations have to be drafted.

6. There are also a number of important local governance issues in Sierra Leone's mining sector. Sierra Leone is divided into four provinces, 12 districts, and 149 chiefdoms, each led by a traditional ruler called the paramount chief. Paramount chiefs are responsible for general administration, the maintenance of law and order, and development of their chiefdom. Each chiefdom is divided into sections comprising a number of villages, whose chiefs have considerable influence in the allocation of mining leases for small-scale and artisanal mining.

7. Sierra Leone faces immense challenges in the development of its minerals sector. Laws and regulations relating to mining, including land tenure, are outdated and do not meet the needs of a modern mining industry. Where the laws and regulations are satisfactory, the responsible institutions are inadequate. Under the current situation of very low income and low physical and human capital in Sierra Leone, mining is likely to remain the main resource in the short term to accumulate capital for sustained growth. Yet, ensuring that Sierra Leone's mineral wealth is utilized in a sustainable manner and supports national economic and social development is a major challenge. It is therefore
critical for long-term growth and poverty outcomes to address the institutional and governance challenges outlined in this report.

Priorities for Sustainable Development of the Mineral Sector in Sierra Leone

8. The mineral sector in Sierra Leone is made up of three sub-sectors: (i) large-scale production of non-precious and precious minerals — rutile, bauxite, and diamonds; (ii) mechanized small-scale mines, mostly diamonds; and (iii) artisanal production of precious minerals — diamonds and, to a much lesser extent, gold. Large-scale mining operations in Sierra Leone are all foreign-owned. There are about 20 small-scale mines in the country and from 200,000 to 300,000 artisanal miners. The report analyzes the environmental and social situation of each mining sector. It is important to note that these mining operations are all taking place in a country where poverty is widespread with 71 percent of the population living below the poverty level, often making it difficult to differentiate between impacts of mining activities versus those that are pervasive nationwide. In this regard, in virtually every category of social indicators, Sierra Leone ranks near the bottom of the global table.

9. Environmental and social problems are not addressed satisfactorily by the Sierra Leone mining industry for all scales of mining activities, even where regulations exist. There are a considerable number of schisms between mining companies and various stakeholders. Effective environmental regulation is critically dependent on government monitoring and enforcement capacity, the availability of injunctive measures to help enforce compliance, the use of such measures where appropriate, and the ability of the mining sector to finance the costs of compliance. All of these factors are currently weak or, in some cases, non-existent. Monitoring is largely undertaken by NGOs and INGOs, often in an impressionistic manner due to lack of resources and inaccessibility of sites. Enforcement depends on their ability to mount enough domestic and international pressure to force companies to change their behavior and is limited to larger and a few small-scale mechanized operations.

10. Stakeholder prioritization workshops were held in each of the four provinces. All major stakeholder groups in the mining sector were represented, including vulnerable groups such as women and youth. There was great similarity in the stakeholder priorities across provinces, with differences largely depending on what scale of mining was important to the stakeholders. The top priorities from cross-regional and regional perspectives are:

CROSS-REGIONAL PRIORITIES

1. Land and crop compensation and village relocation;
2. Sanitation and water pollution;
3. Deforestation and soil degradation;
4. Child labor; and
5. Post-closure reclamation.
REGIONAL PRIORITIES

1. Mine employment (southern);
2. Provision of infrastructure (especially paved roads and electricity) (southern);
3. Community development and participation (southern and western); and
4. Blasting effects (eastern).

11. When asked to rate the political will to resolve these issues, the respondents all gave very low scores, with only child labor receiving a score suggesting medium to strong political will. Expected remediation or implementation costs to resolve the priority issues were all ranked high. The high expected costs support the conjecture that one reason that political will is ranked low is due to the perceived lack of capacity to resolve the problem.

Existing Policies, Regulations, and Environmental and Social Priorities

12. The SESA analyzed transmission mechanisms from existing policies and laws to environmental and social priorities identified by stakeholders, including those that enhance environmental risks or open up environmental or social opportunities. Then, a similar assessment investigated the likely transmission mechanisms of proposed policy, institutional, and governance changes on environmental and social priorities. A transmission mechanism is the manner in which the confluence of institutional, governance, and political economy characteristics of a country affect the interpretation and implementation of the policy and its associated laws and regulations. In a situation of weak governance and institutions, changing policy without addressing the underlying transmission mechanism will usually not have any significant effects on the existing outcome.

13. The analysis, which was supported by one case study in each of the three mining sub-sectors, concluded that the existing policies to address environmental and social priority concerns in the mining sector have the following weaknesses:

- The legal and regulatory framework for the mining sector often lacks specificity, leaving interpretation to be determined on a case-by-case basis, often by the involved stakeholders themselves.
- Laws pertaining to the sector are diffused across statutes emanating from various ministries, leading to problems of consistency and poorly defined responsibilities.
- Implementation of laws and regulations is consistently weak to non-existent — a situation exacerbated but not caused by NaCEF’s vague legal status — and enforcement mainly relies on voluntary initiatives and pressures by civil society.

Proposed Mining Sector Reforms and Environmental and Social Priorities

14. An assessment examined the transmission mechanisms from new mining policies to stakeholder priorities, considering institutional coordination and capacity, ability of stakeholders to influence the reforms, and coordination among stakeholders. Possible reactions to the reforms and obstacles to successful implementation were also analyzed.
15. While it was argued that successful reforms would bring widespread benefits in the mining sector and only negatively affect small groups of stakeholders, without major changes in institutional capacity and the political economy of Sierra Leone, successful implementation of broad mining reforms would likely flounder. The costs and benefits to various stakeholders of existing mining policies will significantly change if mining policies and their implementation are successfully reformed. The amount of support that different stakeholders will give to promoters of new policies will depend very much on the changes they perceive to their own costs and benefits in the mining sector, which in turn will depend on their estimates of the likely success of the government in implementing different parts of the policies. Moreover, even without active opposition to the reforms, the state capacity to implement new policies and regulations is very weak.

16. There was considerable commonality of the problems and solutions across some of the stakeholder priorities, so the analysis was grouped into three categories — environmental governance for large-scale and mechanized small-scale mining operations, community benefits and development, and artisanal mining.

17. The environmental governance category includes the stakeholder priorities of land and crop compensation and village relocation, sanitation and water pollution, deforestation and soil degradation, land reclamation, and mitigation of blasting effects. The institutional and political economy problems in each of these categories revolve around land tenure issues and lack of monitoring and enforcement capacity of environmental authorities. Resolution of all of these priorities will depend to a large extent on progress in these areas. Participation by stakeholders will often be critical for sustainability of proffered solutions.

18. The category of community benefits and development includes the stakeholder priorities of mine and mine-related employment, provision of infrastructure, and community development and participation. The major issues that arise in all these topics include the division of benefits and responsibilities among the various stakeholders — including the ultimate distribution of tax revenues paid by mining companies — the ability to enforce companies to keep their commitments, the capacity of local governments to fulfil their assigned responsibilities, the framework for stakeholder participation, and the geographical extent to which the mining operation has obligations — that is, which stakeholders have the right to participate in consultations or negotiations.

19. The stakeholder priority issues in the artisanal mining sector — natural resource degradation, reclamation, increasing community benefits — are the same in name as in large- and small-scale mining but very different in context and potential solutions. In addition, child labor in mining is unique to this sector. Similarly, the main problems in this sector are connected with enforcement but it is far more than a government capacity issue. There are hundreds of thousands of highly mobile artisanal miners spread around the country and even, for example, a substantial increase in NaCEF’s capacity would not be enough with the current organization of the AM sector. Even countries at a much higher income level, such as Colombia and Brazil, have found it very difficult to monitor and enforce changes in the behavior of this sector. Solutions to the problems in AM will
partly depend on better organization of the sector so that there are focal points with whom the GOSL and other stakeholders can negotiate. They will also depend on innovative solutions that rely as much on positive incentives (the “carrot”) as enforcement (the “stick”).

Conclusions

20. For reforms to be sustainable, they must be perceived as legitimate by society as a whole. Otherwise, they will be undermined, reverted, or simply ignored over time, even when seemingly successful in the short-run. There are three interrelated crucial elements in the legitimatization of a major reform. First, all important stakeholders must be involved from the beginning and have input into the reform process. Second, the government needs the requisite capacity and political will to implement reforms in a timely and effective manner. Third, the benefits from reforms must be wide-spread, including those most affected by mineral resource development.

21. Most reforms take time to unfold and some parts will happen faster than others. If significant time is needed before normal market mechanisms lead to benefit sharing throughout society, there needs to be alternative methods or targeted programs to enable specific groups to benefit from reforms as well as more equally distribute the gains and offset the costs in the short-run. In Sierra Leone, this is particularly true for individuals in the bottom ranks of the artisanal mining sector, including vulnerable groups, who may not be willing (or able) to bear much of the costs of reforms but may be capable of sabotaging them simply through neglect.

22. It is relatively easy for a government to design and pass a policy for reforms, much more difficult to implement those reforms, and most difficult of all to prevent their capture by special interest groups and sustain them over the long-term. For sustainability of mining sector reforms in Sierra Leone, the most critical issues are: (i) strengthening governance for environmental and natural resources management; (ii) enhancing the contribution of mining to local development; and (iii) effective incorporation of artisanal miners in reforms from the very beginning to improve their quality of life in general, and their environmental and social behavior. There are no simple solutions to any of these challenges but efforts must be made on all three fronts right from reform design to special efforts during implementation to good systems of monitoring and evaluation in order to foresee (and forestall) major problems before they occur.

Recommendations

23. The central objective of proposed reforms to mining sector policies in Sierra Leone is to provide a foundation to establish an enabling environment for attracting much needed foreign and local investments to the minerals sector. The sector is expected to make important contributions toward industrial, social, economic, and infrastructure development, particularly in rural areas. It is also expected to provide new employment opportunities, generate foreign exchange earnings, and contribute significantly to government revenue.
24. The recommendations that follow address solutions to the environmental and social issues that are of the highest priority in reform of the mining sector in Sierra Leone. If they are not addressed, then it is probable that the reforms will fall short of their intended objectives and could even be reversed or captured by interest groups. Some of these recommendations (1, 2, and 3) are essential for the new mining law to be sustainable in the short-term and medium-term. Others (4, 5, and 6) pertain to changes that should be incorporated in the new mining law, although their full implementation is likely to take time. A third group (7 and 8) is necessary to give legitimacy and long-term sustainability to the reforms by incorporating all stakeholders, including the weak and vulnerable. These recommendations will take more time to unfold, although initial actions could begin in the short-term to medium-term. The full report contains an action matrix that summarizes the recommendations and places them in a timeframe, including monitoring indicators of progress and a risk analysis.

25. The biggest institutional challenges to managing social and environmental problems in Sierra Leone include building the capacity to monitor, evaluate, and enforce relevant environmental and social laws and regulations, while at the same time developing alternative institutional arrangements to undertake these tasks. In Sierra Leone it is currently necessary to rely on monitoring by civil society, including NGOs, and self-monitoring, including voluntary codes and guidelines. It also requires a framework for tripartite consultations, negotiations, and mediation among the main parties affected by mining operations — communities, local and national governments, and mining companies. Finally, the issue of land tenure (and land reform) cuts across all social and environmental problems in Sierra Leone and, while beyond the scope of the mining sector reform, must be taken into account in the design and implementation of new policies.

Recommendation 1 — Immediately address the governance, legal, and regulatory harmonization problems that currently inhibit the functioning of NaCEF as the main environmental agency in Sierra Leone.

Recommendation 2 — Clarify the responsibilities and strengthen the capacities and coordination of NaCEF, the environmental section of MMR, and the Mineral Resource Committees of local councils as part of the mining sector reform.

Recommendation 3(a) — Strengthen regulations related to the ESIA process. Prioritize monitoring and evaluation of ESIs for large-scale and mechanized small-scale mines, focusing on the stakeholder priorities — water, sanitation, deforestation and soil degradation.

Recommendation 3(b) — Establish a monitoring framework that provides clear roles for participation by local governments, civil society, and NGOs in addition to NACEF and MMR.

Recommendation 3(c) — Require ESIs to be presented in a manner that is understandable to local community representatives, mediators, and the judiciary and that clearly identifies the legal obligations and commitments of mining companies. Strengthen
the ability of local governments and civil society to investigate and initiate legal procedures against mining operations with poor environmental and social performance.

Recommendation 3(d) — For long-term mining licenses, require financial sureties for reclamation.

Recommendation 4(a) — Require tripartite consultations and negotiations beginning with exploration for all mining operations that will entail investment above a certain size.

Recommendation 4(b) — Develop an easily accessible system of dispute resolution in the mining sector. Consideration should be given to making recourse to mediation mandatory as the first step in dispute resolution.

Recommendation 5(a) — Include in the new mining law a framework for reasonable compensation and involuntary resettlement centered on the long-term livelihoods of the affected families, considering standards of international practice. Require tripartite negotiations among mining companies, local communities, and governments as part of this framework.

Recommendation 5(b) — While clarification of land tenure is desirable, until land policies can be reformed, land users should be included in allocation decisions for leases and licenses for all scales of mining.

26. There is need for new policies and strengthened institutions and governance for mining to become a development driver of local communities and provincial governments. The new framework would: (i) address development issues throughout the mining life cycle — exploration, development, exploitation, closure, and post-closure; (ii) clearly define the responsibilities of government at different levels, local communities, civil society, and mining companies; (iii) ensure that weak and vulnerable stakeholders are incorporated in the process and that their needs are addressed; and (iv) match resources with responsibilities, with special emphasis on funding local governments, taking into account the cyclical nature of minerals and metal prices as well as the fiscal policies of Sierra Leone.

27. Institution and governance strengthening would aim to: (i) avoid patronage relationships between mining companies and local communities; (ii) enhance transparency of and information sharing from existing institutions; (iii) facilitate stakeholder coordination in a context favorable to flexible negotiations and mechanisms for quick and transparent solution of controversies; and (iv) strengthen property rights.

Recommendation 6(a) — Include in the mining law a framework for consultation and negotiations on local development for mining operations expected to be above a given size, including local mine employment and training, local procurement of goods and services, provision of infrastructure and public services, and required institutional capacity building.

Recommendation 6(b) — Require, as part of this framework, tripartite discussions among the government, local community representatives, and the mining company under a clearly defined legal context that reconciles the need for a well-defined system of
rights, obligations, and responsibilities with the flexibility to accommodate a changing
context and to take advantage of individual and collective learning.

28. The most important reason for limited success in resolving problems in the AM
sector is lack of any formal institutions among the miners. In addition, there are important
political economy challenges associated with bringing stronger enforcement of laws and
regulations to the AM sector. Artisanal mining is dominated by powerful supporters and
dealers — who provide financing, supplies, and marketing services to the miners — and
various chiefs, who allocate the mining land and licenses. None of these groups will
support an AM sector that reduces their patronage power, and all have enough power to
to potentially block implementation of reforms.

Recommendation 7(a) — Create conditions that induce and foster the organization of
artisanal miners in associations and cooperatives, including regulations and incentives
that would (i) make compulsory the registration of artisanal miners, (ii) encourage
agglomerations of artisanal miners to form small-scale mining companies, and (iii)
increase the responsibility of supporters and other middlemen for the environmental
degradation caused by miners (diggers) under their scope of influence.

Recommendation 7(b) — Establish a process by which representatives of local
communities and potentially affected stakeholders, including women and youth, are
involved in the granting of artisanal and small-scale mining licenses.

Recommendation 7(c) — Develop or strengthen innovative training programs and
marketing opportunities for artisanal miners, the access to which is tied to improved
environmental and social performance.

Recommendation 7(d) — Move toward greater formalization of the activities of
middlemen (supporters) and subject them to a strictly enforced system of progressive
reporting of their activities, including the miners they are supporting and the mining areas
for which they hold (or control) licenses.

Recommendation 7(e) — Develop a contingency response plan to mineral rushes, taking
into account geological, market, and other information.

29. Most attempts at resolving the problems associated with AM have focused on the
miners, although improvements in their environmental performance will certainly benefit
nearby communities. Nevertheless, if AM is to truly contribute to local communities in a
sustainable manner, it is important that small industries are developed to add value to the
output of the miners. It is equally important that all local community members are given
the opportunity to participate in any programs to develop skills and small businesses.

Recommendation 8(a) — With donor assistance, establish a fund for innovative
initiatives to: (i) increase the downstream benefits from artisanal mining to communities,
(ii) increase the benefits from artisanal mining to women, (iii) reduce the dependence on
child labor in artisanal mining for poor families, and (iv) develop alternative livelihoods
to artisanal mining. Given the large size of the sector, require that all funded initiatives
should be replicable at very low cost if successful.
**Recommendation 8(b)** — Establish mechanisms to enhance women’s access to mineral resources and their involvement in discussions and negotiations with mining companies, including the promotion of greater participation in local government.

**Risk Analysis**

30. Most risks associated with the above recommendations are related to inadequate funding, insufficient implementation capacity, opposition of powerful stakeholders (particularly with respect to artisanal mining), and the need for complementary reforms (particularly in the areas of land reform and civil service). The full report goes into detail on the risks associated with the concrete actions proposed to fulfill these recommendations. Nevertheless, it is important to emphasize that with respect to risk, the whole is often more than the sum of the parts when it comes to a major economic reforms. This is likely the case for mineral sector reforms in Sierra Leone. Although each action carries its own level of risk, even apparently successful actions may become unhinged or lose their impact over time if reforms as a whole are not successful.

31. For the entire reform package to be successful, the process must be undertaken in a strategic manner. It is crucial to build support for reforms in the early stages and, not unrelated, for the reforms to be perceived as legitimate by all or most of the major stakeholders. In the case of a sector as crucial as mining is to Sierra Leone, this means that there must be widespread buy-in across society. Many of the actions described in the report are precisely intended to increase the legitimacy of the reforms by paying special attention to groups such as women, youth, and artisanal miners (diggers) who otherwise may be shunted aside or ignored, and to the large mass of Sierra Leonean society who would benefit little if mechanized mining activities are undertaken in an enclave style with no or few links to the rest of the economy. If that is the case, it is as easy to envision scenarios where reforms are destroyed by powerful interests within the government in Freetown as by disgruntled youths in the provinces. This would lead to increasing environmental degradation and social conflict through exacerbation of priority environmental and social concerns identified and evaluated in this SESA.
1. Overview of the SESA Process and the Mining Sector in Sierra Leone

1.1 Introduction

32. The Strategic Environmental and Social Assessment (SESA) of the mining sector in Sierra Leone is being undertaken in response to the Government of Sierra Leone's (GOSL) request for assistance in developing its Minerals Policy. The SESA will help meet long-term country development by integrating environmental and social considerations into mining sector reform. While environmental and social aspects are the focus of the SESA, it will also pay attention to transmission mechanisms from mining-induced changes in income and poverty levels that affect environmental and social outcomes. The overall objective of the SESA is to propose recommendations for resolution of critical environmental and social issues as identified by key stakeholders, which must be confronted in order for mining sector reforms to be sustainable and contribute to long-term development.

33. The first stage of the SESA process involved stakeholder analysis, identification of environmental and social priorities, and surveying existing mining policies. A series of workshops was held in the second stage in each of the four provinces of Sierra Leone, at which stakeholder priorities with respect to environmental and socioeconomic issues were identified. These were followed by case studies to analyze the effects of existing mining policies on priority issues for large-scale, small-scale, and artisanal mining operations. The results of this report were submitted for stakeholder consultation at a second series of national workshops. A summary of the SESA process and recommendations on policy, institutional, and governance changes to be included in Sierra Leone's major reform of its mining sector was presented at a national workshop in Freetown in June 2007 for validation by the stakeholders. While the principles behind all the recommendations were accepted by the stakeholders, important changes were made to the details of several of them. This report updates this summary to include changes requested by the stakeholders.

34. By taking the environmental and social priorities of the stakeholders as its starting point, the SESA process will help to ensure that: (i) the priorities of the stakeholders receive proper attention; (ii) actions are taken to eliminate or mitigate the effects of policy changes on stakeholders, particularly the most vulnerable groups such as women, children, and youth; and (iii) reforms are perceived as legitimate by the majority of the population, which is critical for long-term sustainability. The SESA focuses on institutional and governance weaknesses at the national, sub-national, and local levels to address potential problems in the implementation of mining policy proposals. Particular attention is paid to political economy issues such as the potential capture or watering down of reforms by certain groups or the danger of selective implementation of new policies and regulations due to pressure from powerful interest groups. The SESA will help to identify innovative solutions to some potential problems and limitations of new mining policies in a situation where institutional and governance capacity are likely to be weak for some time.
The report is organized five sections. The remainder of this section is an overview of the mineral sector in Sierra Leone, including its economic importance, governance structure, and main policies. Section 2 is a situational analysis of the key environmental and social issues in the three mining sub-sectors in Sierra Leone. In Section 3, environmental and social priorities as determined by stakeholders are presented along with a discussion of how existing mining policies affect these priorities — that is, the transmission mechanism. Section 4 discusses the main elements of mining sector reforms, analyzes costs and benefits to various stakeholder groups of successful reforms, the impacts of reforms on stakeholder priorities (the new transmission mechanism), and how stakeholders are likely to react in support of or against the reforms. The final section makes recommendations on issues that this report deems critical for sustainability of reforms and for addressing overall priorities. These are grouped in three categories: (i) strengthening environmental governance, (ii) maximizing benefits to communities, and (iii) effectively incorporating artisanal mining in the reforms. A risk analysis of the recommendations is based on earlier stakeholders and political economy discussions. This is followed by an action matrix for implementing the policy, institutional, and governance recommendations.

1.2 The Mineral Sector in the Sierra Leonean Economy

Sierra Leone has a long history of mining — the sector has featured prominently in the country’s economy since the early 1930s. Diamonds, rutile, and bauxite are currently mined by major mining companies after an interruption of approximately 10 years, from 1995 to 2005, due to the civil war. The country’s established diamond fields cover an area of almost 20,000 square kilometers, more than one-quarter of the country, mainly in the southeastern and eastern parts of the country. Sierra Leone possesses one of the largest rutile reserves in the world and has significant bauxite reserves in the Southern Province (Map 1). All greenstone belts in Sierra Leone (with the possible exception of the Marampa Group) are known to contain gold. There is potential for alluvial platinum around York, but there is no mining taking place at present. Other identified minerals include iron ore, platinum, chromite, lignite, clays, and base metals (copper, nickel, molybdenum, lead, and zinc). Chromite, columbite, iron ore, and platinum were mined in the past.

Sierra Leone has good potential for additional discoveries of mineral deposits. It is estimated that within a decade, successful realization of its large-scale mineral potential could lead to four new mines (one diamond and three gold) and the development of two already identified deposits — rutile and bauxite. In such a scenario, annual production could easily top US$ 370 million (World Bank, 2004). Direct and indirect employment in the large-scale mines could reach 38,000 people, with an estimated 300,000 people (including dependents and extended families) deriving their livelihoods from these mines (World Bank, 2004:18). Additionally, with an improved environment for artisanal mining, alluvial diamond and gold production could increase due to higher resource recovery and processing efficiency. An improved governance framework could increase the flow of these minerals through official channels.
Sierra Leone’s dependence on the mining sector is reflected by its high contribution to GDP (20 percent) and registered exports (90 percent) throughout most of the 1990s. During the 1990s, mining and quarrying provided a livelihood for more than 250,000 people, and directly or indirectly employed about 14 percent of the total labor.
Fiscal revenues peaked at about 8 percent of GDP in 1990 but declined to less than 2 percent after closure of two large-scale mines in 1994. Mining's importance to fiscal revenue will increase considerably with the reopening of these mines as well as the opening of the kimberlite diamond mine in 2003, and could greatly surpass the pre-civil war figure if the country's mining potential is as estimated.

Mining is currently Sierra Leone's second most important sector, after agriculture, for employment and income generation, with estimates as high as 300,000 people directly employed in the sector. Registered mining exports for the period 1987 to 2005 are indicated in Table 1. Note that exports of rutile and bauxite began again in 2006, the estimated value of which is US$ 31 million for rutile and US$ 24 million for bauxite. Rutile production in 2006 was 73,801 metric tonnes and was projected for 2007 at 101,544 metric tonnes. The rutile mine also produced 13,820 metric tonnes of ilmenite valued at US$ 1 million in 2006.

### Table 1: Registered mining exports (million US$)

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<tr>
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</thead>
<tbody>
<tr>
<td>Diamonds</td>
<td>23.4</td>
<td>20.2</td>
<td>10.5</td>
<td>1.25</td>
<td>10.1</td>
<td>26.0</td>
<td>41.7</td>
<td>149.9</td>
<td>183.1</td>
<td>212.3</td>
</tr>
<tr>
<td>Bauxite</td>
<td>22.6</td>
<td>25.2</td>
<td>0.5</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Rutile</td>
<td>47.3</td>
<td>60.9</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Gold</td>
<td>3.7</td>
<td>1.6</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>97.0</td>
<td>107.9</td>
<td>11.0</td>
<td>1.25</td>
<td>10.1</td>
<td>26.0</td>
<td>41.7</td>
<td>149.9</td>
<td>183.1</td>
<td>212.3</td>
</tr>
</tbody>
</table>

Source: Sierra Leone Ministry of Mineral Resources

By international standards, the size of the mining sector in Sierra Leone is modest. It includes three sub-sectors: (i) large-scale production of non-precious and precious minerals — rutile, bauxite, and diamonds, with the potential for Sierra Leone to once again be a major global producer in the first of the three; (ii) mechanized small-scale mines, mostly diamonds; and (iii) artisanal production of precious minerals — diamonds and, to a much lesser extent, gold. Large-scale mining operations in Sierra Leone are all foreign-owned — Sierra Rutile Ltd. in rutile, Sierra Minerals Ltd. in bauxite, and Koidu Holdings Ltd. in diamonds. There are about 20 small-scale mines in the country and from 200,000 to 300,000 artisanal miners. Current and potential mining operations in Sierra Leone are indicated on Map 2.
41. Most revenue goes directly into central revenue and is used for budgetary support. There have been attempts more recently to designate some part of this revenue to the mining areas and communities for their development through the Diamond Area Community Development Fund (DACDF), by which a certain proportion of the export levy on diamonds is given to the community, but most local benefits still come indirectly. However, large-scale and, to a much lesser extent, mechanized small-scale mining companies, do contribute directly to social and economic benefits in mining areas through employment, development of infrastructure, and some limited provision of social services.
1.3 Governance in the Mining Sector

42. The management of Sierra Leone’s mineral resources is within the purview of the Ministry of Mineral Resources (MMR). It is headed by a Minister, assisted by a Deputy Minister. The Ministry has two divisions, Mines and Geological Survey, both headed by Directors. Its administrative wing is headed by a Permanent Secretary. The MMR’s mission is to “Develop policies and programs for the systematic and economic exploitation of mineral resources as well as formulate appropriate regulations for the mining industry and related activities to ensure that the nation derives maximum benefit from the mineral resources.” The following are its major responsibilities:

- Minerals policy formulation;
- Mining negotiations;
- Mining concessions;
- Mining and minerals exploration;
- Geological surveys;
- Control of explosives for mining;
- Inspection of mining machines and sites;
- Relations with international mining and geological organizations and agencies; and
- Collaboration with relevant national and international organizations.

43. Despite the importance of mining to the economy, the physical resources and quality and number of personnel in the MMR is grossly inadequate. Although taxes paid to the government from licenses and other functions are substantial (as much as US$ 7,226,000 in 2004), financial support to the Ministry is paltry and far short of meeting its operational requirements (Fisher and Keili, 2005). The environment section of MMR, for example, is not staffed, and has only one individual responsible for all environmental issues. Note that the environmental desk at the Ministry has only one staff member, who is an Assistant Director with other duties. The MMR itself includes 19 senior staff and 92 mine wardens in the Mines Division. The Geological Surveys Division has 20 professional staff. Salaries are extremely low for all workers. The directors and engineers only receive a fraction of the wages of comparable staff in the private mining industry in Sierra Leone. The Director of Mines earns $200 a month and the Deputy Director’s monthly salary is $150. A mines engineer earns $100 a month. For comparison, a new mining engineer in a big mine in Sierra Leone would not earn less than $1,000 a month, about the same as a new geologist. Relatively inexperienced geologists and mining engineers in private industry in Sierra Leone can earn as much as $1,500 to $2,500 per month and very experienced engineers from $3,000 to $4,500. The salaries of staff such as Mines Monitoring Officers, who control activities in a sector in which susceptibility to corruption is high, are about $50 per month.

44. The work of several ministries, departments, and agencies (MDAs) also affects MMR to varying degrees. These include the Ministry of Finance (fiscal and tax matters),
the Ministry of Lands and Country Planning (land issues), the Ministry of Local Government and Community Development (communal lands), the Ministry of Works, Housing and Technical Maintenance (relocation), and the Parliamentary Committee for Mineral Resources (obtains ratification of agreements with large-scale mining companies).

45. In addition, the National Commission for the Environment and Forestry (NaCEF) has a key role to play in the mining sector, given that it is the main agency in charge of monitoring and enforcing environmental regulations. NaCEF is a relatively new organization and, after about one year of existence, it still does not have a governing act. Note, however, that recently (late June 2007), the Cabinet passed a new NaCEF Act, which will regularize its functions. The Act still has to be passed by Parliament, which will not meet before the early autumn of 2007, and new regulations have to be drafted.

46. NaCEF was created by removing the Environment Department from the Ministry of Lands, Country Planning, and the Environment, taking the Forestry Division from the Ministry of Agriculture and Forestry, and joining them as a new Commission. NaCEF has legal status but no formal institutional structure except both the Environmental and Forestry Divisions maintain a semblance of their original structures under previous ministries. Its legal and regulatory framework is mired in confusion, which the new NaCEF Act is meant to remedy. The 2000 Environmental Protection Act and the 1998 Forestry Act and regulations do not allude to the Commission and give considerable powers to bodies that have now been rendered non-functional such as the Environmental Board. Moreover, some parts of the Governing Act for environment and forestry (especially related to governance and finance) no longer hold. The Government has apportioned funds to the Commission in its latest budget, but they are far short of meeting the organization’s requirements. In 2007, NaCEF was only allocated US$ 326,000, which must cover all salaries, equipment, and operating costs.

47. There are also a number of important local governance issues in Sierra Leone’s mining sector. Sierra Leone is divided into four provinces, 12 districts, and 149 chieftdoms, each led by a traditional ruler called the paramount chief. Paramount chiefs are responsible for general administration, maintenance of law and order, and the development of their chiefdom. Each chieftdom is divided into sections that include a number of villages. Each section is headed by a section chief and each village by a town chief. In mining areas, the chiefs are custodians of the land and have considerable influence in the allocation of mining leases for small-scale and artisanal mining.

48. The main acts governing environmental and socioeconomic issues in the mining sector are the 1996 Mines and Minerals Act, the 2000 Environmental Protection Act (EPA), the “Details of policy measures relating to small-scale and artisanal mining and marketing of precious minerals” (Ministry of Mineral Resources, 2005), and the 1998 Forestry Act. The new NaCEF Act will be added to this list once passed by Parliament. In 2004 the GOSL issued a strategy for the mining sector, the Core Minerals Policy, but it is more a document that outlines a vision for this sector rather than being a policy document in the strict sense of the word. (See Annex 1 for a summary of its main strategic
Nevertheless, it is indicative of what the GOSL would like to see in mining sector reform.  

49. It is important to note that these acts and policies contain very few specific regulations about environmental degradation that are commonly found in mining policies and laws in other countries. The strong emphasis is on the need to clean up pollution (undertake reclamation) rather than on preventing contamination in the first place. The 1996 Mines and Minerals Act allows the MMR to make regulations for the development of mines and minerals and the Minister may make additional regulations as he deems fit (Part XV, Section 123, Mines and Minerals Act, 1996).

1.4 Conclusion

50. Sierra Leone faces immense challenges in the development of its minerals sector. Laws and regulations related to mining, including land tenure, are outdated and do not meet the needs of a modern mining industry that is critical for achieving sustainable development of the country. Where the laws and regulations are satisfactory, the analysis in this report will illustrate that inadequacy of the institutions that administer, regulate, and monitor the minerals industry in Sierra Leone is cause for concern. There is a great need to develop and strengthen human resources, institutions, and governance in the sector. Under the current situation of very low income and low physical and human capital in Sierra Leone, mining is likely to remain the main resource in the short term to accumulate capital for sustained growth. Yet, ensuring that Sierra Leone’s mineral wealth is sustainably utilized and supports national economic and social development without impairing environmental quality and preserving intergenerational equity is a major challenge. It is therefore critical for long-term growth, poverty outcomes, and environmental protection to address the institutional and governance challenges outlined in this report.

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1. See CEMMATS (2007) for a thorough exposition of the various laws and regulations that affect the mining sector in Sierra Leone.
2. Environmental and Social Issues in the Mining Sector

2.1 Introduction

51. In comparison to many other sectors, the potential social and environmental issues associated with mining and mineral processing operations are both highly significant and complex to manage. The fixed location of the mineralized zones imposes constraints on all aspects of mining developments, including the method of mining, location of mine facilities, requirements for new infrastructure and services, and the suitability of waste management or disposal methods. This in turn profoundly influences the environmental, social, and health impacts of mining developments, as well as the economic viability of developing a given mineralized zone.

52. In this section the key environmental and social issues will be framed in the three mining sectors of Sierra Leone — large-scale mining, mechanized small-scale mining, and artisanal mining — with emphasis on the current institutional and governance conditions in which the mining sector operates. As part of the situation analysis, a case study for each mining sector was undertaken. The information obtained from these studies is combined with existing information from other sources to provide an overview of each segment of Sierra Leone’s mining sector. The results of this analysis were then used to frame the questions that were presented to the mining sector stakeholders in the four workshops on priority setting described in Section 1.1.

53. The next sub-section presents the socioeconomic and environmental situation of the country as a whole in order to put the mining sector in context. The three subsequent sub-sections present the situation for large-scale, artisanal, and mechanized small-scale mining, respectively. The section ends with some final remarks.

2.2 Socioeconomic and Environmental Situation in Sierra Leone

54. The Sierra Leone economy has always been based on the exploitation of natural resources, notably agricultural, marine, and mineral resources. The economy is dominated by the agricultural sector, which accounts for 44 percent of GDP. Agriculture has remained traditional and subsistence in nature, incapable of satisfying the food needs of the country by a wide margin. About 66 percent of the population is engaged in subsistence agriculture. The total land area is 71,740 square kilometers, slightly smaller than Austria. Although the paucity and state of infrastructure makes access to remote parts of the country difficult, it still only takes an average of 9 hours to travel from the capital Freetown to the far Eastern Province town of Kailahun. Out of the total land area, 53,620 square kilometers has been estimated as suitable for crop production. Land in Sierra Leone is divided into arable agricultural land (60 percent), pastoral (18 percent), mangrove and inland swamps (8 percent), forest under protection and management (4.5 percent), and others (9.8 percent) (Dorm-Adzobu, 2007). Poverty is pervasive in the country, with 71 percent of the population living below the poverty level and 26 percent
of the population not even satisfying its basic food requirement. In virtually every category of world social indicators, Sierra Leone ranks near the bottom. In Table 2 four of the most commonly sited basic indicators are compared for Sierra Leone and the average of other countries. Even when compared to other low-income countries, basic indicators in Sierra Leone are far worse than the average.

Table 2: Selected basic indicators for Sierra Leone compared to global averages

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Sierra Leone</th>
<th>High-income countries</th>
<th>Low-income countries</th>
<th>World average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant mortality rate (per 1,000 births)</td>
<td>115</td>
<td>6</td>
<td>75</td>
<td>56</td>
</tr>
<tr>
<td>Life expectancy</td>
<td>48</td>
<td>79</td>
<td>59</td>
<td>68</td>
</tr>
<tr>
<td>Adult literacy rate (% of people ages 15 and above)</td>
<td>39</td>
<td>99</td>
<td>61</td>
<td>82</td>
</tr>
<tr>
<td>Access to improved water source (% of population)</td>
<td>41</td>
<td>100</td>
<td>75</td>
<td>83</td>
</tr>
</tbody>
</table>

a. 2004 for Sierra Leone, 2005 for the rest  
b. 2004 for Sierra Leone (ages 10 and above), 2006 for the rest  
c. 2004 data

Source: The information for Sierra Leone is based on the 2004 country census (Republic of Sierra Leone, 2006). The rest are based on the World Development Indicators, World Bank.

55. A heavy workload and poor access to capital places women in a vicious cycle of poverty, thus they are only able to cultivate smaller areas for immediate consumption. Access to healthcare, credit, education, and market incentives is difficult for women. The illiteracy rate is very high among women and higher than that for men. In the limited number of schools, enrolment is higher for boys. Girls also drop out of school earlier for early marriages. The health status of women is very poor due to a high average fertility rate of children per woman (6.1), work-related stress, an extremely high infant death rate at birth, and inadequate food and nutrients.

56. The national road network totals about 11,000 kilometers, of which less than 1,000 kilometers is paved; at least one-half of these are reported to be in poor condition. Many formerly paved roads have reverted to gravel due to neglect during the civil war. Of the unpaved portions, less than 30 percent are in fair to good condition (GOSL Vision 2025, August 2003).

57. Unsustainable practices are pervasive across all sectors in Sierra Leone. There are major threats to biodiversity from unsustainable practices in mining, agriculture,

2. According to the 2005 Poverty Reduction Strategy Paper, 26 percent of Sierra Leoneans are food poor, which means that they do not even meet a minimum nutritional intake of 2,700 calories per day per adult equivalent (Government of Sierra Leone, 2005:21).
livestock farming, forest exploitation, fishing, energy production, infrastructure development, and waste disposal. Of the various sectors considered in a recent study, agriculture ranked the highest, with the impacts of mining and logging coming next in order of significance (UNCCD, 2005).

58. The combined effects of poor farming practices — such as shifting cultivation, recurrent bushfires, and overgrazing — and increasing population are contributing factors to soil erosion that degrades land. There has not been a comprehensive national quantitative assessment to determine the extent and nature of the problem, cost estimate, and possible strategies and priorities for intervention.

2.3 Environmental and Social Situation Analysis of Large-Scale Mining

59. There are currently only three large mining operations in production in Sierra Leone. Nevertheless, it is widely believed that there is strong potential for several new large mining operations in the near future. Ketelaar (2006:8) reports that in 2005, 43 companies held 102 prospecting and exploration licenses, and eight companies held 16 mining leases. Many companies are funded by private financing or through joint venture agreements with junior exploration and mining companies. For example, Mano River Resources Incorporated, a company listed on the London Stock Exchange, is working on joint venture projects with other companies such as BHP Billiton, Crown Diamonds NL, and Golden Star Resources Limited. The MMR estimates, (World Bank, 2004:19) for large-scale mining potential, including existing mines, are in Table 3.

<table>
<thead>
<tr>
<th>Mines</th>
<th>Annual production</th>
<th>Production value (million US$)</th>
<th>Direct employment</th>
<th>Indirect employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 rutile</td>
<td>330,000 tons</td>
<td>138.6</td>
<td>2,500</td>
<td>7,500</td>
</tr>
<tr>
<td>2 bauxite</td>
<td>2,500,000 tons</td>
<td>65.0</td>
<td>2,000</td>
<td>6,000</td>
</tr>
<tr>
<td>2 kimberlite diamond</td>
<td>450,000 cts</td>
<td>76.5</td>
<td>2,000</td>
<td>6,000</td>
</tr>
<tr>
<td>3 gold</td>
<td>300,000 oz</td>
<td>90.0</td>
<td>3,000</td>
<td>9,000</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>370.1</td>
<td>9,500</td>
<td>28,500</td>
</tr>
</tbody>
</table>

Source: Geological Survey, Ministry of Mineral Resources

60. Large-scale mining companies are governed by the 1996 Mines and Minerals Act, which includes the requirement of an environmental assessment (EA) for all new projects, albeit there are very small fines for non-compliance. Detailed requirements of an EA — and stronger penalties for non-compliance — are outlined in the 2000 Environmental Protection Act. For large-scale (and mechanized small-scale) mining companies in Sierra Leone, a satisfactory EA study must be carried out to obtain a mining license. It should include a study on the Environmental and Social Impact Assessment, an
Environmental Management Plan (EMP), a Community Development Action Plan (CDAP), a Resettlement Action Plan (RAP), and a Public Consultation and Disclosure process (PCDP).

61. Whether these plans are implemented or not, there is currently little capacity to monitor if mining companies are behaving in a lawful manner and carrying out their commitments. There currently is no functioning institution in the country with the legal authority to monitor EIAs, although the new NaCEF Act should rectify this situation. The main constraints on mining companies are their desire to maintain good relations with neighboring communities and pressure from civil society organizations, especially NGOs. Without significant changes in institutions and governance, new mining operations will operate under the same constraints as the small number of ongoing operations. It seems likely that environmental regulations and social commitments will only be met as long as they do not jeopardize the viability of the operation. It should also be stressed that some of promising opportunities are underground operations, for which Sierra Leone currently has no specific mining regulations.

62. Box 1 illustrates the current situation at Sierra Rutile Ltd. (SRL) with respect to its environmental performance. The most telling feature of SRL’s record is that it is very difficult to come to a conclusion one way or another because there are no real standards to which it is being held. On the one hand, the situation does not seem disastrous; on the other hand, there are significant (and likely legitimate) complaints from the local citizens. Note that the most recent serious independent tests were carried out in 2001. Studies undertaken at Sierra Minerals Ltd. (SML), the only other mine with a long history, show very similar environmental problems associated with its operations. Similarly, it is difficult to evaluate the impact of mining operations on health and sanitation given the low standards prevailing in the country and the lack of comparable data between mining and non-mining communities. Moreover, the presence of a large mine generally means more access to health care (so more diseases may be reported) and better health care (so more diseases may be prevented).

63. Historically, there has been little attempt to reclaim mined-out lands in Sierra Leone and, in fact, like most mining countries, the mining industry has left a legacy of reclamation projects. While both the 1996 Mining Law and agreements undertaken with large-scale mining companies require land reclamation plans, similar to environmental problems in general, there is little government monitoring and enforcement of these plans. Although SRL, for example, did some large-scale reclamation activities in the early 1990s, neither maintenance of these areas nor reclamation of new areas have occurred since 1995. SRL claims to be committed to reclaim its mined-out lands, but progress has been rather slow. SML also embarked on land reclamation efforts during its previous operation. Top soil that was removed prior to mining was stored nearby, then moved back to the same land after mining. The ore body is sometimes very thick and the thin top soil

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3. See IMC Mackay and Schnellman (1997) for the environmental situation at SML when it ceased operations in the mid-1990s.

4. Only 80 hectares out of 13,000 hectares have been reclaimed and a significant proportion of this has been vandalized by local inhabitants when they set fires for fuelwood harvest.

12
layer is not enough to sufficiently replace the material that was removed. There are still considerable areas from past operations that need to be reclaimed.

Box 1: Sierra Rutile Ltd. (SRL) and the environment

SRL mines 8 million tonnes of ore per year with a final concentrate of 200,000 tonnes of rutile and ilmenite. The most notable feature of the mining operation is that it creates a series of ponds that are mined using a very large bucket line dredge. These ponds are subsequently used to store most of the tailings. The cumulative extent of land disturbance is significant, affecting nearly 13,000 hectares, much of which has been permanently lost for agricultural purposes. The creation of reservoirs of water throughout the mining area has altered the flow of surface water, groundwater table elevations, and domestic water supplies. According to tests undertaken in 1997 by IMC Mackay & Schnellmann and by Knight Piésold in 2001, nearly all the physico-chemical variables were within acceptable guidelines.

Groundwater exploitation became more important when mining activities started in the area, partly due to the effects of in-migration on the population. Wells have become the main sources of drinking water. The 1997 sampling results by IMC Mackay & Schnellmann indicated that groundwater quality was within WHO drinking water standards with only a few exceptions. Studies conducted by Environmental and Scientific Consulting Group (1991) reported that groundwater levels in community wells are affected by mining operations, particularly during the dry season when groundwater elevations are generally very low.

Vehicular traffic for the mine has added a high concentration of dust in the air. This may be the cause of a high incidence of coughing among patients in the SRL hospital and local clinics. SRL is currently carrying out a dust suppression program by spraying water along the major haul roads and is contemplating paving some road sections.


64. In Sierra Leone, the main social issues confronting large-scale mining operations have to do with resettlement, land and surface rents, and the provision of social services.

65. As the owner of mineral rights, the GOSL (like most national governments) can require landowners to move, albeit subject to a reasonable offer of resettlement. Problems generally occur when community members believe that they have not had enough input into the design and implementation of resettlement projects. Historically, companies have had virtual control of the process, which, no matter how well-intentioned, has usually generated complaints. Box 2 describes recent problems that SRL has been facing in a village resettlement.

66. The conflicts over surface rents that large mining companies must pay in advance each year have as much or more to do with their distribution as size. While stakeholders generally clamor for the rate of surface rent payments to be increased, some stakeholders believe that surface rents are disproportionately distributed among different stakeholder groups. Some argue that the percentage for the paramount chiefs is too large; others
believe Local Councils are getting the lion’s share. Some stakeholders would like to involve all stakeholders in deciding the level of surface rent payments. Table 4 has the distribution of surface rents at SRL. Note that while payment rates are established by law, the distribution is determined in consultations among the GOSL (mainly the MLGCD), chiefs, and Local Councils, although it is not clear how a final decision is made. There is concern that decisions are made in a subjective and non-transparent manner.

Box 2: Resettlement experience of Sierra Rutile Ltd.
The SRL policy on resettlement has evolved over time as lessons are learned from past village relocations, 13 of which occurred from 1985 to 1994. Still, there is a lot of discontent among community members about the manner in which it is carried out. Some local stakeholders think the design and implementation of resettlement projects must be done with significant input from them because they are directly affected. SRL for its part has tried different strategies to resettle villages but they have all had problems. The strategies included identifying a suitable piece of land and supplying building materials and labor so that the affected people would be involved with every aspect of the construction of a new home of their own style.

The result was that many of the affected parties chose to sell their building materials and use the money for other pursuits. Another strategy employed by the company was to construct the settlements themselves. This strategy also had serious problems because some villagers were dissatisfied with the designs and location of their new settlements. There have also been complaints by some stakeholders that the lands where they have been relocated are not suitable for agriculture and are far from other resources on which they depend.

Source: CEMMATs

<table>
<thead>
<tr>
<th>Stakeholder group</th>
<th>% of total payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land owners</td>
<td>45</td>
</tr>
<tr>
<td>Paramount chiefs</td>
<td>15</td>
</tr>
<tr>
<td>Local council</td>
<td>20</td>
</tr>
<tr>
<td>Chiefdom development</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Surface Rent Payment Report of the Community Affairs Department, SRL, 2006

67. Given the generally low provision of social services and infrastructure in Sierra Leone, local communities usually expect large mining companies to fill the gap beyond the company’s operating requirements and its own employees’ needs. However, because these obligations are beyond the usual responsibilities of private firms, there is currently no formal requirement for mining companies to provide either social services or
infrastructure to local communities in its operating areas; nor are any taxes paid by companies earmarked in such a manner. It is left to the goodwill of the company as to what it will provide and, in fact, there is no enforcement of unfulfilled commitments. Before the war, for example, SRL provided substantial funds for local health and education services. However, given the pressure on the reopened mine to generate profits, these have been severely curtailed in the most recent phase of the mine. The situation is similar for paved roads and electricity. While SRL has opened the SRL Foundation, a source of funding for community projects, it is still not functioning. With the mine only recently reopening, the financing of the foundation depends on the ability of SRL to leverage funds from other donors, but it has had little success to date. Moreover, it is likely that very few donors would be willing to support a foundation that was established by a private mine and indirectly boosts its public image. This limitation has been also found in other regions such as South America. If the foundation were established for the communities located in the region beyond the direct control by the mining company, its leverage capacity might likely increase. It is important to emphasize that most of the people who economically benefit from the operation of SRL do so through the multiplier effect and not by employment in the mine or through provision of goods and services to the mining operation. There are reports of a significant population increase in the SRL sphere of influence since operations resumed.

68. Despite the general lack of enforcement of environmental and related social laws and regulations, NGOs and INGOs can and do play a big role in monitoring the activities of large mining operations. Through the efforts of a domestic NGO, Network Movement For Justice and Development (NMJD) with assistance from some international NGOs, MIGA refused a project guarantee for Koidu Holdings diamond mine, in fact, a domestic NGO, Network Movement For Justice and Development (NMJD), with the assistance of some international NGOs, was able to convince MIGA to refuse a project guarantee to the company (Box 3).

2.4 Environmental and Social Situation Analysis of Artisanal Mining

69. Artisanal mining takes place in over 80 chiefdoms in Sierra Leone, with the highest levels of activity in the Eastern Region (Map 1). Diamond mining dominates the artisanal mining sector, with gold being the (distant) second most important commodity. Rough estimates put the annual value of artisanal diamond output at between US$ 150 million and US$ 200 million and gold at about US$ 15 million (World Bank, 2004:6). Artisanal mining partially or completely supports 200,000 to 300,000 miners and their families directly and many more individuals who either work in other aspects of the industry or who benefit from standard multiplier effects. (Annex 2 describes the various stakeholders involved directly with artisanal mining.) From a livelihood perspective it often provides the only source of income and is consequently very important. Levin (2005:131) notes that families often follow a financial strategy where some members engage in farming that brings in a small regular income, and other family members

5. The multiplier effect is the term used for the economic benefits to other members of a community (or country) when those who receive income directly from an activity — in this case the mine workers and the suppliers to the mine — spend part of this income in their community (or country).
undertake mining that brings in an irregular but occasionally relatively large (windfall) amount.

### Box 3: Suspension of project guarantee application because of pressure applied by NGOs — the case of Koidu Holdings

Koidu Holdings (KH), a joint venture between Branch Energy Ltd. and Magma Diamond Resources Ltd, opened their kimberlite mine in Kono in 2003. Its overall investment in the country is reported at US$ 26 million. Sierra Leone Selection Trust (SLST) located the kimberlite pipes in the mid 1960s. At this time a "safe-zone" was created, within which no houses could be built. However, by the time KH arrived, several houses had sprung up illegally, although residents expressed ignorance of the restrictions. KH commissioned an EIA, outlining the number of houses and residents, and the need for them to relocate to new housing which the company would construct. The relocation took time, and KH proceeded with operations, using dynamite on its kimberlite pipes once or twice each week. Local and international civil society organizations got involved on behalf of the residents, and managed to get MIGA to suspend a project guarantee application by KH. In May 2005, the company agreed that houses were to be constructed for the affected homeowners. KH was to provide materials and the community would provide the labor.

*Source: Foreign Investment Advisory Service, 2006*

70. The regulations for artisanal mining are included in the 2005 publication of the MMR, “Details of Policy Measures Relating to Small-Scale and Artisanal Mining and Marketing of Precious Minerals”. Artisanal mining licenses are allocated by the chiefdom mining committee, although they are approved and issued by the MMR. Note that the MMR can and does issue artisanal licenses in the same locations as licenses for prospecting and exploration companies. The only legal environmental requirement stipulated for an artisanal license is the payment of an annual fee to a rehabilitation fund, which is used to defray the cost of rehabilitation and reclamation of mined out areas. Currently this fee is 50,000 leones per acre per year, equivalent to about US$ 18.6

71. The legacy of artisanal diamond mining includes widespread environmental degradation and numerous social problems, the culmination of which was the impact of the sector on the civil war as the various factions fought over control of diamond mining areas for their own enrichment and for funds to purchase weapons. Otherwise, the main environmental and social impacts from artisanal mining in Sierra Leone are similar to those in other low-income countries. These include (World Bank, 2004:16):

- Land and soil degradation as a result of rudimentary and inefficient mining and processing methods, including effects of uncontrolled pit digging with no routine backfilling; destruction of vegetation and topsoil removal;

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6. In 2004 this fund contained 80 million leones in treasury bonds and 40 million leones in cash, a total of about US$ 400,000.
• River bank erosion affecting gravel and soils, with adverse downstream effects on health as well as agriculture;
• Deterioration of water quality and breeding of mosquitoes and microorganisms through disruption of natural drainage and silting of drainage courses;
• Discharge from machines, including seepage and pollution of residual oils to water and soil;
• Creation of irregular spoil heaps, and generally uncontrolled disposal of waste;
• Use of child labor and resultant lost opportunities for schooling;
• Erosion of traditions and indigenous cultures;
• Drug addiction;
• Overcrowding in mining areas, intensifying health problems, and creating an insecure environment for the young;
• Haphazard development of “boom towns”; and
• High expectations from mining leads individuals to ignore the potential from agriculture and other activities.

72. These problems are compounded by the fact that very few artisanal miners make any effort at reclaiming their mining sites. The soils are covered by sands and clays mixed in a way that reduces the opportunity for any meaningful rehabilitation other than a simple refilling of holes created during the mining process. Artisanal miners regularly alter the course of rivers and streams and use crude cofferdams to gain access to river gravels. Little has been done to assess the effect of mining on the hydrology in mining areas. As noted, the small reclamation fee is grossly insufficient and may not reach its intended purpose. Negative community health impacts of artisanal mining may include increased water-borne diseases and diseases propagated by overcrowding, poor housing, and poor sanitary provisions. Open pits are perfect breeding grounds for mosquitoes, spreading diseases like malaria and bilharzias. Exposure to HIV/AIDS is also a major risk in the mining communities, given the prevalence of single young men and prostitution. Box 4 contains a summary of the environmental and social situation in Kono District, one of the most important artisanal mining areas.

73. There are grave health concerns associated with artisanal mining, both for workers and surrounding communities. Many accidents occur due to poor safety practices both in pit construction and use of machinery. There is usually a lack of protective clothing in mining operations. Moreover, undercutting often occurs, and when pit stability is poor pits can collapse and endanger miners.

74. Note that it is often difficult to make a direct link between artisanal mining and social and environmental ills because many similar problems are shared all over Sierra Leone given the widespread nature of poverty in the country. There has also been little attempt to compare the situations of otherwise similar mining and non-mining areas. However, when Kono District is compared to Kailahun District, which has little mining activity, the morbidity data are quite different for several important diseases (Table 5).
Both are in the Eastern Province and were equally affected by the war. Damage to infrastructure, displacement of people, and disruption of economic life was comparable, as is the pace of rehabilitation. Data for Moyamba and Bonthe Districts, the districts where SRL is located, are also included for comparison purposes.

**Box 4: Environmental and social characteristics of Kono District, an artisanal mining center**

Artisanal mining has taken place in the Kono District for more than 50 years. In the main Koidu Town, except for those inhabited by individuals involved in the diamond trade (mostly of Lebanese origin), houses are typically poorly constructed, with only a few dwellings built with concrete blocks and roofed with corrugated iron sheets. Most people depend on well water, which often is deficient at the peak of the dry season. The local wells were within WHO standards for electrical conductivity, residual chlorine, concentrations of dissolved chemicals, and turbidity. Some streams sampled for turbidity and dissolved chemicals were unsuitable for drinking. Faecal-indicator bacteria were discovered in all water sources in different proportions. In the artisanal mining areas, most toilets are traditional pit latrines or nearby bushes and streams. The bulk of the household refuse is disposed of on the roads, behind dwellings, and in streams and old diamond pits. As a result “malaria, intestinal worms, dysentery/diarrhoea, cholera, and typhoid are the most common diseases afflicting household members, which is not uncommon in poor settlements within Sierra Leone” (Cemmats Group, 2006a).

Mining has led to serious land degradation through loss of vegetation. Soils are generally lacking all important nutrients, with strong acidity due to excessive leaching and erosion, accelerated by soil exposure during mining activities. In the 2002-2003 National Recovery Strategy, Kono District was ranked as the most vulnerable in the country with respect to agricultural production, providing a mere 21 percent of its cereal requirements (Government of Sierra Leone, 2003).

There are very few primary and secondary schools and even fewer vocational schools. Most schools lack furniture, text books, and writing materials. The government hospital in Koidu Town is fairly well staffed and equipped. There are numerous pharmacies in Koidu but hardly any in the surrounding areas. Many people in outlying areas resort to local medicine men or quack doctors.

Koidu has some of the worst roads of any urban area in Sierra Leone. The roads to and within outlying areas are also of very poor quality and access to some areas during the rainy season is almost impossible. There are hardly any communications facilities except mobile phones.

*Source: Cemmats, 2006a*

There is a much higher incidence of all these diseases in Kono than in Kailahun because of the poor health and sanitation situation in Kono, wrought by mining activities. Although there may be localized health and sanitation problems in areas with large-scale mines like SRL, they do not affect as many people as artisanal mining operations.
Table 5: Health care morbidity data

<table>
<thead>
<tr>
<th>District</th>
<th>Population (2004)</th>
<th>Number of functioning public health units</th>
<th>Malaria</th>
<th>Diarrhea</th>
<th>Acute respiratory infections</th>
<th>Sexually transmitted diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kono</td>
<td>255,376</td>
<td>40</td>
<td>64,956</td>
<td>13,505</td>
<td>27,452</td>
<td>8,710</td>
</tr>
<tr>
<td>Kailahun</td>
<td>358,190</td>
<td>43</td>
<td>38,590</td>
<td>9,303</td>
<td>21,906</td>
<td>2,486</td>
</tr>
<tr>
<td>Moyamba</td>
<td>260,910</td>
<td>71</td>
<td>3,865</td>
<td>948</td>
<td>198</td>
<td>409</td>
</tr>
<tr>
<td>Bonthe</td>
<td>129,947</td>
<td>17</td>
<td>110</td>
<td>100</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Source: Development Assistance Coordinating Office (DACO)-Sierra Leone Information Systems (SLIS). Sierra Leone Encyclopedia 2006

76. The Lebanese play a major role in the Sierra Leonean diamond sector. There are Lebanese diamond traders in all major diamond mining towns including Kono, Kenema, and Bo. They support artisanal miners by providing tools, food, and medicine; buy mining licenses for some miners, and support middlemen who frequent mining sites as buyers. Local miners usually depend on the Lebanese and are usually obliged to sell them their proceeds from mining. It is important to stress that the relationship between miners and supporters, Lebanese or otherwise, is generally not antagonistic. As noted by Levin (2006:199), the supporter is a type of patron who usually offers — in addition to investment capital — social protection, including welfare relief, health and education expenses, shelter, and investment capital. Supporters, in effect, provide functions similar to both governments and banks in other countries. Nevertheless, it is not a simple one-to-one relationship between miners and supporters, because the former may work with several of the latter, or switch from one supporter to another as circumstances dictate. The lack of stability in this relationship is important because it makes it more difficult to hold a supporter responsible for the actions of specific miners.

77. Another set of social issues revolves around the increasing competition between the modern, large-scale mining companies, artisanal mining, and the emerging mechanized small-scale sector. There has not been an attempt to divide up mining areas between those that are still suitable for artisanal operations, those that require mechanized small-scale approaches, and those with potential for modern, large-scale mining. This has occasionally led to conflict between artisanal miners and larger operations.

78. Women, children, and youth, which are large vulnerable groups in Sierra Leone, are also disadvantaged in the artisanal mining sector. “Gender and age division of labor was observed for both diamonds mining and farming. Adult males are involved in all stages of operation for both occupations while women are mostly involved in farming and washing gold, which is a by-product of the diamond mining operation. There are however some exceptional cases, where women are actively involved in diamond mining and gold washing. Women who are not into farming are either into trading or are housewives. [Sierra Leone] is based on patrilineal tendencies where the males are dominant. This male dominance phenomenon always places women as second-class citizens. Inheritance of land by women is a problem” (Cemmats Group, 2003: 120).
2.5 Environmental and Social Situation Analysis of Small-Scale Mining

79. In principle, small-scale mining is subject to the same laws and regulations as large-scale mining — such as the 1996 Mining Act and 2000 Environmental Protection Act — with the exception of some specific requirements with respect to licenses and fees, as outlined in Ministry of Mineral Resources (2005). A small-scale mine cannot be larger than 100 acres, but it still must undertake an EIA like a large-scale mining operation. The typical investment in a mechanized small-scale mine is between US$ 300,000 and US$ 2 million, depending on the degree of mechanisation and complexity of the process. While it is possible to apply directly for a license for a small-scale mining operation, most small-scale mining leases are obtained by a process that involves the surrender of several leases by artisanal miners for a fee and the agglomeration of these areas to form larger leases, for which the company formally applies to the MMR. The vogue nowadays is for the community to have a stake in the ownership and/or profit of the company. There has been a significant increase in the number of small-scale operations during the last five years, with about 20 mines currently under production. (See Map 1 for the main areas in which these mines are located.) Currently, all small-scale operations are mining diamonds, sometimes in combination with gold.

80. It is often difficult to separate the effects of small-scale and artisanal operations because they are normally contiguous. To compound the problem, many small-scale operations take place in areas previously mined by artisanal miners. Many of the environmental and socioeconomic impacts of mining on the area were similar to those for the artisanal mining operations described above and are not reproduced here. As noted, the main difference is that a company must do an EIA. However, as noted in the subsection on large-scale mining, monitoring and enforcement of the commitments in the EIA is currently weak to non-existent in Sierra Leone. Most small-scale mining companies, even if well-intentioned, have difficulty fulfilling their environmental obligations, never mind social commitments. The case of Majestic Mining Ltd in Box 5 is typical of the current situation in Sierra Leone.

81. Mining companies are sometimes accused, rightly or wrongly, by communities and other stakeholders of not living up to environmental and socioeconomic obligations. In Sierra Leone, there are no clear cut procedures on how to handle many issues. There are weak and unclear property rights and high transaction costs for alternative fairer solutions. Box 6 describes the typical problems between a small-scale mining company and landowners. In this situation, Tinap for Justice, an independent human rights organization, is representing landowners in Kono District in their case against Sierra Leone Diamond Company.

2.6 Conclusions

82. Environmental and social problems are not addressed satisfactorily in the Sierra Leone mining industry, even where regulations are in place. There are a considerable number of schisms between mining companies and various stakeholders at all scales of mining activities, some of which may have dire consequences. Effective environmental regulation is critically dependent on government monitoring and enforcement capacity, the availability of injunctive measures to help enforce compliance, the use of such
measures where appropriate, and the ability of the mining sector to finance the costs of compliance. Currently, monitoring is largely undertaken by NGOs and INGOs, often in an impressionistic manner due to lack of resources and inaccessibility of sites. Enforcement depends on their ability to mount enough domestic and international pressure to force companies to change their behavior.

**Box 5: Majestic Mining Ltd. (MML) — mechanized small-scale mining**

MML is mining and processing ore to recover diamonds and gold close to Gendema in Southern Province. MML is a 100 percent owned subsidiary of Sierra Leone Minerals Ltd. (SLM), a London registered mining company. The mining lease covers 113.1 acres — already a small violation of the maximum area allowed — and includes a number of artisanal mining licenses surrendered to the company by license holders. The chiefdom people are stakeholders in the company.

The MML lease has two main reserves, a buried valley and low terrace reserve and a river flat reserve. The company made undertakings to make these payments:

- Annual rent per acre paid to the MMR.
- Annual surface rent in advance to the landowner and/or occupier through the appropriate local authority.
- Royalty of 5 percent of the ex-mine\(^7\) price to the National Revenue Authority.
- Levy of one-tenth of 1 percent (0.1 percent) of the ex-mine price to an agricultural development fund for the benefit of the areas.

Focus group interviews with various groups in the community indicated that high expectations by the community for socioeconomic development of the area could not conceivably be met by a small company operating with so many imponderables. The interviews indicated that license holders willingly handed over their leases to the company. Stakeholders claimed that the company had promised to construct a six classroom school, health unit, good toilets, water wells, and a road to the village, electrify the village, and provide job opportunities. When the EIA was carried out, the company had only started operations and was expending considerable capital to improve the operation. The company could not meet most of these expectations.

**Source:** EIA report on MML undertaken by Cemmats Group (2005)

83. In addition to stronger environmental and social management institutions in the mining sector, there is a need for other methods to resolve disputes. The demands on companies are often unrealistic but there is no satisfactory way to arrive at a reasonable solution. At the same time, companies should not make commitments or promises that they are unlikely to be able to meet. This suggests that the environmental and social obligations of mining companies of different scales need to be made much clearer within a framework to balance what a company is capable of providing and the needs of communities and vulnerable groups.

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7. The ex-mine price is the mineral price once mined and brought to the surface less treatment costs.
Finally, the artisanal mining sector, with its large numbers, low capital, and strong livelihood repercussions, is a challenge of another magnitude altogether. Creative solutions are needed to induce better environmental and social behavior in this sector without causing major social upheaval.

Box 6: Schisms between small-scale mining companies and communities — the case of Tinap for Justice vs. SLDC

Tinap for Justice (Tinap) is an independent human rights organization that provides free legal and other services to rural Sierra Leoneans. Tinap has a number of serious, longstanding complaints about Sierra Leone Diamond Company’s (SLDC) operations in the Sewa River block in eastern Sierra Leone. According to Tinap, SLDC suspended its operations in the area in late 2005, leaving behind numerous health and safety hazards and unfulfilled promises. The communities in the area were given grossly inadequate compensation for the severe damage done to their land and environment. Their attempts since late 2005 to request that the company fulfill its most basic obligations have been ignored entirely. On behalf of dozens of people in several villages in the Kono District, the organization presented the following demands to SLDC:

- At least eight large pits and numerous smaller ones have remained unfilled for over a year and should be filled immediately.
- SLDC’s activities have dammed the River Kpejeh, flooding surrounding lands and further cutting off routes of transportation. The blockage of the river should be cleared immediately.
- The open pits and flooding, combined with the construction of access roads by SLDC, destroyed a number of plantations, farms, and gardens, which were the livelihoods of more than 60 farmers. SLDC promised compensation for crops but many farmers were not compensated at all. No compensation was ever offered to landowners for permanent or temporary damage to their land.
- SLDC promised the communities that it would rehabilitate local primary schools but only started work on one school in Tissana; it left before the job was complete, taking all the supplies with them.
- SLDC damaged a culvert under the road to Kaniya and filled it up rather than repairing it properly. As a result, the road now floods easily.
- To this day community members do not know why SLDC left, why they have broken the promises made, or whether they’re coming back. Attempts to contact SLDC’s management have been futile.

Note that SLDC management was contacted about the claims. They did not dispute most of the above, but claimed to have resolved all issues except for the last two, and a consultant has been hired to assess and cost the damage to the culvert. They claim not to have made most of the promises that Tinap purports.

Source: Letter on November 1, 2006 from Vivek Maru to Nancy Sesay, Directors of Tinap to Mr. Gibril Bangura, General Manager, SLDC and phone call in May 2007 with Mr. Bangura.
3. Priorities for Sustainable Development of the Mineral Sector

3.1 Introduction

85. The analysis of environmental and social issues in the three mining sub-sectors informed the presentations and discussions at regional workshops held in the North, South, East, and West regions of Sierra Leone. Stakeholders identified and ranked their environmental and social priorities in relation to the mining sector as well as suggested key issues that need to be included in a policy framework or policy proposals. Special care was taken to ensure that the voices of vulnerable groups were heard directly. Engaging the various groups in the SESA process, particularly those that often have no voice, is critical for social ownership of mining reforms. In effect, from this point onward, the SESA has been guided by stakeholder groups.

86. This section will continue with a description of the workshop process, including stakeholders that were involved and inclusion of vulnerable groups. It explains how priorities were determined in the workshops. The policies, legislation, and regulations — as well as the responsible agencies — that are most relevant for each of these priorities will then be discussed. This is followed by an analysis of the transmission mechanisms from these policies and laws to the environmental and social priorities identified by the stakeholders, including those that may lead to environmental risks or open up environmental or social opportunities.

87. Note that the transmission mechanism is more than the effects of policies on priorities. It is the manner in which the confluence of institutional, governance, and political economy characteristics of a country affect the interpretation and implementation of policies and associated laws and regulations. A transmission mechanism will to a large extent determine the effects of the policy on a priority issue. In a situation of weak governance and institutions, changing a policy without addressing the underlying transmission mechanism will usually not significantly affect the existing outcome of a priority issue. The main purpose of this analysis is to assess the effects of existing mining sector policies, institutions, and governance on the environmental and social priorities in mining areas. In the next section, a similar assessment investigates the likely effects of proposed policy, institutional, and governance changes on environmental and social priorities. This analysis should help guide suggestions for further policy, institutional, and governance changes that would enhance sustainability of mining sector reform and its contribution to sustainable development in Sierra Leone.

3.2 Identification of Stakeholder Priorities

Process

88. Stakeholder prioritization workshops were held in four regions of the country, one in each province. Individuals were invited (sometimes through organizations) to ensure that all major stakeholder groups in the mining sector in Sierra Leone were represented.
Most participants came from one of these groups — NGOs, civil servants, representatives of women and children, local authorities (including chiefs, local council members, police, and health workers), miners and mining companies, and youth (15 to 30 years old). Care was taken to ensure that vulnerable groups, particularly women and youth, were well represented. Moreover, during the discussions the moderator took extra care to make sure that the voices of these groups were heard. In fact, in the last two workshops — in Eastern and Northern Provinces — the prioritization was done by subgroup consensus so that the vulnerable groups were assured of having a strong voice in the final rankings.

89. Each workshop began with a presentation of SESA objectives and process stages and the main environmental and sustainable development issues in the Sierra Leone mining industry as informed by the situational analysis described in Section 2. Discussions covered between 20 and 25 issues presented by the consultants, as well as other issues that stakeholders believed to be important. The stakeholders then prioritized each issue as being of high, medium, or low importance with respect to environmental and health risks, social and cultural risks, and the number of people affected. They were also asked whether they thought there was political will to resolve each problem and their opinion on the cost of implementing a solution to the problem. Finally, they prioritized the issues vertically, choosing what they believed were the five most important issues to be resolved. In one workshop the prioritization was done on a consensus basis (south), in two workshops it was done in stakeholder focus groups (east and north), and in the other workshop it was done individually (west).

90. There was widespread involvement and discussion by the various stakeholders in each workshop. The only real weakness was in the southern region (the first workshop) where the consensus method ranked everything as a priority. In this case, the consultants determined the priority by the weight given to various issues in the discussions.

91. After results of the workshops were tabulated and analyzed, a second series of workshops was held at the same four locations. The results of the prioritization process were presented to stakeholders along with an analysis of transmission mechanisms from current policies in the mining sector to stakeholder priorities. New policy recommendations were discussed and rejected or validated.

Stakeholder Priorities

92. As expected, the stakeholders in each province did not have the same priorities, but there was a great deal of similarity across the provinces. Land and crop compensation was denoted as a priority issue in all four regional workshops. The related issues of water pollution and sanitation were priorities in three regions as were issues of deforestation and soil degradation. Village relocation was also a priority issue in three provinces. Child

8. See Annex 4 for a list of the discussion issues in the Southern Province.
9. See CEMMATS and INDGA (2007b) for a summary report on the second round of workshops.
10. See Annex 3 for results of the prioritization on all issues for each region. For the full report on the prioritization process and results, see CEMMATS and INDGA (2007a).
labor was a high priority in the Eastern and Northern Province workshops and a medium priority in the Western Province. Not surprisingly, given the absence of artisanal mining, it was not a priority in the Southern Province, but employment in large mines was a priority. Remediation was a priority issue in the areas that have hosted large mines, the Southern and Northern Provinces. The top priorities across regions are given below, followed by issues that are strong regional priorities.

CROSS-REGIONAL PRIORITIES
1. Land and crop compensation and village relocation;
2. Sanitation and water pollution;
3. Deforestation and soil degradation;
4. Child labor; and
5. Post-closure reclamation.

REGIONAL PRIORITIES
1. Mine employment (southern);
2. Provision of infrastructure (especially paved roads and electricity) (southern); 
3. Community development and participation (southern and western); and
4. Regulations to mitigate the negative impacts of blasting (eastern).

93. When asked to rate the political will to resolve priority issues, only child labor received a score suggesting medium to strong political will. Finally, expected remediation or implementation costs to resolve the priority issues all ranked high. The high expected cost for all issues supports the notion that one of the reasons political will is generally expected to be low is due to the lack of funding to tackle the problem.11

3.3 Effects of Existing Policies and Regulations on Environmental and Social Priorities

94. In this sub-section we will look in more detail at how well the mining sector is performing with respect to the environmental and social priorities identified by the stakeholders, as reported in Section 3.2 above. We will begin with a discussion of the relevant policies and legislation for priority issues as well as institutions or individuals in charge of implementing laws and regulations. Then performance of this legislation and these institutions with respect to the priority issues will be analyzed, including the success or lack thereof with respect to implementation. The emphasis will be on the transmission mechanism (effects) from existing policies and regulations to the environmental and social priorities.

11. See Tables A3.4 and A3.5 in Annex 3 and accompanying discussion for the ranking on political will and remediation or implementation costs.
Priority Issues — Policy, Legislation, and Responsibilities

95. The MMR and NaCEF are the most important agencies for monitoring, evaluation, and enforcement. Nevertheless, in some important areas, particularly compensation and relocation issues, the Lands Policy and Lands Act, and in turn, the Ministry of Lands and Country Planning (MLCP) and Ministry of Local Government and Community Development (MLGCD), have important roles to play. Annex 5 lists the most important policies and legislation for each priority area, as well as responsibilities for implementation and overall governance.

96. It should also be noted that the central government is slowly devolving its functions to local government units. This, however, has not been as successful as originally envisioned. The absorptive capacity of Local Councils is low and building it will take time. However, it is worth noting that many of the functions pertinent to this study will eventually be devolved by the various line ministries to local agencies. Specific tasks in the functions are listed in Annex 6. It can be seen from the list that many of the priority areas are also scheduled to be addressed by local government bodies.

Effects on Priorities — the Transmission Mechanisms

97. Transmission mechanisms from mining sector policies and regulations to priority areas may be weak due to a lack of specific legislation or regulations, an institutional structure that is incompatible with legislation, or poor monitoring and enforcement. In turn, the last may be due to a lack of funding and capacity or an unwillingness of the authorities to undertake their responsibilities for their own self-interest or other political economy concerns.

98. This analysis was aided by the three case studies discussed in the situation analysis. In each study there was a noticeable absence of any concerted monitoring and enforcement. Whereas in some instances, policies, legislation, and regulations were adhered to — particularly in large-scale mining — there appeared to be hardly any deterrent if laws were flouted. As will be explained below, this is mainly due to the poor capacity of relevant ministries, departments, and agencies (MDAs). Moreover, policies, legislation, and regulations in the MDAs and local councils frequently do not comprehensively cover specific issues. To compound the problems, many of them are vague and at variance with each other. In addition, many issues are referred to in various statute books and are difficult to disentangle — hence the need to consolidate policies. The evidence gathered also indicates that enforcement mechanisms that translate policies and laws into concrete actions by MDAs and local councils to solve problems are often weak or non-existent. As noted above, the devolvement by central government of many functions to local government units is a further complication.

99. The following observations can be made about each of the priority issues.

LAND AND CROP COMPENSATION AND RELOCATION

100. Section 28 (compensation for disturbance of rights) of the 1996 Mines and Minerals Act stipulates that the holder of mineral rights should pay the owner or lawful
occupier fair and reasonable compensation for any disturbance of the rights of such owner or occupier and for any damage to the surface of the land by his operations. However, payment of rent shall be deemed to be adequate and equate to compensation for deprivation; and 2) as compensation for damage to land, only present market value is taken into consideration and not enhanced value of the land. Note that landowners often argue that they could earn considerably more by enhancing the value of their land either from agricultural activities or other investments but this is not considered a valid argument in Government policy. It also states that if there is dissatisfaction with the compensation levels, an appeal can be made to the MMR. Section 27 allows for compulsory acquisition of land by Government as long as compensation is paid.

101. For large-scale mines, arrangements for surface rent payments and compensation are additionally included in the agreements with the Government. The Sierra Rutile Act calls for fair and reasonable compensation and deems that landowners or occupiers have the right to participate in negotiations. The agreement also stipulates that compensation is to be paid only for damages because loss of revenue is covered by the surface rent payment. Resettlement is to be done with utmost caution with the consent of the Government and in consultation with local authorities. The company is also required to contribute to an Agricultural Development Fund and to pay surface rent.

102. Land and crop compensation and relocation are priority issues, especially for the communities near large-scale operations. In the case of SRL, landowners complain that they were not involved in setting up the surface rent payment rates. There are also complaints about the mode and transparency of the distribution. Although Ministry officials are involved in the crop compensation exercise, crop owners would like the economic life of the crops to be considered in the evaluation. Land issues are also important in SSM and AM operations. Land is supposed to be provided by landowners with the acquiescence of chiefs and approval of the MMR. Implementation is not easy because land is not properly codified and there are many interest groups involved.

103. While the 1996 Mines and Minerals Act allows for relocation, there are no formal procedures and it is normally left with the company and affected parties to decide on the best mode. The MLGCD and MWHTM are involved in the exercise, the latter particularly in the valuation exercise. The capacity of various Ministry staff is severely limited. (Note that the budgets in 2007 for MWHTM and MLGCD were about US$ 1.2 million and US$ 430,000, respectively.) The participation of affected people is limited not only because stakeholders are not actively involved in the discussions but, more importantly, there is no assessment of the changes in lifestyles and capacities needed to successfully overcome a major disruption of local families. On top of that, grey areas in legislation and regulations allow various interest groups to have their own interpretations, increasing the vulnerability of weak stakeholders. As described in Box 2, there has been a great deal of frustration on both sides with respect to resettlement in the Sierra Rutile area.

104. It is important to emphasize that a lack of clear laws about land ownership cuts across all the issues above (and many that follow) and needs to be analyzed on a country-wide scale beyond mining. In addition, the rights of individuals such as petty traders or
service providers, who earn their livelihoods in a community but are not landowners or land users, are particularly vague (if not completely undefined). While these groups usually move with the communities during resettlement, they will often be left without any source of livelihood after mine closure. Until there is a major land reform, however, reform of the mining sector will have to be undertaken within the existing unsatisfactory framework.

MINE EMPLOYMENT

105. Labor laws and the 1996 Mines and Minerals Act stipulate that expatriates are employed only when there are no competent locals for the job. For example, the Koidu Holdings Agreements (section 116) has stipulations for giving preference to “the employment of Sierra Leone citizens with necessary qualifications and experience, taking into account the requirements of safety and the need to always maintain acceptable standards of efficiency in the conduct of mining operations (Government of Sierra Leone, 1996b).” It also alludes to the training of Sierra Leoneans and local procurement of goods and services.

106. However, the Ministry of Labor, Social Security and Industrial Relations (MLSSIR) does not have the capacity to vet work permits and review employment issues properly. Companies more often than not do what they like. Some companies have policies to advertise for all jobs within the vicinity and give preference to qualified locals. However, it is often difficult to get qualified locals for most jobs and there is no requirement to train locals to fill skilled positions.

PROVISION OF INFRASTRUCTURE

107. Mining companies are not required to provide infrastructure services in their vicinity, although it is implied that it is desirable. A large-scale mine like SRL makes provision for some basic infrastructure as part of its Community Development Action Plan (CDAP). However, monitoring these commitments by NaCEF and Local Councils is poor and, ultimately, infrastructure development is left to the whims of the company. While mechanized small-scale mines often make promises to provide infrastructure in their agreements with local communities, they are often unable to meet these obligations, as illustrated by the examples of Majestic Mining Limited and Sierra Leone Diamond Company described in Boxes 5 and 6. Provision of infrastructure services in mining areas by the Government is usually poor. In addition, except for surface rents, there is no mechanism for tax revenue generated by mining operations to return to the affected areas, either through earmarking or through distribution from the central to local governments in a systematic manner. Given the large increase in population that often accompanies new or increased mining activities, the strain on the existing infrastructure can be very large. Although the government benefits from the taxes paid by mining companies, very little, if any, revenue is returned to local communities to deal with these increased demands for public services and infrastructure.
BLASTING EFFECTS

108. This is currently peculiar to Koidu Holdings Ltd. in Kono. There are no comprehensive blasting laws and no laws on underground mining. Although commitments were made by the company in their EIA report, NaCEF lacks the capacity to monitor these.

CHILD LABOR

109. A Child Rights Policy has been approved by Government and a Child Rights Bill is under consideration. Child labor in mining mainly applies to artisanal mining. Even if pending laws are approved, the capacity of the MLSS and Ministry of Social Welfare, Gender and Children’s Affairs to monitor is severely limited. NGOs and UNICEF are, however, playing a significant role by bringing attention to violations and sensitizing government officials and others. Legislation and policy on this matter, however, does not sufficiently take into account the underlying causes for child labor in poor areas. For many families, particularly large or female headed ones, the use of child labor is an essential survival choice. Child labor issues, similar to weak land tenure rights, are prevalent in the economy and affect many sectors. Policies to properly address child labor would need to be considered beyond the mining sector.

DEFORESTATION AND SOIL DEGRADATION

110. Generally community forests are managed by the Forestry Division or with its agreement. According to the 1998 Forestry Act (21.2), no protected forest shall be tampered with in any way without written permission from the Chief Conservator of the forest. A license may be issued by an inspector of the Forestry Division authorizing the holder of the mining lease to clear land in a classified forest for the purpose of mining (section 15 [l] of the Forestry Regulations 1989). However, having acquired a license, deforestation or removal of vegetation from the environment can only be carried out by the mining company under certain conditions (section 15.3), including:

- Removal of vegetation can be done for mining operations only within an area licensed for this purpose; and
- At the completion of mining, the area shall be replanted with approved crops or trees by the mining company, or provision made for this to be done by payment of the estimated reforestation cost.

111. This issue is relative to all types of mining and at whatever scale (LSM, SSM, and AM) because they all require clearing all vegetation prior to an operation. Forestry laws prohibit mining in reserved forests. EIAs for large- and small-scale mining companies allude to how deforestation and soil degradation can be minimized. Monitoring by all the concerned MDAs is very poor. Some mining methods such as dredging as practiced in the SRL operation do not put top soil aside for rehabilitation work. There are no specific laws dealing with these issues.
SANITATION AND WATER POLLUTION

112. The National Health Policy alludes to health and sanitation issues. The 1996 Mines and Minerals Act refers to minimizing water pollution during mining. Although these issues are handled in specific EIA reports for large-scale and mechanized small-scale companies, monitoring by the MMR, NaCEF, and Ministry of Health and Sanitation is poor. Companies more or less do as they deem fit. This often results in controversy between the company and community activists. The situation is similar but magnified for artisanal mining because the large number of minors is geographically dispersed. Note that there are no regulations or legislation about compensation for increased pressures on potable water and sanitation services due to in-migration to mining areas.

COMMUNITY DEVELOPMENT AND PARTICIPATION

113. The 1996 Mines and Minerals Act refers to the requirement for community development. While commitments are made by large- and small-scale companies in their CDAPs, enforcement by NaCEF, MMR, and other MDAs is usually poor because they lack of capacity. As noted in the case study, SRL has a foundation but it is in its infancy and has had little effect. Similar to infrastructure, there is no mechanism for allocating tax revenues generated by mining operations for local community development. Moreover, the capacity of local governments to use any such funds is currently extremely low.

LAND RECLAMATION (POST-CLOSURE AND ON-GOING)

114. The 1996 Mines and Minerals Act and the 2000 Environmental Protection Act refer to reclamation. Companies also must address this in their EIAs and sponsor a rehabilitation program. The 1996 Mines and Minerals Act (section 59) stipulates that an application for a mining lease should be accompanied by a proposal for: (i) progressive reclamation and rehabilitation of land disturbed by mining and for minimization of the effects of mining on surface water and groundwater and on adjoining or neighboring land; (ii) the effects of the mining operations on the environment and on the local population; and (iii) mitigation and compensation measures. While there are no stated penalties for defaulters in the legislation, the Minister may require security for performance and direct the holder of a mineral rights license to address legitimate issues as stipulated in agreements. Section 107 of the Act requires the holder of a mining lease to pay an Agricultural Development Fund levy.

115. The evidence to date is that large- and small-scale mining companies have rarely if ever made significant efforts at reclamation, suggesting that monitoring and implementation are weak or non-existent.

116. Artisanal mining licenses require the holder of a license to carry out rehabilitation and reclamation of mined out areas and pay a fee to a rehabilitation fund that will be utilized to defray the cost of rehabilitation and reclamation of mined out areas. As noted before, these amounts are very small, much less than what would actually be necessary for reclamation. The details of policy measures for small-scale and artisanal miners also state that an applicant for the grant of a small-scale mining lease shall submit proposals
for consideration and approval before beginning any mining operation for: (i) progressive reclamation and rehabilitation of land disturbed by mining; and (ii) the minimization of the effects of mining on surface water and underground water and any adjoining or neighboring lands. It is extremely rare that any of these measures take place.

3.4 Conclusions

117. The existing policies to address environmental and social priority concerns in the mining sector have the following weaknesses:

- The legal and regulatory framework for the mining sector often lacks specificity, leaving interpretation to be determined on a case-by-case basis, often by the involved stakeholders themselves.
- Laws pertaining to the sector are diffused across statutes emanating from various ministries, leading to problems of consistency and poorly defined responsibilities.
- Monitoring of company performance rarely occurs, other than by INGOs, NGOs, and other representatives of civil society.
- Implementation of laws and regulations is consistently weak to non-existent — a situation exacerbated but not caused by NaCEF’s vague legal status — and enforcement mainly relies on voluntary initiatives and pressure from civil society.

118. Consequently, expanded mining due to a more favorable framework for mining development and the current high prices for metals and minerals offers significant environmental and social risks. The next section discusses the main elements of proposed mining reforms and assesses how they may positively and negatively affect environmental and social priorities.
4. Priorities, Mining Sector Reform, and Stakeholder Reactions

4.1 Introduction

119. This section will begin with an outline of the main elements of reform. These are not just conjecture, but are based on: (i) statements made and actions taken by the GOSL; (ii) ongoing discussions by the GOSL with the World Bank, DFID, and other interested parties; and (iii) the main elements of mining sector reforms in Sub-Saharan Africa and other developing countries.

120. This presentation will be followed by an analysis of the main stakeholders in the mining sector, including a general cost and benefit analysis of successful reforms. Subsection 4.3 will assess the potential effects from new mining policies to stakeholder priorities considering transmission mechanisms such as institutional coordination and capacity, ability of stakeholders to influence reforms, and coordination among stakeholders. Possible reactions to the reforms as well as obstacles to successful implementation are also discussed. The section concludes with identification of three strategic areas that mining sector reforms need to consider to achieve environmental and social sustainability.

4.2 Main Elements of the Reforms

121. There is general agreement among stakeholders, including the GOSL, that mining sector reforms are necessary. This entails not only reforming policies, legislation, and regulations, but also reforming various institutions dealing with implementation in order to meet the overall reform objectives. In fact, the revision and consolidation of laws by the Law Reform Commission is already in progress. Various other reports have noted that capacity deficiencies in various institutions will have a bearing on the mining industry (World Bank, 2004; Ketelaar, 2006; Government of Sierra Leone, 2004d).

122. There are several issues to be addressed in sector reform. Policies and laws should provide an enabling environment to attract much needed foreign and local investments. Mining should enhance the social and economic benefits for the country and communities affected by mining activities. The private sector should be the leading player in all aspects of mining development, ranging from exploration and mine development to marketing and mineral beneficiation. Transparency and accountability of laws and the performance of various institutions must be assured. The institutions should provide access to information to potential investors, the public, and other relevant stakeholders. Institutions should have enough capacity — appropriate human resources and equipment — to fulfill their functions. They should be well coordinated and have their work backed by the requisite legislation and regulations for monitoring and enforcement.

123. Among mining stakeholders in Sierra Leone, there are already expectations about the main elements of mining sector reforms. These include the results of the policy dialogue opened through this SESA, particularly conclusions of the second round of
regional workshops held during the first third of 2007 (see CEMMATS and INDGA, 2007b). The main elements of mining sector reform would include the following:

- A cadastre system that follows a first-come, first-served basis with significant fees for holding land for exploration;
- Well-defined environmental requirements at all stages of the mining operation;
- Artisanal miners are organized in a manner so that negotiations can be done on a collective basis with governments, local communities, and financiers and traders;
- Much stronger environmental monitoring and enforcement of artisanal mining operations, and licenses depend on good performance;
- Regulations against child labor are developed and strictly enforced;
- A well-defined framework for mining companies of different sizes and capacities to interact with communities is;
- Contracts for medium-scale and larger-scale companies are standard and transparent with well-defined tax obligations; and
- More of the fiscal revenues generated by mining operations are destined for — either directly or through intergovernmental transfers — local communities and mining regions, which may necessitate considerable institution building.

124. More specifically, Table 6 contains the main policy, regulatory, and legal changes related to the priority areas identified in Section 3 that the consulted stakeholders expect to be included in mining sector reforms. The table also identifies their expectations of the main institutions that would be responsible for implementation of each reform activity, including the areas where institutional strengthening would likely be necessary.
<table>
<thead>
<tr>
<th>Priority reform area</th>
<th>Concerns</th>
<th>Environmental and social management</th>
<th>Policy (regulatory and legal changes)</th>
<th>Institutional strengthening</th>
<th>Primary responsible MDAs</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land and crop compensation</td>
<td>1. Non-involvement of landowners in agreements</td>
<td>1. Legislate involvement of landowners in mining agreements</td>
<td>MMR to ensure legislation is included in mining legislation</td>
<td>MAFS, MLCP, MLGC</td>
<td>MMR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Poor surface rent payment levels and distribution</td>
<td>2. New regulations for crop compensation</td>
<td></td>
<td>NaCEF</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>4. Land ownership problems</td>
<td></td>
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<tr>
<td>Relocation</td>
<td>1. Relocation procedures largely informal</td>
<td>1. Require proper Resettlement Action Plans</td>
<td></td>
<td>MMR to ensure legislation is included in mining legislation</td>
<td>MMR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Poor valuation procedures</td>
<td></td>
<td></td>
<td>MLGCD</td>
<td>MLGCD</td>
<td></td>
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<tr>
<td>Mine employment and local procurement</td>
<td>Labor laws weak and subject to lots of interpretation</td>
<td>Address in new central regulation that is more specific and includes some affirmative action components.</td>
<td></td>
<td>MMR to ensure legislation is included in mining legislation</td>
<td>NaCEF</td>
<td></td>
</tr>
<tr>
<td>Provision of infrastructure</td>
<td>1. Mining companies not keeping commitments</td>
<td>1. Better Community Development Action Plans in EAs</td>
<td>1. Build up capacity of various Ministries: MLCP, MWTM, MLGC</td>
<td>MMR to ensure legislation is included in mining legislation</td>
<td>MLSSIR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Sometimes unrealistic community expectations</td>
<td>2. Ensure community and government involvement in planning.</td>
<td>2. Strengthen institutions for training.</td>
<td>MMR to ensure legislation is included in mining legislation</td>
<td>NaCEF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Abrogation of Government responsibilities</td>
<td>3. Increased flow of tax revenues to areas with mining-associated population booms.</td>
<td>2. Mining companies could support in-house training or training at other institutions.</td>
<td>MMR to ensure legislation is included in mining legislation</td>
<td>MLSSIR</td>
<td></td>
</tr>
<tr>
<td>Blasting effects</td>
<td>1. No comprehensive blasting laws</td>
<td>Better environmental management plans, enforcement, and monitoring.</td>
<td>3. Improve institutional capacity of MLSSIR.</td>
<td>MMR to ensure legislation is included in mining legislation</td>
<td>MMR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Poor monitoring</td>
<td>1. Legislation for minimum infrastructure provisions and repair of damage to existing infrastructure.</td>
<td>1. Build up capacity of institutions and organizations at the local level.</td>
<td>MMR to ensure legislation is included in mining legislation</td>
<td>NaCEF, MMR, MLCP, MWHITM</td>
<td></td>
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<tr>
<td></td>
<td>3. Poor relocation procedures</td>
<td>2. Increased flow of tax revenues to areas with mining-associated population booms.</td>
<td>2. Clarify regulations dealing with blasting and relocation.</td>
<td>MMR to ensure legislation is included in mining legislation</td>
<td>NaCEF, MMR, MLCP, MWHITM</td>
<td></td>
</tr>
</tbody>
</table>

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Table 6: Expectations of mining sector reform in relation to priority areas (continued)

<table>
<thead>
<tr>
<th>Priority reform area</th>
<th>Concerns</th>
<th>Environmental and social management</th>
<th>Policy (regulatory and legal changes)</th>
<th>Institutional strengthening</th>
<th>Primary responsible MDAs</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child labor</td>
<td>1. Incomplete legislation</td>
<td>1. Ensure EMPs are adhered to.</td>
<td>1. New laws and regulations required in Mining Act.</td>
<td>Improve capacity for monitoring and enforcement—MSWGCA, MEST, MMR.</td>
<td>MMR</td>
<td>1. Multiple departments involved in monitoring.</td>
</tr>
<tr>
<td></td>
<td>2. Poor advocacy</td>
<td>2. Adhere to forestry regulations.</td>
<td>2. Follow through on other regulations and adopt relevant international conventions.</td>
<td></td>
<td></td>
<td>2. Current discussions do not focus on incentives for poor families to respect laws.</td>
</tr>
<tr>
<td></td>
<td>3. Poor families dependent on earnings from child labor.</td>
<td>3. Use rehabilitation levies paid by AM</td>
<td>3. Introduce EFAs for LSM and SSM.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>1. Strengthen institutional capacity of NaCEF. Also MAFS should provide support.</td>
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<td></td>
<td></td>
<td></td>
<td>2. Create or enable institution responsible for AM rehabilitation</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Deforestation and soil degradation</td>
<td>1. Laws non-specific</td>
<td>1. Improved preparation of EIAs and better monitoring and enforcement.</td>
<td>1. Strengthen main mining regulations and be more specific for particular types of operations.</td>
<td>MMR NaCEF</td>
<td></td>
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<tr>
<td></td>
<td>2. Poor allocation of land and tax regulations for artisanal miners.</td>
<td>2. Awareness raising in communities.</td>
<td>2. Introduce EFAs for LSM and SSM.</td>
<td></td>
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<td></td>
<td>3. Potential impacts of mining on public services are not assessed.</td>
<td>3. Better enforcement of mining rules for ASM operations</td>
<td>3. Introduce EFAs for LSM and SSM.</td>
<td></td>
<td></td>
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<tr>
<td>Sanitation and water pollution</td>
<td>1. Poor M&amp;E of EIAs.</td>
<td>1. Improved preparation of EIAs and better monitoring and enforcement.</td>
<td>1. Strengthen main mining regulations and be more specific for particular types of operations.</td>
<td>MMR NaCEF</td>
<td></td>
<td>Local Councils</td>
</tr>
<tr>
<td></td>
<td>2. Lax regulations and monitoring for artisanal operators.</td>
<td>2. Awareness raising in communities.</td>
<td>2. Introduce EFAs for LSM and SSM.</td>
<td></td>
<td></td>
<td>MHS also plays a leading role.</td>
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<tr>
<td></td>
<td>3. Potential impacts of mining on public services are not assessed.</td>
<td>3. Better enforcement of mining rules for ASM operations</td>
<td>3. Introduce EFAs for LSM and SSM.</td>
<td></td>
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<tr>
<td>Community development and participation</td>
<td>1. EIA undertakings not followed through.</td>
<td>Better Community Development Action Plans in EIAs, developed in negotiations with communities and governments.</td>
<td>1. New policy, legislation, and regulations, incorporating innovative ideas for community development and participation.</td>
<td>MMR MLGCD</td>
<td>NaCEF</td>
<td>MLGCD also involved</td>
</tr>
<tr>
<td></td>
<td>2. Stakeholder involvement not ensured.</td>
<td></td>
<td>2. Direct more tax revenues to mining areas.</td>
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<tr>
<td></td>
<td>3. Poor capacity at the local level.</td>
<td></td>
<td>3. Introduce EFAs for LSM and SSM.</td>
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</tbody>
</table>
Table 6: Expectations of mining sector reform in relation to priority areas (continued)

<table>
<thead>
<tr>
<th>Priority reform area</th>
<th>Concerns</th>
<th>Environmental and social management</th>
<th>Policy (regulatory and legal changes)</th>
<th>Institutional strengthening</th>
<th>Primary responsible MDAs</th>
<th>Comments</th>
</tr>
</thead>
</table>
| Post closure reclamation | 1. Not addressed in EIAs.  
2. Absence of penalties. | 1. To be addressed in EIAs more seriously.  
2. Use rehabilitation levies paid by AM. | 1. New laws and regulations covering EFAs.  
2. Higher reclamation fees for AM, including supporters and financiers | 1. Build up capacity of local community for sustainability.  
2. Create institution responsible for AM rehabilitation. | MMR | MLGCD and MAFS to also take lead. |

Source: From analysis undertaken by the consultants through one-on-one consultations and the second round of SESA workshops
4.3 Stakeholder Analysis for Mining Sector Reforms in Sierra Leone

125. Given the importance of the mineral sector, there is a plethora of stakeholder groups in Sierra Leone, albeit quite similar to those in other mineral-dependent countries. The groups are interrelated, with several groups capable of doing serious harm to any reform program. To properly analyze potential impacts of mining sector reforms, it is necessary to analyze the motives of each of these groups and identify how they could influence reforms, positively or negatively, and the institutional context in which they dwell. Particular attention is paid to the most vulnerable groups, which include children, females, and youth.12

Main Stakeholders

126. Although MMR is the lead ministry, many agencies have a role to play, with NaCEF particularly important for environmental issues and both MLCP and MLGCD for the difficult land issues. The coordination between the MMR and other MDAs leaves a lot to be desired. Although the work of other ministries effects the mining sector, the MMR often tends not to interfere in matters not directly under its purview. Undue pressure may often be applied to top officials in MMR due to a tendency to politicize the precious minerals sub-sector because of its dominant position in the economy. Top technical officials of the Ministry realize that the sector needs to be reformed but without any marked improvements in personal conditions of service and in the Ministry’s capacity, they will not be avid supporters of reform. The difficulties surrounding NaCEF due to its legal status have already been discussed above. Although this is being corrected, NaCEF still faces problems similar to those of MMR with respect to capacity and pressure make decisions on important mining operations.

127. Currently paramount, section, and town chiefs have a lot of power over the allocation of mining leases to artisanal and mechanized small-scale mining. Paramount chiefs and local councils receive part of the license fees paid by mining operations. Although they will be interested in aspects of mining reforms that promote the well-being of their communities, these stakeholders will also want to protect their current rights.

128. Landowners in Sierra Leone are consulted on the issuing of mining licenses. They also get a portion of surface rent payments and, if necessary, they are paid compensation for damages to crops and structures. By all indications, they are not entirely pleased with existing arrangements and are likely to push for reforms to mining and environmental laws that increase compensation and improve the appeals process.

129. Mining communities bear the brunt of the environmental and socioeconomic problems in mining areas. They are directly affected by any problems caused by mining. There is often an expectation by communities that mining companies should not only compensate for any damage but also help address poverty and development issues in their areas of operation. In addition, mining communities believe they should directly receive a proportion of tax revenues generated by mining operations (above and beyond surface rents). New laws in these directions would be supported by mining communities.

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12. See CEMMATS (2007) for an in-depth description of the stakeholder groups discussed in this section.
Due the large impact of mining on Sierra Leone’s economy and the recent rebel war, the mining sector has received a great deal of attention from donors and international non-governmental organizations (INGOs), the most important of which are described in Annex 7. Several international initiatives — such as the Peace Diamond Alliance and the Kimberley Process — have also been spawned from “conflict diamonds” and other issues related to social and economic benefits from exploitation of natural resources. The expectation of donors and INGOs is for the mining industry to resolve its problems and contribute more significantly to the economy, and while every agency will have its own priorities, they will generally support reforms. Although donors officially coordinate their efforts, it appears in certain instances that some donors adopt a “go it alone” attitude for some projects. Therefore, a policy component for enhancing donor harmonization is also necessary in the mining reform.

Sierra Leone has a relatively large and active NGO sector — described in Annex 8 — many of whom are involved in the mining sector. The NGO community tends to be anti-mining due to the environmental and social problems associated with the sector. They are often under one or more umbrella organizations like the Sierra Leone Association of Non-Governmental Organisations (SLANGO) and the National Forum for Human Rights (NFHR). NFHR is a coalition of 41 human rights and development organizations across the country with a strong interest in mining and how it affects the country’s environment and economy. Of particular note is the National Coalition for Extractives (NACE), which acts as a platform for direct engagement between civil society and various government agencies, including MMR, MLGCD, and the Anti-Corruption Commission. Funding for NGOs in Sierra Leone mostly comes from bilateral donors and INGOs. Many NGOs are adept at effectively using the media to further their causes. The media in Sierra Leone are not well regulated and while many journalists are competent and well-meaning, a handful, especially the print media, may have a tendency to be melodramatic and susceptible to corruption. A concern during the reform process is the susceptibility of some components of the media to be at the whim of stakeholders pushing a definite agenda.

Of course miners and mining companies are important stakeholders in the mineral sector of Sierra Leone. The current situation for the three main mining sub-sectors in Sierra Leone was described in Section 2. Each is likely to bring a quite different perspective to mining sector reforms.

Larger mining companies are those that would be more likely to bring the expertise, experience, and appetite for corporate social responsibility (CSR) to Sierra Leone, and would benefit from greater regularization of the sector. Their size provides them with the opportunity to devote capacity and resources to CSR and sustainable development issues. In addition, their size and market presence have made them historically more vulnerable to NGO campaigns and public criticism. Most LSM companies would be greatly supportive of well-defined regulations and rules of the game that would make their obligations clear to all parties and help to pre-empt most conflicts before they arise. Nevertheless, they would not support reforms that burden them with significant responsibilities that are normally attributed to governments. The major goal of reform is arguably to significantly expand mining production, which will help pull the economy to a path of sustained growth. To do so, it will be necessary to make Sierra Leone more attractive to large multinational mining companies. However, because reform’s legitimacy is critical for its sustainability over time, this objective needs to be complemented with a two-tiered strategy to
strengthen the domestic mining sector and develop more and stronger links from the mining sector as a whole to other sectors of the economy.

134. There are several mechanized small-scale mining (SSM) companies, indicative of the increased opportunities for mining in Sierra Leone. The smaller companies active in Sierra Leone believe that their social responsibility should be limited to adherence to laws, direct economic benefits (e.g., fees, taxes, and employment), indirect economic benefits (e.g., emergence of local markets supporting mining operations), and environmental reclamation. The SSM sector’s CSR argument is that they should not be expected to assume the role of the government in providing infrastructure and social services. However, the reality is that the NGO sector, the mining communities, and sometimes even the government will expect the company to contribute to social services and infrastructure. This mismatch in expectations often lies at the root of conflict between the companies and their stakeholders — and this conflict can create physical and financial difficulties for these companies. Support for reform by mechanized SSM companies would very much depend on a clear and realistic distinction between their obligations and those of the much larger multinational mining companies.

135. It is not possible to generalize about the overall reform perspective of the 200,000 to 300,000 people directly involved in artisanal mining in Sierra Leone. It is necessary to understand the chain from mining to export of diamonds in order to address the myriad problems afflicting the sector and have a complete perspective on the likely divergence of responses to sector reform within this stakeholder group. While the main divisions are described in Annex 2, a very brief if incomplete summary of the sector follows. The actual mining is undertaken by diggers, who usually work in gangs with a boss, who is often the license holder; he is notionally in charge of the diamond plot, supervises the mining and pays the diggers. Up-front funds for capital equipment usually come from supporters. The license holders sell to dealers who, in fact, are usually the supporters, and consequently have power over the diggers to sell them their output. Dealers sell their output to licensed exporters. They take their product to the Government Diamond Office for valuation before selling abroad. The dealers and most of the exporters, the crucial players in the marketing system, are usually of Lebanese origin or Marakas, a term for traders from other West African countries.

136. Supporters and dealers to a large extent ensure that they gain out of this exploitative system. In terms of the technical input into the mining process, they would welcome any schemes that improve mining and processing efficiency. They are, however, likely to oppose schemes that will empower miners or improve their livelihoods at their expense. Exporters, a rich and powerful group in Sierra Leone, would be worried about any reforms that would add to their operating costs or result in important changes in the marketing system. All groups involved in artisanal mining would be more supportive of a reform that allocated more areas for exploitation by this sector and lessened the conflict with large-scale mining.

137. There is a host of community organizations in mining areas. These are related to various interest groups within these areas and their specific agendas relate to local issues including but not necessarily mining. There are also various women’s and youth associations. Many of these associations have a formal structure and some may even be supported by NGOs or government agencies. With such disparate interest groups, there are bound to be conflicts between some of them and between some organizations and mining companies or mining operations. Community
associations have varying interests and would want to pursue their own separate agendas. Their opposition or support of issues would depend on how their special interests could be affected.

138. Vulnerable groups in mining areas include women, children, and youth. They are an integral part of the socioeconomic life in mining areas. Women and children provide food for the miners. Women are known, however, to work in all aspects of diamond mining. Women would welcome changes in policy that would enable them to be more involved in areas of the sector that have been the preserve of males, including the allocation of mining licenses. A huge number of children, estimated at some 10,000 between the ages of 6 to 18, are found in the mining pits (World Bank, 2007). The implementation of child labor laws and sensitization of communities, families, miners, children, and concerned institutions will go a long way toward addressing the child labor problem. Nevertheless, if the solution to the problem is placed mainly on enforcement of child labor laws, there may be little support from affected families, who in fact are likely to resist this aspect of reforms at the implementation stage.

139. Some 45 percent of Sierra Leone's population is between the ages of 15 and 35 years. The role played by youth in Sierra Leone's recent civil conflict is well documented. Since the end of the conflict, the government has been grappling with the youth problem. The government has formed a separate Youth and Sports Ministry and intends to concentrate on providing youth with education and a whole range of opportunities for gainful employment, training, healthy recreation, and general social protection. Any policy changes will have to consider the large number of unemployed youth who would like more meaningful gains from the sector. The vocal youth groups in mining areas have limited resources but a big capacity for creating trouble. Any policy that does not take them into consideration would be bound to run into trouble.

Distribution of Costs and Benefits of Successful Mining Sector Reforms

140. If successful mining sector reforms with most of the elements described above were undertaken, clearly the effects on different stakeholder groups would vary widely. There would be widespread benefits to the main losers of current mining sector policies — landowners, local communities, vulnerable groups (women, youth, and children), and local governments. Negative environmental effects from all types of mining would decline, including AM. Most NGOs and INGOs — except those against mining in any form — would be satisfied, particularly if community benefits and institution building at the local level materialize. The MMR, NaCEF, and MF would all benefit greatly from increased resources and institution building. Bilateral donors and IFIs would benefit in the sense that they would see considerable improvement at both the micro community level and at the macro level of national socioeconomic development. The main concern would be the "super-dominance" of an already dominant sector. If expansion of the mining sector is not accompanied by diversification of the economy, the country would be highly vulnerable to external shocks caused by changes in mineral prices and the accompanying challenges in macroeconomic management. In addition, political support for the reforms would likely wane because large sectors of society may not receive significant benefits from mining expansion. That would be fertile ground for reversal of reforms.

141. How would successful reforms affect the main beneficiaries of the current mining situation? There would be fewer artisanal miners but they would be better organized and receive a greater percentage of the value of their output. Moreover, a bigger large-scale mining sector
with more local benefits would provide a good source of alternative opportunities for artisanal miners. Financiers and traders would be affected in at least four ways: (i) the need for artisanal miners to be more aware of environmental matters would reduce their profits; (ii) better organized and legally protected artisanal miners would have the same impact; (iii) smuggling would be reduced and more difficult; and (iv) taxes would be harder to evade in general. Government officials at the local and national levels would have less use of discretion so rent seeking would be less common and less profitable.

In sum, successful reforms would likely bring widespread benefits to the mining sector and only negatively affect small groups of stakeholders. In the next sub-section we will examine why reforms still might not happen unless managed very carefully and pragmatically. The analysis of the benefits and risks associated with mining expansion with the rest of the economy goes beyond the scope of this SEA. Accordingly, although important for the sustainability of mining reforms, the potential reaction of key non-mining stakeholders is not considered in this report.

### 4.4 Transmission Mechanism from New Policies to Priorities

This sub-section begins with a discussion of the political economy of mining sector reforms in Sierra Leone, followed by an analysis of the significant effects of policies that are likely to accompany reforms for the stakeholder priorities presented in Section 3. The likely reactions of stakeholders to the proposed policies are discussed, taking into account political economy factors as well as institutional constraints in the mining sector and Sierra Leone in general.

#### Political Economy of Reform

In contrast to the picture painted in the previous sub-section, without major changes in institutional capacity and the political economy of Sierra Leone, successful implementation of the mining reforms outlined above would be difficult and far from mechanical. The costs and benefits to the various stakeholders of existing mining policies will significantly change if they are successfully reformed. The amount of support that different stakeholders will give to promoters of new policies will depend very much on the changes they perceive to their own costs and benefits, which in turn will depend on their estimates of the likely success of the government to implement different aspects of the policies. For example, a stakeholder may favor more mining if there are increased environmental and community safeguards but may have little confidence or specific information that they will materialize.

However, a political economy analysis of mining sector reforms is much more than a tally of winners and losers. Different stakeholders have greatly varying amounts of influence at different stages of the policy process. They will also have different information and varying abilities to process this information in order to have a better understanding of what a new policy

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13. Of course, if mining sector reforms have the national level economic repercussions that are hoped for, there would in general be a much more buoyant economy.

14. Note that in the stakeholder workshops, with the exception of preventing the use of child labor, stakeholders gave very low scores to all other priorities with respect to their confidence in the government's ability to implement solutions.
would mean for them. Some stakeholders — and these could be winners or losers from the reforms — may be able “to capture” the reform; that is, they are able to manipulate the reform during design or implementation in order to ensure that most (or a larger share) of the benefits go to them or that parts of the reform that would affect them negatively are not included or implemented. Other groups may have little power to influence the design or launch of the policies but significant ability to sabotage the reforms. Moreover, they may take a wait and see attitude to see how the policies actually work out before taking any action. In general, the long-run effects of mining policy reforms are likely to differ greatly from the short-run effects but many stakeholders are more likely to act on short-run costs and benefits, perceived or actual, whether out of necessity, uncertainty of the long-run effects, or fear that they may never materialize. In general, reforms have a greater chance of success if the various stakeholders have the ability to negotiate over time (rather than in a once-and-for-all situation), which allows for learning while doing and alleviates fears that what is done now can not be changed, reduces the probability that groups will focus on short-term benefits.15

Political Economy and Institutional Analysis of Reforms in the Mining Sector
146. Without major institutional and political economy changes, any reforms will flounder. State effectiveness and institution building, especially of the key MDAs, are absolutely necessary for efficacy of the reforms. Moreover, if working conditions, including salary levels, are not improved in these key MDAs, it will be difficult to get buy-in to the reforms from government workers, making successful implementation more difficult. The other stakeholders in the sector will also need to be “brought along” if change is to be effective. This section considers new transmission mechanisms that encapsulate all these factors, and focuses on the priorities that guide this SESA. Given the commonality of problems and solutions across some stakeholder priorities, they were grouped for this analysis into three categories — environmental governance for large-scale and mechanized small-scale mining operations, community benefits and development, and artisanal mining.

ENVIRONMENTAL GOVERNANCE FOR LARGE-SCALE AND MECHANIZED SMALL-SCALE MINING
147. The environmental governance category includes the following stakeholder priorities:

- Land and crop compensation and relocation,
- Sanitation and water pollution,
- Deforestation and soil degradation,
- Land reclamation, and
- Blasting.16

15. For a discussion of this point as well as the others in this section, see Chapter 1 of Fanelli and McMahon (2006). See Annex 9 for a list of some of the most important factors to take into account in the political economy analysis.

16. Issues related to artisanal mining on these topics are taken up below in the overall discussion of artisanal mining.
The institutional and political economy problems in each of these categories revolve around land tenure issues and lack of monitoring and enforcement capacity of the environmental authorities. Resolution of all of these priorities will depend to a large extent on progress in these areas, which go beyond mining policies and reform. Nevertheless, some actions could help to make progress during the first stage of Sierra Leone’s economic recovery. Participation of stakeholders will often be critical for sustainability of proffered solutions. For each priority area, Table 7 lists concerns, required policy and legal changes, costs and benefits to stakeholders, monitoring and evaluation responsibilities, and political economy and institutional constraints to resolving problems.

On the one hand, land and crop compensation for large-scale and mechanized small-scale mines may be one of the least difficult priority issues to resolve. The amounts of money involved are not very significant for the company, the necessary institutional capacity to manage such a program is relatively small, and the only significant political economy issue is changing the manner in which surface rents are currently distributed with respect to participation and transparency. On the other hand, land issues are often unclear and current legislation is not functioning properly. There needs to be much clearer legislation on land rights in mining areas. The involvement of landowners in mining leases and surface rent negotiations is essential. For meaningful participation by stakeholders, however, there will be critical issues to deal with. Outstanding among them will be ensuring a negotiation framework that incorporates all local relevant stakeholders, including women and youth, and mechanisms for learning from experience. Therefore, the negotiating framework should allow for an ordered revision and adjustment of agreements reached over time. NGOs could play an advisory role. With respect to the methods of compensation, including some measure of the economic life of crops (such as present value), there is a great deal of international expertise to draw upon. Similarly, a simple, relatively inexpensive appeals procedure — such as mediation — could be established with the agreement of stakeholders.

Problems could arise, however, if there is collusion between mining companies, especially those without concern for their reputation, and ministry or local officials in order to bypass other stakeholders. Currently, chiefs play a major role in the decision on distribution of surface rents, and they may be reluctant to move to a more open and transparent system. In fact, if land policy issues are not addressed in Sierra Leone, it would open the door for capture by well-placed groups of at least part of mining sector reforms. It must be emphasized, however, that even if all these issues are settled, compensation rarely resolves the issue of providing sustainable livelihoods, discussed below in the section on community benefits and development.

Problems associated with relocation are mostly due to: (i) a lack of clear rules, the subjective interpretation of which is magnified by the general lack of clarity on land tenure; (ii) non-adherence to international guidelines by major companies; and (iii) the unwillingness by companies to spend large amounts for relocation. The first step in resolving these problems is relatively easy because it entails codifying the procedures and responsibilities more formally into the new Mining Act. SRL has had difficulties satisfying all parties in its various attempts at resettlement. This suggests that different, “reasonable” options should be made available. These could be determined in a national conference involving the main stakeholders in deliberations about the new Mining Act. For relocation and compensation issues in general, it is important to
minimize the amount of discretion in contracts between mining companies and the GOSL in order to ensure uniformity for residents at specific locations and from one location to another.

152. A number of recurring environmental problems were included in stakeholder priorities — sanitation and water pollution, deforestation and soil degradation, and blasting. These problem areas often lead to the biggest conflicts between communities and mining companies on all scales. Laws and regulations on natural resource degradation already exist in the 1996 Mining Act, and EIAs are mandatory for small- and large-scale mining companies. Nevertheless, there is a need for much clearer environmental standards and procedures, as well as specific regulations on neglected topics such as blasting and underground mining in general. However, given the almost complete lack of monitoring and enforcement of the existing laws, there is little reason to be hopeful that new laws and regulations would be enforced unless NaCEF capacity is greatly bolstered. There is also the danger that without a large increase in NaCEF capacity, monitoring and enforcement could be done on a selective basis, leading to further institutional problems. While monitoring is poor and is likely to continue to be so due to weak capacity — which would be difficult to overcome with nationals in the short-run even if funding were available — community, NGO, and media pressure should help to motivate the behavior of large-scale international companies. Clearer land tenure accompanied with stronger rights for affected parties would also be useful.

153. NGOs have also been shown to be effective in monitoring the behavior of mechanized small-scale mining companies. Their work would become more effective by legislation that made monitoring and litigation by civil society easier, which could include a system of mediation and, if necessary, mandatory arbitration that parties could access. To increase the role of civil society in environmental monitoring, it should also be mandatory for companies to present EIAs to affected parties in an understandable format.

154. There is a danger that anti-mining NGOs could capture this aspect of reforms and use it to prevent mining rather than promote sustainable mining operations. It would be important to develop a mechanism that did not a priori favor one party to a complaint over another.

155. Land reclamation, both ongoing and after closure, is one of the areas where the 1996 Mining Act is most detailed. Nevertheless, it does not include any penalties for defaulters, an area that the new Mining Act would presumably rectify. There is also no general requirement for financial assurance (other than the Minister may require one), which also should be one of the priorities in the new Mining Act. Without stricter penalties (including jail time) and the forfeiture of assurances, there is no reason to expect large- and small-scale companies to be any less negligent in reclamation than they historically have been, given the weak state of monitoring and enforcement. As in several other issues, it is important that mining contracts are as standard as possible in order to avoid rent-seeking during the negotiation phase that could release companies from some of their responsibilities. Nevertheless, good practices would include agreement on mitigation measures and remediation plans in tripartite negotiations between the company,

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17. Note that Oxfam-Community Aid Abroad Australia has such a mechanism for local communities in developing countries with complaints about the actions of Australian owned mining operations. For more information, see http://www.oxfam.org.au/campaigns/mining/ombudsman/index.html. The Canadian Government is seriously considering the implementation of a similar system for Canadian companies in all extractive industries. See Advisory Group Report (2007).
central government, and local communities. At the same time, it is important that new requirements to existing operations contribute to the goal of environmental protection without causing such operators to close prematurely.  

COMMUNITY BENEFITS AND DEVELOPMENT

156. This category includes the stakeholder priorities of mine and mine-related employment, provision of infrastructure, and community development and participation.

157. The major issues that arise for all these topics include the division of costs and responsibilities among the various stakeholders, the ability to force companies to keep their commitments, the capacity of local governments to fulfill their assigned responsibilities, the framework for stakeholder participation, and the geographical extent to which the mining operation has obligations — that is, which communities have the right to participate in consultations or negotiations and may receive tax revenues for the increased demands on public services, including infrastructure. As for environmental governance issues, Table 7 provides information on important factors that will affect reforms of priority areas.

158. The various stakeholders have, of course, different amounts of negotiating power, and it is not as simple as distinguishing between the government, mining companies, and local communities. In Sierra Leone, local governments will generally have much less power and different objectives than the central government, large-scale mining companies are better situated than small-scale companies, and certain members of the community will have much more authority over, especially, the distribution of benefits. In Sierra Leone, chiefs generally have a strong role in this regard, although the influence of rich dealers and traders on the chiefs and other local officials should not be underestimated. Accordingly, to make the playing field as level as possible, it is important that the quantity and distribution of benefits, including the framework for negotiations, is as strongly codified as possible.

159. There is always the political economy problem that benefits will be captured by elite or preferred groups, which could undermine the entire mining reform program. In addition, even without elite group capture, vulnerable groups are not likely to be beneficiaries without mechanisms to ensure their participation. This requires a clear policy for information sharing and for information to be produced in a format understandable to all key stakeholders. Their rights and responsibilities should be clearly spelled out. The EITI is a stride in this direction but complementary information would still be needed on entitlements and responsibilities of local governments, local communities, and weak stakeholders. A second political economy problem can arise if all or most of benefits from mining operations go to members of nearby communities. In such a situation there is the danger of creating an enclave-like community surrounded by poor, resentful villages, which would raise the likelihood of internal conflicts over time. Accordingly, it is important in negotiations on benefits to be provided in connection with a mining operation that more distant communities and the region in general have an adequate voice. In general, to increase the development impact of the mine and overcome these political economy problems, employment, provision of infrastructure, and community development need

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18. See Miller (2005) for a thorough exposition of the institutional and political economy issues surrounding financial assurances in the mining industry.
to be treated comprehensively and within a common framework where benefits are distributed as equitably as possible, ensuring broad participation by key stakeholders.

160. CDAPs by large- and small-scale mining companies already contain commitments to community development, but they are frequently not fulfilled and there is no enforcement. Under current regulations, the CDAP is supposed to be the result of a bilateral discussion or negotiation between the mining company and affected local communities. However, in reality for large mines it is largely a list of potential offerings from the mining company based on their assessment of the situation, including discussions with the local communities and government. For small-scale mining operations, the CDAP is generally a list of (mostly unfulfilled) promises necessary to get support from the local communities. A first step would be to make broad community and government participation in the CDAP a requirement in the new Mining Act. This would include both discussions and negotiations, as well as commitment and responsibilities for all stakeholders involved, including the government. Some flexibility is required here because in areas without an established mining tradition, there may be a lengthy learning period before communities really understand what they need to best benefit from the presence of the mining operation.

161. For company obligations, their general framework should be in the new Mining Act, but the details should be determined in tripartite negotiations. The distribution of responsibilities between the company and the different levels of government should be made quite clear in the Mining Act. They could include putting a certain amount of fiscal revenues paid by the mine into a community development fund or foundation. While this mechanism would allow for communities to use the funds when they are ready, it is important that there is a development plan that guides allocation of the funds or there is a danger that they will do little to contribute to the long-run sustainability of the community. Management of such funds could also be constrained by local governance capacities. More generally, it is essential that local governments have the capacity to undertake their responsibilities with respect to delivery of services and other benefits; otherwise, community members will inevitably turn to the mining companies for their provision. This not only can lead to a situation of conflict because the company will believe that it has already met its responsibilities, but it can also discourage investment and production efficiency because mining companies will face risks and costs not originally envisioned. It is likely that at least small-scale mining companies could resort to high-grading practices and further weaken local government capacity by bypassing local authorities in managing their relationship with communities.

162. Employment in the mining operation is usually the most highly sought after benefit by individual community members. In fact, compensation to landowners that included employment in the mine, as much as possible, would usually be preferable than simple cash payments or other forms of compensation, which may eventually leave them without a livelihood. For unskilled jobs there will generally be a much higher supply of workers than demand and the allocation of employment will be a delicate task that should try to avoid the political economy problems mentioned above. For logistical reasons, it may be preferable that most of these jobs go to members of nearby communities, but that special programs — such as training (funded by the government, donor agencies, or the companies themselves) to provide goods and services to the mine — are set up to provide other benefits to more distant communities. The extent of the latter will depend on the scale of mining operations and/or concentration of mining operations in a
region to reach a critical level where ancillary economic activities could be competitively developed.

163. For semi-skilled and skilled jobs, employment would normally involve training. Nevertheless, it would be relatively easy to have reasonable commitments for employment and training of locals to be phased in over time as standard practice in contracts with large-scale mining companies. The more difficult challenge facing Sierra Leone is to build up the number of qualified individuals for skilled positions. For both employment and infrastructure, it is usually preferable if the exact details are determined in trilateral negotiations between mining companies, GOSL, and local communities, including civil society and representatives of vulnerable groups. However, if there is too much latitude in what has or does not have to be negotiated, there would be an incentive for companies to try to avoid such obligations and governments to abdicate their responsibilities to mining companies. Whatever is decided, it will also be necessary to have monitoring and auditing structures that ensure that companies and governments are making reasonable attempts to meet their commitments.

164. Similar to employment and training, tripartite negotiations over provision of infrastructure could be part of standard mining contracts and included in the EIA. It is not clear how far such negotiations should be taken. The provision of electricity to surrounding communities and paving roads used by large mining vehicles are one thing; infrastructure for health and education services and roads linking regions of the country are another. Given that company commitments made in current CDAPs are not monitored, it may fall to company whims if capacity of relevant agencies is not built up. Obligations of small-scale mining companies must also be kept reasonable or nothing will be done (except paying off officials to keep quiet). For infrastructure and many other issues, it is necessary for any legislation and regulations to take into consideration the greater degree of uncertainty about the profitability of many of such companies. Currently, the main threat to such companies is that their annual licenses may not be renewed. Nevertheless, if companies are being granted mining licenses partially based on the promises they make to a community, it may be necessary to rely on up-front fees to make sure that responsibilities are not abandoned due to low profitability.

165. In all cases, any solution adapted for infrastructure must clarify, preferably in the context of regional plans, responsibilities of companies, the national government, and local governments, the relationship between each stakeholder's obligations and the level and distribution of fiscal payments made by mining companies. Currently there is not even an assessment of how the demand for public services will be affected by a new mining operation. The idea that a disproportionate part of the revenue earned by central government from a particular mining area should go directly to benefiting that area is moot, even though the area bears the brunt of environmental and socioeconomic problems. Of course, if the local government does not have the capacity to use this revenue, this solution will not be very satisfactory.

166. There also should be a requirement that as part of the EIA for large-scale and mechanized small-scale mining, the impact of mining projects on demand for public services such as water and sanitation should be assessed. When the mining operation increases its activities in the area of the mine, or in-migrants are forecast to put considerable pressure on public services, some measure to enhance public services is necessary. It is important that the responsibility for providing extra public services is clarified before the mining operation begins.
167. The stakeholder priority issues in the artisanal mining sector — natural resource degradation, reclamation, increasing community benefits — are the same in name as in large- and small-scale mining but very different in context and potential solutions. In addition, child labor in mining is unique to this sector. Similarly, the main problems in this sector are connected with enforcement but it is far more than a government capacity issue. There are hundreds of thousands of highly mobile artisanal miners spread around the country and even, for example, a substantial increase in NaCEF’s capacity would not be enough with the current organization of the AM sector. Even countries at a much higher income level, such as Colombia and Brazil, have found it very difficult to monitor and enforce the behavior of this sector. Solutions to the problems in AM will partly depend on better organization of the sector so that there are focal points with whom the GOSL and other stakeholders can negotiate. They will also depend on innovative solutions that rely as much on positive incentives (the “carrot”) as enforcement (the “stick”). Table 7 contains information on important factors in the reform of artisanal mining.

168. Monitoring natural resource degradation, including water and soil issues, in the AM sector of Sierra Leone is currently non-existent; moreover, attempted enforcement of environmental regulations could often be overcome with small payments by supporters and dealers. Given the large number of miners involved and the economic power of financiers in the nearby communities, new approaches are necessary if substantial progress is to be made. Without better organization of the sector, it will be very difficult to monitor and enforce its activities. Hence, the objective of the GOSL as expressed in the Core Minerals Policy to promote formation of trade associations and cooperatives in the sector. However, there must be incentives for miners to organize and benefits from greater formalization. As noted in Section 2, the only safety net, if any, available for the diggers — the poor, vast majority of people directly involved in the sector — are the dealers and supporters (financiers) who benefit most from the current system.

169. The best short-term strategy in the AM sector may be to focus monitoring and enforcement efforts on the most egregious types of practices and pressure financiers to monitor the sites they are supporting. It is difficult to foresee how the diggers, dealers, and supporters would react to increased government pressure. However, if the demands are not overly onerous and accompanied with a public information campaign to garner support from other parts of civil society, some progress should be possible in this area. It is likely that NGOs and other elements of civil society would need to play an important role here, including acting as mediators for conflicts between artisanal miners and landowners. It may also be necessary to reduce the power of chiefs in allocating artisanal mining licenses, with more community participation in the licensing decision in order to both increase transparency and overall responsibility for damage caused by artisanal mining. Nevertheless, the most important element of any government actions or programs is not to alienate those at the lower end of the AM pyramid and the many families who depend on their income for survival.

170. A medium-term goal should be to organize the AM sector by relying largely on incentive programs, such as access to technical assistance, fair trade markets, or training in downstream activities for miners who follow more environmentally and socially sound practices. The global experience with organizing very large groups of artisanal miners has not been very successful,
but a key is to find the proper pressure points. In Sierra Leone, for example, it may be more effective to try and organize the dealers or supporters, the true “owners” of the artisanal mining sites.

171. The institutional and political economy problems with reclamation in artisanal mining are very similar to environmental degradation in general. It is unlikely that standard regulations in a new Mining Act would have much of an effect. Clearly innovations are necessary. For example, clearer property rights, particularly for stream beds, would give stronger motivation to landowners to protect their properties from environmental degradation. License holders and their supporters could be required to pay upfront reclamation fees at rates that are much more realistic than current ones. Nevertheless, the first step should be creation of an institution to use the reclamation fund that legal artisanal miners already pay into for its intended purpose. Note that there is a rapidly growing body of knowledge from around the world on solutions — both successes and failures — to environmental problems in the artisanal mining sector that the GOSL should take into account in any programs that it undertakes in this sector.19

172. The general legislation is well under way with respect to the use of child labor in Sierra Leone. It is intended to include specific mention of the use of child labor in the new Mining Act. However, given that child labor is mainly a concern in artisanal mining, legislation by itself will have little impact. Monitoring would be difficult under any circumstances and there is little capacity to do so in Sierra Leone. Given the living circumstances of their families — many of which are led by a single parent mother — the fact that many children freely choose to work makes implementation even more difficult. For success in resolving this problem, it is essential to create targeted incentives for children to stay out of the mining sector as well as better family planning. While free primary education and school feeding programs for poor children are now universal in Sierra Leone, for families to take full advantage they need to see stronger links between education and future job opportunities. Artisanal miners have little or no safety net to fall back upon — and the greatest losers of a more draconian policy to prevent child labor would be poor families, widows, and single mothers — so over-emphasis on the stick versus the carrot in resolving the issue of child labor would provoke a backlash that jeopardizes other parts of the reforms. While the international community is very supportive in the campaign to reduce child labor, it will clearly need innovative solutions if progress is to be sustained. In the near future it is likely that the main responsibility for monitoring and enforcement via the carrot or the stick will remain with NGOs and INGOs.

19. For more information on the literature on organizational and environmental programs in the AM sector, see Annex 10.
Table 7: Transmission mechanisms from new policies to priorities with political economy and institutional constraints

<table>
<thead>
<tr>
<th>Priority reform area</th>
<th>Concerns</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Environmental governance</td>
<td></td>
<td>1. Legislate involvement of landowners in mining agreements</td>
<td>1. Mining companies will operate within a much more transparent and predictable system. Costs likely to be higher but lower incidence of disturbances.</td>
<td>MMR</td>
<td>1. Unless land ownership issues resolved, changes in compensation systems may be ineffective.</td>
</tr>
<tr>
<td>Compensation</td>
<td>1. Non-involvement of landowners in agreements</td>
<td>2. New regulations for compensation with a comprehensive approach</td>
<td>2. Landowners could benefit from an approach centered on enhancing their livelihoods and way of living.</td>
<td>MLC</td>
<td>2. Could be major opposition from chiefs, who likely benefit most from obscurity of current land tenure holdings and distribution of payments.</td>
</tr>
<tr>
<td></td>
<td>2. Poor surface rent payment levels and distribution</td>
<td>3. Better regulation for surface rent payment distribution</td>
<td>3. Chiefs and traditional rulers may lose some of their discretionary powers.</td>
<td>MAFS</td>
<td></td>
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<tr>
<td></td>
<td>3. Unfair and inadequate crop compensation</td>
<td>4. Dispute settlement mechanism</td>
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<td>NGOs</td>
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<td></td>
<td>4. Land ownership problems</td>
<td>5. Major revision of Land Policy</td>
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<td>CSOs</td>
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<td>Local Councils</td>
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<tr>
<td>Relocation</td>
<td>1. Relocation procedures largely informal and often not clear</td>
<td>1. New legislation to stipulate and clarify procedures and roles of various players.</td>
<td>1. Fewer disturbances for mining companies that may have to pay higher relocation costs.</td>
<td>MMR</td>
<td>1. Difficulties of enforcing commitments on (often cash-strapped) SSM.</td>
</tr>
<tr>
<td></td>
<td>2. Poor valuation procedures</td>
<td>2. Stakeholders involved in settlement with independent mediation if necessary.</td>
<td>2. Better facilities and situation for affected homeowners.</td>
<td>MLC</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>3. More clarity in land tenure.</td>
<td>3. Inclusion of non-landowners (users) tied to the community.</td>
<td>MAFS</td>
<td></td>
</tr>
<tr>
<td>Sanitation and water pollution</td>
<td>1. Poor enforcement and monitoring of EIAs.</td>
<td>1. Better regulations, including for AM operations.</td>
<td>1. Higher costs to mining companies.</td>
<td>MMR</td>
<td>1. Very high M&amp;E requirements. New capacity needs will be very large.</td>
</tr>
<tr>
<td></td>
<td>2. Regulations are lacking in specificity.</td>
<td>2. Incentives for AM.</td>
<td></td>
<td>NaCEF</td>
<td>2. Side payments to avoid compliance could be problem.</td>
</tr>
<tr>
<td></td>
<td>3. No enforcement in AM.</td>
<td></td>
<td></td>
<td>MHS</td>
<td>3. Target worst problems in AM.</td>
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<td></td>
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<td>NGOs</td>
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<td>Local Councils</td>
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Table 7: Transmission mechanisms from new policies to priorities with political economy and institutional constraints (continued)

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<th>Costs and benefits to stakeholders</th>
<th>Monitoring and evaluation</th>
<th>Political economy and institutional constraints</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental governance</td>
<td>1. Laws non-specific. 2. Poor allocation of land and no enforcement in AM. 3. Large amount of deforestation by mining companies.</td>
<td>1. Strengthen regulations and be more specific for particular types of operations (also see reclamation below) 2. Incentives for AM.</td>
<td>1. Higher costs to mining companies. 2. Crucial for long-term sustainable development.</td>
<td>MMR NaCEF MLGCD NGOs Local Councils</td>
<td>1. Very high M&amp;E requirements. New capacity needs will be very large. 2. Side payments to avoid compliance could be problem. 3. Target worst problems in AM.</td>
</tr>
<tr>
<td>Blasting</td>
<td>1. No comprehensive blasting laws. 2. Poor monitoring. 3. Poor relocation procedures.</td>
<td>1. New laws for underground mining and blasting. 2. Clarify regulations dealing with blasting and relocation.</td>
<td>1. Greater safety for communities and employees. 2. Higher costs for mining companies.</td>
<td>MMR NaCEF NGOs CSOs MHCP Local Councils</td>
<td>1. Capacity for M&amp;E is low. 2. Vulnerable groups are usually most affected.</td>
</tr>
</tbody>
</table>

Community development and benefits

| Employment                    | 1. Labor laws weak and subject to lots of interpretation 2. Abundance of unskilled labor. 3. Area of eligibility for employment and training. | 1. Addressed in new more specific central regulation that includes affirmative action components. 2. Explicit responsibilities in Mines and Minerals Act. 3. Phase in local component for jobs and procurement. | 1. Costly to companies that have to provide and/or fund training but beneficial in the long run. 2. People in community will have skills they can use when mining finishes. 3. Increases legitimacy and support for reform. | MMR MLSSIR UMU NGOs Local Councils | 1. Targets must be realistic as current capacity is low. 2. Benefits could be captured by local elites. |
Table 7: Transmission mechanisms from new policies to priorities with political economy and institutional constraints (continued)

<table>
<thead>
<tr>
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<th>Political economy and institutional constraints</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure</td>
<td>1. Mining companies not keeping commitments. 2. Sometimes unrealistic community expectations. 3. Extent of geographical focus. 4. Abrogation of Government responsibilities</td>
<td>1. Legislation for minimum infrastructure provisions and repair damage to existing infrastructure 2. Part of mining revenues redistributed to local communities for infrastructure. 3. Regional plan with clear responsibilities of various parties. 4. Assessment of direct and induced increased demand in public services due to mining.</td>
<td>1. Higher costs for mining companies but lower incidence of problems with community. 2. Much improved infrastructure adds to economic and social benefits for communities; important for sustainable development and legitimacy of reform. 3. Less chance of enclave development.</td>
<td>MMR MKWHTM MLGCD MLCP Local Councils NGOs CSOs</td>
<td>1. Difficulty of enforcement in SSM sector. 2. Lack of local capacity to build and maintain infrastructure.</td>
</tr>
<tr>
<td>Community development and participation</td>
<td>1. EIA undertakings not followed through and often unrealistic. 2. Lack of a comprehensive framework for stakeholder involvement. 3. Poor capacity at the local level. 4. Need for learning by doing.</td>
<td>1. New legislation and regulations differentiating between LSM and SSM. 2. Community and government participation compulsory. 3. Tax incentives for companies. 4. Tripartite negotiating framework that is flexible in content and over time. 5. Role of governments is clear, including allocation of tax revenues.</td>
<td>1. More costly to companies but greater harmony between company and community members. 2. Capacity building in local governments and local communities. 3. Responsibilities of governments clearer. 4. NGOs could play important role. 5. Much stronger legitimacy of reform.</td>
<td>MMR NaCEF MLGCD Local Councils NGOs CSOs</td>
<td>1. Weak local capacity to undertake programs. 2. Elite capture. 3. Focus on short-run benefits vs. long-term sustainable development.</td>
</tr>
<tr>
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<tr>
<td><strong>Artisanal mining</strong></td>
<td></td>
<td>1. Develop programs with incentives for children not to work in mining.</td>
<td>1. Better protection of rights of children.</td>
<td>MMR</td>
<td>1. Effectiveness could be low if not tied to schooling and other services.</td>
</tr>
<tr>
<td>Child labor</td>
<td>Many AM priorities are identified and covered in other priority areas as well, including sanitation and water pollution, deforestation and soil degradation, and land reclamation.</td>
<td>2. Link child labor policies with family planning and gender policies.</td>
<td>2. Some families may lose a means of financial support.</td>
<td>MLSSIR</td>
<td>2. Evasion may mean worse working conditions.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. New laws and regulations required in Mining Act.</td>
<td>3. Supporters lose source of cheap labor.</td>
<td>MSWGCA NGOs</td>
<td></td>
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<td></td>
<td></td>
<td>4. Follow through on other regulations and adopt relevant international conventions.</td>
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<td>CBOs</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Local Councils</td>
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Source: Developed by consultants based on analysis of stakeholders and international best practice, situational analysis, and the discussions and results of two rounds of regional workshops and the national workshop.
4.5 Conclusions

For reforms to be sustainable in the long-run, they must be perceived as legitimate by society as a whole. Otherwise, they will be undermined, subverted, or simply ignored over time, even when seemingly successful in the short-run. There are three interrelated crucial elements in the legitimatization of major reforms. First, all important stakeholders must be involved from the beginning and have input into the reform process. Second, there must be broad confidence that the government has the capacity to implement the reforms. Third, the benefits of the reforms must be widespread.

In Sierra Leone mining sector reforms, there are several mechanisms for inclusion during the design process, such as NACE, the EITI, and this SESA. The media and NGOs are also quite vocal on the process, which will make it more difficult to push things through without consensus. As noted earlier, the most difficult time for reforms will likely be during implementation, particularly because some groups are likely to be (or perceive themselves to be) negatively affected in the short-run even if the reforms are implemented well without capture or excessive pandering to special interest groups.

The institutional capabilities in Sierra Leone are currently weak or absent in many key areas, from environmental enforcement to local government capacity. It is essential that mining sector reforms include, for example, substantial capacity building in areas such as monitoring, evaluation, and enforcement of environmental damage in the mining sector and capacity building and training programs for local community members (and Sierra Leoneans in general) to benefit from mining projects. At the same time, complementary reforms will be necessary. These range from macroeconomic considerations — how to manage booms and busts in mining sector exports and revenues — through land reform to capacity building in local governments to more equal opportunities for women.

Most reforms take time to unfold and some parts will happen faster than others. If significant time is needed before normal market mechanisms lead to benefit sharing throughout society — primarily through growth — there need to be alternative methods or targeted programs to benefit specific groups to benefit from the reforms as well as more equally distribute the gains and offset the costs in the short-run. In Sierra Leone, this is particularly true for individuals in the bottom ranks of the artisanal mining sector, including vulnerable groups, that may not be willing (or able) to bear much of the costs of reforms but may be capable of sabotaging reforms simply through neglect.

It is relatively easy for a government to design and pass policies for reforms, but much more difficult to implement the reforms, and most difficult to prevent their capture and sustain them over the long-term. For the sustainability of mining sector reforms in Sierra Leone, the most critical issues are: (i) strengthening governance for environmental and natural resources management; (ii) enhancing the contribution of mining to local development; and (iii) effective incorporation of artisanal miners in mining reforms from the very beginning to improve their quality of life, in general, and their environmental and social behavior.
There are no simple solutions to any of these challenges but efforts must be made on all three fronts — from reform design to special efforts during implementation to good systems of monitoring and evaluation in order to foresee (and forestall) major problems before they occur. In the final section, recommendations will be made in these three areas that could increase the positive effects of mining sector reforms on sustainable development in Sierra Leone.
5. Recommendations on Strategic Environmental and Social Issues for the Mining Sector

5.1 Introduction

179. The central objective of proposed reforms to mining sector policies in Sierra Leone is to provide a foundation to establish an enabling environment that will attract much needed foreign and local investments. The sector is expected to make important contributions to industrial, social, economic, and infrastructure development, particularly in rural areas. It is also expected to provide new employment opportunities, generate foreign exchange earnings, and contribute significantly to government revenue.

180. The conditions to attract investments from mining companies are well-known — stable macroeconomic policies, particularly realistic real exchange rates, and the ability to buy technology and services abroad and export dividends to foreign shareholders. Good governance can help attract mining investment but is rarely a necessary condition in itself.\textsuperscript{20} The much greater challenge is to ensure that mining investments contribute to long-term sustainable development of the country and spur growth in other sectors. If, however, the benefits from mining are not widespread and sustainable, social and political instability may follow, deterring from or even preventing further investment.

181. The strategic objectives of the Core Minerals Policy are still the overriding goals of the sector (Annex 1). However, for the mining sector at all levels to contribute to sustainable development, the Core Minerals Policy must be turned into a set of laws, institutions, policies, and regulations that incorporate the specificities of the Sierra Leone mining sector. These include weak institutional capacity, generally weak governance, and a very large artisanal mining sector that provides part or all of the livelihood for a large portion of society. Institutions need to be built and strengthened and governance improved, both of which will take considerable time to complete. Finally, changes to mining policies and institutions cannot do the job alone. Given the importance, if not outright dominance of the sector, complementary changes are likely to be necessary in several other areas of governance.

182. This section addresses solutions to the environmental and social issues that are the highest priority in mining sector reforms. If these strategic priorities are not addressed, then the reforms will probably fail short of their intended objectives and could even be reversed or captured by special interests. Some of these recommendations (1, 2 and 3) are essential for the new mining law to be sustainable in the short-term and medium-term. Others (4, 5, and 6) pertain to changes that should be incorporated in the new mining law, although their full implementation is likely to take time. A third group (7 and 8) is necessary to give legitimacy and long-term sustainability to the reforms by incorporating all stakeholders, including the weak and vulnerable. These recommendations will take

\textsuperscript{20} See ICMM (2006) for a full discussion of the necessary and sufficient conditions to attract mining investment in global markets.
more time to unfold, although initial actions could begin in the short-term to medium-term.

183. The recommendations are organized along the three critical issues discussed above — strengthening environmental governance, enhancing benefits to communities, and effectively incorporating the artisanal mining sector in the reforms. They are followed by an action matrix (Table 8) that includes concrete short-term, medium-term, and long-term actions for each of the recommendations, as well as outcomes that can be monitored to evaluate progress over time. To conclude the section, a risk analysis of the recommendations is based on the earlier stakeholders and political economy discussions.

5.2 Strengthening Environmental Governance

184. During the workshops stakeholder groups identified a number of problems associated with natural resource degradation — water and sanitation, soil degradation and deforestation, and land reclamation. They also complained about the present system of compensation for land and relocation when landowners are required to surrender land and move to make way for a mining operation. The resolution of each of these priorities depends not just on changing mining policies and regulations but also requires major strengthening of environmental governance in Sierra Leone, a process that will take time to consolidate. The biggest institutional challenges to managing social and environmental problems include building the capacity to monitor, evaluate, and enforce relevant environmental and social laws and regulations, while at the same time developing alternative institutional arrangements to undertake these tasks. In Sierra Leone, as in many developing countries, it is necessary to rely on monitoring by civil society, including NGOs, and self-monitoring, including voluntary codes and guidelines. It also requires a framework for tripartite consultations, negotiations, and mediation among the main parties affected by mining operations — communities, local and national governments, and the mining companies. It is important to note that in the final national workshop for this SESA, recommendations 1, 2, 3, 4(a), and 5(a) were ranked as the highest short-term priorities by the stakeholders, taking into account both the importance of the issue and feasibility of implementation in the short-run.

Rectifying the Governance Problems of NaCEF

185. The first step to improving environmental governance in Sierra Leone has to begin with the main institution responsible for the environment and forestry, NaCEF. As discussed in this paper, NaCEF was created about one year ago but legal adjustments are still required for the fulfillment of its institutional mandate. To make matters more urgent, many responsibilities for environmental management are currently in an institutional limbo, of which the most prominent is the ESIA process. As noted previously, the Cabinet has very recently approved a new NaCEF Act. The intent of the new Act is to address governance and financial issues to allow NaCEF to function

21. While many of the institutional and governance issues discussed in this section are relevant for all scales of mining in Sierra Leone, issues that are specific to artisanal mining are discussion in sub-section 5.4.
properly. It is also important that the Act harmonizes NaCEF’s legal and regulatory functions with the overall environmental framework in Sierra Leone and the responsibilities of other Government agencies. This Act will likely go to Parliament in the early autumn, although it is still necessary to draw up regulations for the institution.

**Recommendation 1** — Immediately address the governance, legal, and regulatory harmonization problems that currently inhibit the functioning of NaCEF as the main environmental agency in Sierra Leone.

**Institutional Strengthening of NaCEF and MMR**
186. While clarifying its mandate is a necessary first step for the proper functioning of NaCEF, it is not sufficient. NaCEF has a very wide mandate that includes: (i) facilitating coordination and cooperation among government MDAs at the national and local levels in all areas relating to environmental protection; (ii) reviewing national and sectoral environmental policies and EIAs; and (iii) promoting goals and strategies, monitoring, setting standards, education and training, coordination of national policies, and the provision of environmental data and information. At current levels of funding, NaCEF does not have the budget for recurrent expenditures to undertake its responsibilities and is very deficient in both human and physical capital.

187. For the mining sector, NaCEF needs the cooperation of MMR, particularly on technical mining issues, to properly carry out its functions related to the mining industry. Currently MMR has almost no capacity in its environmental section (with one person working part-time). It is necessary for MMR to enhance its capacity on environmental management so that it can liaise more effectively with NaCEF. It is essential that MMR have staff with environmental expertise as well as some monitoring capacity.

188. Many functions are in the process of being devolved from the central to local councils. Each local council is supposed to have a Mineral Resources Committee (MRC) in charge of environmental issues, one of whose duties is to facilitate the reclamation of mined-out areas. Another expected function of the MRC is coordination of mining licenses. Nevertheless, due to limited capacity and funding, the local councils have been very slow to respond to their mandate and often MRCs have not been established. The GOSL has not been able to provide enough funds for local councils, which in turn have very limited ability to raise extra funds.

**Recommendation 2** — Clarify the responsibilities and strengthen the capacities and coordination of NaCEF, the environmental section of MMR, and the Mineral Resource Committees of local councils as part of the mining sector reform.

**Environmental and Social Impact Assessments**
189. There are still no clear environmental standards for many issues in Sierra Leone. NaCEF, even with the best of intentions and a realistic budget, would not be able to carry out its monitoring and enforcement functions. After enactment of the new NaCEF Act, it will undoubtedly enact more detailed regulations related to specific environmental
problems — with cooperation from MMR on specific mining issues — and ESIs. Nevertheless, in the Sierra Leonean context, the main challenge of the ESIA system is that it requires quite sophisticated monitoring and enforcement capacities. In the short-term, at least, it will be necessary for NaCEF to prioritize its efforts for sectors and types of environmental risks and damages.

190. Present legislation requires both large- and small-scale mines to prepare an ESIA. If NaCEF ensures these are well done and pertinent environmental and sustainable development issues are handled well in the ESIA, EMP, CDAP, and PCDP processes, it will be much easier to monitor whether companies are fulfilling their commitments than rely on very sophisticated monitoring systems. While these processes are important in all countries, they can be crucial in countries with weak monitoring capacity because they set the stage for production methods that will be largely used during the following years. Over time, the emphasis should shift from monitoring the processes to actual environmental and social outcomes. In the short-term, however, it will likely be necessary to rely quite heavily on government monitoring of processes, voluntary codes, and monitoring by civil society, especially NGOs. Such attention should expose any egregious outcomes that are not detected in monitoring processes and commitments made by the companies. These factors imply that environmental reporting (and access to sites) needs to be very transparent and ESIA and other documents need to be presented in a simple, non-intimidating manner to civil society.

191. Mining companies in Sierra Leone do not have to pay a surety bond that is used for remediation and reclamation both during and after the lifetime of the mine. In the vast majority of mineral-rich countries the type and deployment of effective financial assurance (EFA) that a mining company will pay is normally part of its ESIA and EMP. The EFA instrument should convince the government that the operator can take steps to protect the environment and also take care of mine closure requirements.

Recommendation 3(a) — Strengthen regulations related to the ESIA process. Prioritize monitoring and evaluation of ESIs for large-scale and mechanized small-scale mines, focusing on the stakeholder priorities — water, sanitation, deforestation, and soil degradation.

Recommendation 3(b) — Establish a monitoring framework that provides clear roles for participation by local governments, civil society, and NGOs in addition to NACEF and MMR.

Recommendation 3(c) — Require ESIs to be presented in a manner that is understandable to local community representatives, mediators, and the judiciary and that clearly identifies the legal obligations and commitments of mining companies. Strengthen the ability of local governments and civil society to investigate and initiate legal procedures against mining operations with poor environmental and social performance.

22. While it is standard in economics to allow firms to choose the cost-minimizing process that leads to a given output subject to environmental regulations, due to the complexity and difficulty of monitoring and measuring the environmental damage in mining operations, it can be optimal from a resource use perspective to monitor processes. Even developed countries almost always have a large list of restrictions on processes used at different stages of the mining cycle.
Recommendation 3(d) — For long-term mining licenses, require financial sureties for reclamation.

Consultation, Negotiation, and Mediation

192. One of the most important developments in modern mining laws is that for large-scale mines, the actions and responsibilities of the various parties with respect to environmental and social costs and benefits are determined in tripartite consultations and negotiations that include the national government, the mining company, and representatives of the local community, including civil society and local government. It will also often be necessary to include NGOs, which may or may not be located in the region, if local capacity is limited. These consultations and negotiations should begin with exploration, be ongoing throughout the lifetime of the mine, and continue after closure. They normally include many of the priority issues in Sierra Leone, including technical issues like the design of reclamation, administrative issues such as the responsibilities of local councils and their funding sources, and community benefits such as training and infrastructure (discussed in sub-section 5.3). It is essential that these consultations are tripartite and not bilateral company-government or company-local community negotiations. In the former case, the needs of the local community will often not be identified correctly or largely ignored. In the latter case, the role that central and local governments must play with other stakeholders to increase the magnitude and sustainability of benefits from the mining operation will be missing.

193. A dispute resolution mechanism that is satisfactory to all parties is essential in order to avoid legal actions as much as possible. Such a mechanism would not only save a great amount of time and money, it would also help level the playing field because local community members will generally not have the resources to “go to battle” against large mining companies in the more formal legal system. Given its relatively low cost, the use of an independent mediator as the first stop in dispute resolution is becoming a very popular option around the world. Arbitration is an alternative to the formal judiciary. It creates healthy competition to the formal legal system and, in combination with environmental audits, would not be financially onerous to access for ordinary citizens and local communities.

Recommendation 4(a) — Require tripartite consultations and negotiations beginning with exploration for all mining operations that will entail investment above a certain size.

Recommendation 4(b) — Develop an easily accessible system of dispute resolution in the mining sector. Consideration should be given to making recourse to mediation mandatory as the first step in dispute resolution.

Land Compensation and Resettlement

194. Land compensation and resettlement will usually be among the most critical issues discussed in tripartite negotiations. It is critical that the system does not jeopardize

23. See the background paper to this SESA in Annex 10 for a discussion and examples.
the ability of the affected families to earn a livelihood. Experience with land
compensation has shown that many landowners who receive a lump-sum for their land,
just or otherwise, will not be able to manage this sum well and will soon find themselves
with neither money nor a livelihood. Consequently, it can be preferable to offer
employment at the mine (or by providing a service to the mine), which may be coupled
with some payment for the land. In Yanacocha, Peru, for example, after several years of
disputes over compensation, land owners were given a financial payment plus jobs in the
mine on a rotating basis (see Annex 10).

195. There are also problems associated with the current system of land tenure in
Sierra Leone. Land for mining activities is supposed to be provided by landowners with
the acquiescence of chiefs and approval of the MMR. Although land is not overly
difficult to obtain, a significant number of problems are associated with accessing land
because Sierra Leone does not have a land titling system that validates property rights.
According to customary land laws, provincial lands are not sold but leased to investors.
Leases for large-scale mining operations are obtained in contractual agreements
negotiated with the paramount chiefs. Along with lower ranking village and section
chiefs, paramount chiefs have considerable influence in the allocation of mining leases
for small-scale and artisanal mining. There needs to be much clearer legislation on land
rights in mining areas. Land users are not technically landowners due to the communal
nature of most land, but their involvement in mining lease and surface rent negotiations is
essential.

196. The issue of land compensation is intimately tied to the problem of resettlement.
In most cases, part of the compensation package will include resettlement to a new
village and/or farming area. In Sierra Leone, as in many countries, most problems in
resettlement are caused by under-financing (Starke, 2002:161). It is not enough to give
fair market value for their land and then expect rural, uneducated farmers to begin life
anew. Historically, mining, financiers, and governments have externalized displacement
costs to the weakest party — the displaced. Government has a leading role to play,
including strengthening mechanisms so that people without formal legal land rights —
including those dependent on the community such as petty traders or service providers —
have access to a system that recognizes their position and provides compensation. Most
important is the recognition that affected communities have a right to be at the
negotiating table and present their position. Currently, resettlement is handled on an ad
hoc basis in the large-scale mining sector in Sierra Leone. It is necessary for the involved
parties to develop new guidelines to handle resettlement issues.

**Recommendation 5(a)** — Include in the new mining law a framework for reasonable
compensation and involuntary resettlement centered on the long-term livelihoods of the
affected families, considering standards of international practice. Require tripartite
negotiations among mining companies, local communities, and governments as part of
this framework.

**Recommendation 5(b)** — While clarification of land tenure is desirable, until land
policies can be reformed, land users should be included in allocation decisions for leases
and licenses for all scales of mining.
5.3 Enhancing Benefits to Communities

197. There is need for new policies and building institutions and governance for mining to become a development driver of local communities and provincial governments. The new policies would: (i) address development issues throughout the mining life cycle — exploration, mine development, exploitation, closure, and post closure; (ii) clearly define the responsibilities of government at different levels, local communities, civil society, and mining companies; (iii) ensure that weak and vulnerable stakeholders are incorporated in the process and their needs addressed; and (iv) match resources with responsibilities, taking into account the cyclical nature of minerals and metal prices as well as the fiscal policies of Sierra Leone.

198. Institution building would aim to: (i) avoid patronage relationships between mining companies and local communities; (ii) enhance transparency of and information sharing from existing institutions such as chiefdoms, local governments, and mining companies; (iii) facilitate stakeholder coordination in a context favorable to flexible negotiations and mechanisms for quick and transparent solution of controversies; and (iv) strengthen property rights (land cadastre, etc.).

Local Employment, Infrastructure, and Public Services

199. The central objective of the new policy and institutional framework would be to enhance the human and physical capital of local and regional communities in a self-sustaining manner. For each mining operation above a certain size, it would be essential for all stakeholders to hold consultations and negotiations on the types of benefits that would be critical to meet this objective. The area of influence and the type of benefits associated with each mine would vary depending on its size, type of operation, and geographical location. While some mining operations (or groups of mines) would need to be placed in the context of a regional plan, other smaller operations would focus mainly on the host community. Nevertheless, three of the key issues that would almost always be part of the negotiations are local employment, provision of infrastructure, and public services.

200. Local employment in the mine and providing goods and services to the mine are critical for building new skills and capabilities, including small business and management skills. Progress in this area is essential for sustainable community development as well as the sustainability of mining reform. It is becoming common in mining policies that contracts include a schedule of graduated benefits to the local community; that is, a certain percentage of employment in the mine, which grows over time, must go to local community members. While the target may be 100 percent, this may not be feasible, as demonstrated in the very successful case of the Red Dog Mine in northern Alaska, where, despite the best efforts of all parties, local employment only reached about 60 percent (see Annex 10). Such a policy is often combined with an obligation by the mining company to provide or help to support training to local community members to make them employable.24 Equally or even more important may be an obligation by the mining

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24. One of the most successful examples of training, the Escondida copper mine in Chile, is discussed in Annex 10.
company to procure an increasing percentage of its outsourcing from local providers, with a similar training obligation. Employment-related obligations would need to be negotiated early on in the mining cycle and refined over time depending on the success of different programs and as new possibilities arose. The role of governments in supporting the acquisition of skills, whether for mine employment or outsourcing, should also be determined in these negotiations. In fact, governments should play a role that increases over time in this regard.

201. The provision of infrastructure will also help drive community development by opening up new opportunities, including access to other markets. It is essential that at the beginning of the development, the responsibility for roads, power, and other essential infrastructure is made quite clear, including funding sources. It will usually be desirable that, if the mining company needs to construct a dedicated power source, efforts are made to provide power to surrounding communities. It is important that decisions about infrastructure include stakeholder negotiations with all parties and not be left to the whim of the company or central and local governments. It is equally important that the institutions responsible for the construction and maintenance of infrastructure have (or are being equipped with) the capacity.

202. Similarly, preferably through local government provision, local community members — and not just the families of mine employees — should benefit from better public services such as water, sanitation, education, and health facilities. It is important in the original consultations to plan for the increase in services (and accompanying financing) that will likely be required as soon as mine construction begins.

203. Even if the new policy and institutional framework encompasses all these requirements for employment, infrastructure, and public services, there will still be important implementation challenges. First and foremost, in all three areas it is likely that the mining company and, to a lesser extent, central government will have to play a disproportionate role in the near future. Over time, however, if mining operations are going to be true drivers of sustainable community development, local government agencies will have to take over more and more responsibilities. The danger is that before adequate capacity is built, old style patronage relationships — where companies give communities what they think is necessary to keep powerful stakeholders content — become institutionalized in Sierra Leone. Care must be taken to avoid making companies the primary agency of local governance.

204. Second, the types of benefits that are provided as well as their distribution could be driven by demands from elite groups, both at the national and local levels. Civil society — NGOs in particular — will have to play an important watchdog role here. The less discretion that is allowed in contracts between the central government and large mining companies, the less likely that elite groups can capture the benefits. It is important that there is a “template” of processes that must be followed in negotiations and decision making, even if it is not possible or desirable to have a template of benefits.

205. Third, care must be taken to distinguish between the capacity of small mining companies to deliver in contrast to major multinational companies. The obligations
negotiated with smaller companies must be realistic given their smaller cash flow and overall resource restraints. At the same time, there will be a need for mechanisms to ensure that they will be able to meet their negotiated obligations.

206. Finally, similar to the discussion above on environmental governance, it is important to establish procedures for resolving differences among stakeholders that are transparent, accessible, and affordable by local community members and organizations.

**Recommendation 6(a)** — Include in the mining law a framework for consultation and negotiations on local development for mining operations expected to be above a given size, including local mine employment and training, local procurement of goods and services, provision of infrastructure and public services, and required institutional capacity building.

**Recommendation 6(b)** — Require, as part of this framework, tripartite discussions among the government, local community representatives, and the mining company under a clearly defined legal context that reconciles the need for a well-defined system of rights, obligations, and responsibilities with the flexibility to accommodate a changing context and to take advantage of individual and collective learning.

### 5.4 Effectively Incorporating the Artisanal Mining Sector in Reforms

#### Organizational and Enforcement Challenges in Artisanal Mining

207. The greatest institutional challenge confronting a mining authority in a low-income country is usually how to manage the environmental and social costs of artisanal mining.\(^{25}\) Formal mining laws and regulations are rarely effective in the context of tens or hundreds of thousands of highly mobile miners with little to lose in remote regions of a country. The most important reason for the limited success of resolving problems in the AM sector is lack of any formal institutions among the miners. The inability to bring a common solution to the sector means that the free rider problem dominates the situation; some miners may be willing to work with different methods or behave in a different manner but if most others do not, they will bear a cost and the solution will still be far off. There is also a second free rider problem associated with the sector’s organization. Miners are reluctant to form cooperatives because then they will have to monitor shirking among workers, as well as attempts to hide particularly lucrative discoveries, especially gemstones.

208. In addition, there are important political economy challenges associated with bringing stronger enforcement of laws and regulations to the AM sector. Artisanal mining is dominated by powerful supporters and dealers — who provide financing, supplies, and marketing services to the miners — and the various chiefs, who allocate mining land and licenses. None of these groups are going to support reform of the AM sector that reduces

\(^{25}\) The discussion that follows is focused on miners with very little to modest amounts of capital, but in the latter case it must be highly mobile. While some small-scale operations would certainly fit in this definition, we will refer to the whole sector as artisanal. See Annex 10 for a more thorough discussion of international practice to resolve problems in the artisanal sector.
their patronage power, and all of these groups have enough power to potentially block implementation of reforms. A first step as a counterbalance to this power would be to require all local stakeholders to be involved in decisions to open up areas to artisanal mining and not just individuals who may benefit from allocating permits.

209. In the case of Sierra Leone, there are no large formal associations for artisanal miners. Organizations like the Peace Diamond Alliance (PDA) are relatively small (see Annex 7). Solutions to the sector’s lack of structure include the replication of organizations like the PDA and encouragement of a union, like the United Mineworkers Union, to serve as an umbrella organization for artisanal miners.

210. Another solution would be to work through the mechanized small-scale sector wherever possible. In Sierra Leone, it is common practice to agglomerate artisanal mining leases by communities and work in concert with mechanized small-scale mining companies. If this process were formalized in legislation, including incentives to agglomerate leases, it would be much easier to monitor and enforce behavior, particularly if the responsibilities for compliance were largely placed on the mechanized small-scale partners.

211. To subject AM to a regulatory framework (or mining law) similar to large-scale mining is likely to be an exercise in futility. Regulations have a better chance of enforcement if they focus on the production processes — that is, certain types of particularly egregious practices are illegal and, alternatively, some types of processes are required. The “enforcement” of technological standards is often done through the incentive of obtaining access to some other benefits, such as processing mills or fair trade markets.

212. Two options for eliciting more environmentally and socially sound practices from miners meeting certain criteria are: to (i) provide access to extension services, including joint processing plants, which are more efficient and environmentally friendly; and (ii) provide the ability to sell output through special channels, such as fair trade markets. Fair trade initiatives in mining generally involve some certification given to the miner’s product when it is produced with an environmentally and socially acceptable process. This certification allows it to be sold directly to special markets (avoiding some middle men) where it receives a higher price or where it would not be allowed at any price without certification (as in the case of so-called blood diamonds).

213. Another alternative is to require artisanal miners to undertake training in the use of more environmentally friendly mining methods and encourage them to implement the requirements of new environmental guidelines covering many issues in the sector. The SMARTER mining system, developed by CEMMATS for USAID, is a good example of this strategy in Sierra Leone (Cemmats Group Ltd, 2006b). As Hinton et al. (2003:101) note, in the absence of strong enforcement procedures, the adaptation of a new technology is akin to a voluntary initiative. In this case, the miners were all under the auspice of the Peace Diamond Alliance, so were obligated to join the training program.
214. Monitoring and enforcement of remediation in AM is another difficult challenge. Currently, artisanal miners must pay a reclamation fee which is far lower than necessary for even basic remediation. Moreover, the reclamation fund is not currently being used for its intended purpose. Even if required, it is not likely to be feasible to adequately monitor reclamation by artisanal miners until much more progress is made with their organization. In the meantime, monitoring and enforcement could focus on the much smaller population of financiers/supporters and traders, upon whom the miners depend. Pressure on the middlemen for more sustainable mining practices with respect to both the environment and society could be translated into pressure on the miners themselves. Moreover, although these groups currently have to provide information on their mining revenues every month, under reporting is rampant and enforcement is very weak. The amount of information that they have to provide should be increased over time, including the names of the miners they are working with. The latter would require a system for registering AM, also a necessary first stage to promote organization of the sector.

215. The biggest problems associated with the AM sector occur when there is a "mineral rush"; that is, a lucrative deposit of some metal (usually gold) or gemstone is discovered, and tens of thousands of miners descend upon an area. It is almost always beyond the scope of local government authorities to manage such a situation. Accordingly, it is crucial that the national government has a contingency plan to react to a mineral rush and protect the local community, especially with respect to law and order. A response plan to mineral rushes should guide governments and relevant entities to act timely and forcefully to manage environmental and social impacts of mineral rushes following procedures similar to those needed for dealing with natural disasters. In these circumstances preemptive actions will have a high pay-off even if only for a short time prior to the mineral rush gathering momentum. To this effect, geological, market, and other information would help in assessing in advance the geographical extension, potential affected towns, and ecological areas more vulnerable to the effects of a mineral rush.

Recommendation 7(a) — Create conditions that induce and foster the organization of artisanal miners in associations and cooperatives, including regulations and incentives that would: (i) make compulsory the registration of artisanal miners, (ii) encourage agglomerations of artisanal miners to form small-scale mining companies, and (iii) increase the responsibility of supporters and other middlemen for the environmental degradation caused by miners (diggers) under their scope of influence.

Recommendation 7(b) — Establish a process by which representatives of local communities and potentially affected stakeholders, including women and youth, are involved in the granting of artisanal and small-scale mining licenses.

Recommendation 7(c) — Develop or strengthen innovative training programs and marketing opportunities for artisanal miners, the access to which is tied to improved environmental and social performance.

Recommendation 7(d) — Move toward greater formalization of the activities of middlemen (supporters) and subject them to a strictly enforced system of progressive
reporting of their activities, including the miners they are supporting and the mining areas for which they hold (or control) licenses.

**Recommendation 7(e)** — Develop a contingency response plan to mineral rushes, taking into account geological, market, and other information.

**Increasing the Contribution of Artisanal Mining to Sustainable Local Development**

216. Most attempts at resolving the problems associated with AM have focused on the miners, although if their environmental performance improves, certainly the nearby communities will benefit. Nevertheless, if AM is to truly contribute to local communities in a sustainable manner, it is important that small industries are developed to add value to the output of miners. Again, it is important that local community members, not just those involved in mining, are given the opportunity to participate in any programs to develop skills and small businesses.

217. The stakeholders who often benefit the least but suffer the most from artisanal mining activities are women. Accordingly, it is important to have special programs or institutions that deal directly with the problem of getting more benefits from AM to women and reducing the costs they incur. Among the key topics to be considered are the division of labor, access to and control of resources (including land) and information, exercise of decision-making capacity or political power, and changing beliefs or attitudes that support or impede the transformation of gender roles (Hinton et al. 2003:13).

218. Initiatives and programs that increase benefits to women may also be the most effective manner of reducing the use of child labor in mining in Sierra Leone. Stricter and greater enforcement of child labor laws may have little effect on the underlying poverty problem, particularly for children of widows and single mothers. Targeted programs that reduce family reliance on child labor as a means of support and increase the benefits to families to maintain their children in school are essential if substantial progress is to be made on this issue in the short term.

**Recommendation 8(a)** — With donor assistance, establish a fund for innovative initiatives to: (i) increase the downstream benefits from artisanal mining to communities, (ii) increase the benefits from artisanal mining to women, (iii) reduce the dependence on child labor in artisanal mining for poor families; and (iv) develop alternative livelihoods to artisanal mining. Given the large size of the sector, require that all funded initiatives should be replicable at very low cost if successful.

**Recommendation 8(b)** — Establish mechanisms to enhance women’s access to mineral resources and their involvement in discussions and negotiations with mining companies, including the promotion of greater participation in local government.

**5.5 Action Matrix for Policy, Institutional, and Governance Recommendations**

219. Table 8 is an action matrix for policy, institutional, and governance recommendations. The matrix is organized along the three critical issues identified by the SESA and discussed in Sections 4 and 5 — strengthening environmental governance, enhancing benefits to communities, and effectively incorporating the artisanal mining
sector in reforms. All priorities identified by the stakeholders are covered in these three issues and are addressed in the matrix. In each of the three areas, short-term, medium-term and long-term actions are identified, along with monitoring indicators in each phase. These actions were chosen to address both concerns of stakeholders and the political economy and institutional constraints, as summarized in Table 7. That is, each action is intended to support the process of institutional capacity building and/or eroding the existing political economy framework that is not conducive to long-term sustainable development. Note that, while the actions are presented so as to mirror as closely as practically possible the eight recommendations above, in many cases an action will help address several priorities so there is not a strict one-to-one mapping. Finally, each action is also labeled as a policy (P) or technical assistance (TA) intervention.

220. Table 8 builds upon the expected changes included in Table 6 based on a review of international experience relevant to the strategic environmental and social priority areas in Sierra Leone (see Annex 10) and the capacity constraints and weaknesses identified in this SESA. It expands the areas where more specific activities are necessary for the reform to be successful and puts the emphasis on areas that could be neglected or omitted from mining sector reforms such as gender issues, sustainable livelihoods, monitoring frameworks, and sector specific dispute resolution mechanisms.26

26. Problems and solutions are not divided along geographical lines as in the Sierra Leonean mining sector the type of mining (large, small, artisanal) is what is determinate, not where in the country the activity is located.
Table 8: Policy, institutional, and governance recommendations to increase the mining sector contribution to sustainable development in Sierra Leone

**Strengthening environmental governance**

<table>
<thead>
<tr>
<th>Priority reform area</th>
<th>Short-term actions (1-2 years)</th>
<th>Short-term monitorable outcomes</th>
<th>Medium-term actions (3-5 years)</th>
<th>Medium-term monitorable outcomes</th>
<th>Long-term actions (more than 5 years)</th>
<th>Final outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broad institutional framework for mining</td>
<td>Clarify the legal and regulatory mandate of NaCEF and harmonize its functions with other bodies, including the environmental section of MMR and the Mineral Resource Committees of local councils. (P) Environmental regulations in mining should be made comprehensive and more specific. (TA) Establish a monitoring framework providing clear roles for participation of local governments and civil society (including NGOs) in addition to NACEF and MMR. (TA)</td>
<td>New NaCEF Act is passed. NaCEF is functioning with a clear institutional mandate. Overall responsibility for ESIA and EMPs, including land reclamation, has been legislated to NaCEF. New Mining Policy has complete set of modern environmental regulations.</td>
<td>Begin devolution of management of environmental issues to local governance structures responsible for mining issues. (TA) Local authorities managing a significant increase in M&amp;E and number of environmental complaints. More effective M&amp;E by NaCEF and MMR</td>
<td>Civil society organizations concur in M&amp;E of environmental and social outcomes Local governments and civil society bring more mining related environmental and social problems to attention of authorities and motivate more legal proceedings</td>
<td>Continue with transfer of M&amp;E responsibilities to local governments. (TA) Environmental and social externalities are largely internalized in mining development Local authorities undertaking most responsibilities on environmental monitoring and compliance in mining. Larger policy, auditing, and quality control role by NACEF and MMR Less legal recourse by civil society and more disputes undertaken and settled at local community level. Skilled and experienced employees; less reliance on expatriates.</td>
<td></td>
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<tr>
<td>Water pollution, sanitation, deforestation, and soil degradation</td>
<td>In M&amp;E, NaCEF prioritizes fulfillment of ESIA and EMP obligations and specific high-priority issues such as water, sanitation, soil degradation, and deforestation. (P) Require ESIA to be presented in a manner understandable to community representatives. (P, TA)</td>
<td>More complete reporting on company performance with respect to ESIA. Reduction in the number of violations and civil society complaints in priority areas.</td>
<td>Begin move from process-oriented M&amp;E to outcome-based M&amp;E for NaCEF. (TA)</td>
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(P) = policy intervention; (T) = technical assistance intervention

27. Note that many actions cut across several priority reform areas so there is not always a one-to-one mapping from reform area to action.

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<table>
<thead>
<tr>
<th>Priority reform area</th>
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<th>Final outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land reclamation, compensation, and resettlement</td>
<td>For all mining operations above a given size, establish a framework for tripartite (governments, companies, and communities) consultations and negotiations from exploration onward on environmental and social issues that affect local communities, including land reclamation, land compensation, and resettlement. (P)</td>
<td>Center land compensation and resettlement in new Mining Law on the long-term livelihood of the affected families</td>
<td>New mining operations have a well-defined schedule of actions that companies must take in these areas.</td>
<td>Apply framework for tripartite consultations and negotiations</td>
<td>Reduction in conflicts in new mining operations</td>
<td>Application of adjusted consultation and negotiation framework</td>
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<td></td>
<td>Require full land reclamation plan in ESIA to be designed in consultation with affected communities. (P)</td>
<td>Require existing LSM and SSM operations to gradually meet new land reclamation regulations. (P)</td>
<td>Clear requirements and responsibilities for land reclamation, land compensation, and resettlement in LSM and SSM sectors, including required funding.</td>
<td>Strengthen land tenure and ownership policies. (P)</td>
<td>Refined framework creates a leveled playing field for mining operations and local communities</td>
<td>Develop and allocate fund for reclamation of abandoned LSM and SSM sites. (P, TA)</td>
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<td>Legislate requirement for effective financial assurances (EFA) for all mining operations above certain size. (P)</td>
<td>Clarify rights of land “users” on community lands with respect to all types of mining (P).</td>
<td>Involvement of communities in design of land reclamation and resettlement.</td>
<td>Strengthen community rights on common lands, such as stream beds and forests, with respect to mining. (P)</td>
<td>Decrease in the amount of non-reclaimed land.</td>
<td>Better alignment of responsibilities and finances of local authorities in mining areas.</td>
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<td></td>
<td>New regulations emphasize long-term livelihoods of land “users”, landowners, and other residents, including vulnerable groups, whose livelihood would be significantly affected by resettlement.</td>
<td>Violations are more easily discernible due to increased transparency.</td>
<td></td>
<td>Revise the level and distribution of land rents paid by mining companies to be consistent with local government responsibilities. (P)</td>
<td>Mining companies use processes more amenable to remediation.</td>
<td>Rights to compensation and resettlement will be clearer.</td>
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<tr>
<td></td>
<td>(P) = policy intervention; (T) = technical assistance intervention</td>
<td></td>
<td></td>
<td></td>
<td>Interests of vulnerable and weaker stakeholders are better safeguarded</td>
<td></td>
</tr>
<tr>
<td>Priority reform area</td>
<td>Short-term actions (1-2 years)</td>
<td>Short-term monitorable outcomes</td>
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<tr>
<td>Community development and benefits</td>
<td>Establish a dispute resolution mechanism on social and environmental issues that is affordable and accessible to civil society (P)</td>
<td>Disputes between mining companies and local communities resolved more speedily and with less conflict</td>
<td>Strengthen ability of civil society in use of mediation and arbitration to resolve disputes</td>
<td>Increased percentage of satisfactory settlements. Time taken to settle disputes declines.</td>
<td>Decentralize dispute resolution systems. (TA)</td>
<td>Extend and adapt dispute resolution system to artisanal mining sector. (TA)</td>
</tr>
<tr>
<td>Capacity building in key sector and environmental institutions</td>
<td>Strengthen the capacity and funding of NaCEF and the environmental section of MMR and their coordination. (TA)</td>
<td>Training programs for NaCEF and MMR staff developed and implemented. Refinement of regulation and monitoring of ESIs and EMPs is being undertaken</td>
<td>Training programs for local governments and CSOs Introduce or expand technical courses in environmental M&amp;E in local colleges. (TA)</td>
<td>More qualified and better-equipped staff with less turnover of professionals at the central and local levels. Reduced turnover in NaCEF and environment department of MMR due to increased skill pool.</td>
<td>Develop and upgrade educational programs in environmental sciences at tertiary level. (TA)</td>
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</tr>
</tbody>
</table>

(P) = policy intervention; (T) = technical assistance intervention
### Table 8: Policy, institutional, and governance recommendations to increase the mining sector contribution to sustainable development in Sierra Leone (continued)

**Enhancing benefits to communities**

<table>
<thead>
<tr>
<th>Priority reform area</th>
<th>Short-term actions (1-2 years)</th>
<th>Short-term monitorable outcomes</th>
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<th>Long-term actions (more than 5 years)</th>
<th>Final outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment, infrastructure, and community participation</td>
<td>For mining operations above a given size, the mining law includes a framework for tripartite consultations and negotiations on local development, including local mine employment and training, local procurement of goods and services, provision of infrastructure and public services, and institutional capacity building. (P)</td>
<td>Increase in local/regional employment and procurement.</td>
<td>For very large mining operations or areas with several small-scale mines, establish a regional planning framework involving all the relevant stakeholders. (P, TA)</td>
<td>Development of regional plans in regions with densely populated mining operations, particularly, LSMs.</td>
<td>Create or strengthen national programs for training of mining professionals. (TA)</td>
<td>Implementation of regional plans.</td>
</tr>
<tr>
<td></td>
<td>Establish training programs for mine employment and procurement activities.</td>
<td>Increase in infrastructure and public services in the areas of new mines beyond the immediate needs of the mining companies and their employees.</td>
<td>Create or strengthen programs for training mining technicians and for skills required in goods and services related to mining industry. (TA)</td>
<td>Enhanced capacity of local and regional governments to build and maintain infrastructure and public services.</td>
<td>Establish local/regional development fund to support provision of public goods and services after mine closure.</td>
<td>Move toward 100% national employment in mining.</td>
</tr>
<tr>
<td></td>
<td>Increase in infrastructure and public services in the areas of new mines beyond the immediate needs of the mining companies and their employees.</td>
<td>Strengthen capacity and funding of local governments to provide and maintain infrastructure and public services, which may include provision for establishing a local/regional mining development fund. (TA)</td>
<td>Significant increase in percentage of employment and procurement undertaken by locals and nationals.</td>
<td></td>
<td>Refined mechanisms and procedures for local and regional development, including promotion of women's participation in local/regional governments</td>
<td>High percentage of procurement is done locally or nationally.</td>
</tr>
<tr>
<td>Participation</td>
<td>Establish mechanisms to enhance women's participation in local governments and negotiations involving mining companies and access to mineral resources. (P, TA)</td>
<td>Increases representation of women in tripartite negotiations.</td>
<td>Awareness programs for women's rights</td>
<td>Significant increase in female mining employment and training programs</td>
<td>Greater participation of women in public life and local issues</td>
<td>Public services and infrastructure do not deteriorate after mine closure.</td>
</tr>
<tr>
<td></td>
<td>Increase in female employment in new operations and procurement.</td>
<td>Refine mechanisms for enhancing women’s participation in local/regional government and civil society organizations</td>
<td>Refine mechanisms for enhancing women’s participation in local/regional government and civil society organizations</td>
<td></td>
<td></td>
<td>Other industries are investing in mining areas even after closure of mining operations.</td>
</tr>
<tr>
<td></td>
<td>Female participation in training programs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Gender differences significantly reduced in mining sector, local and regional development processes</td>
</tr>
</tbody>
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</thead>
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<tr>
<td>Environmental governance</td>
<td>Establish a registry of AMs (P)</td>
<td>Registration of AMs is piloted</td>
<td>Registration of AMs fully established (TA)</td>
<td>AMs registered</td>
<td>Environmental regulations adapted to AM are adopted and enforced. (P)</td>
<td>Established AM cooperatives and associations</td>
</tr>
<tr>
<td></td>
<td>Create incentives for artisanal miners to agglomerate into SSM operations. (P)</td>
<td>More SSM areas that are subject to ESIA</td>
<td>More transparency and less conflict in granting of AM licenses.</td>
<td>More transparency and less conflict in granting of AM licenses.</td>
<td>More well-organized and managed AM sector with greater reduction in negative externalities.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Establish a process by which representatives of local communities, not just chiefs, are involved in the granting of artisanal and small-scale mining licenses. (P)</td>
<td>Easier to monitor and evaluate activities of miners switching to SSM and AM</td>
<td>Established program for addressing most egregious environmental problems of AM. (TA)</td>
<td>Reduction in negative environmental and social externalities in AM sector.</td>
<td>Land reclamation practices diffuse in AM activities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NaCEF prioritizes enforcement of most egregious environmental problems of AM. (P)</td>
<td>Process for granting artisanal and small-scale mining licenses established.</td>
<td>Formalize the activities of middlemen (supporters) and subject them to a system of progressive reporting of their activities. (P)</td>
<td>Reduction in worst environmental practices.</td>
<td>Egregious environmental practices are eliminated</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GOSL develops an emergency response plan to mineral rushes. (TA)</td>
<td>Identified and validated environmental priorities in AM</td>
<td>Increase in actions taken against middle-persons.</td>
<td>Increase in actions taken against middle-persons.</td>
<td>Reduction in social upheaval in mineral rush areas.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Increase the responsibility of supporters and other middle-persons for the environmental degradation caused by miners (diggers) under their scope of influence. (P)</td>
<td>Emergency response plan established with clear responsibilities and sources of funding.</td>
<td>Reduction in negative environmental and social externalities in AM sector.</td>
<td>Remediation activities start to be carried out in AM priority areas</td>
<td>Increase reclamation fees paid by artisanal miners. (P)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Create or strengthen institution responsible for collecting and using AM reclamation fees. (TA)</td>
<td>Legislation passed.</td>
<td>Remediation activities start to be carried out in AM priority areas</td>
<td>Remediation activities start to be carried out in AM priority areas</td>
<td>Increase reclamation fees paid by artisanal miners. (P)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fines or other punishments levied on middlemen for environmental degradation in AM areas.</td>
<td>Remediation activities start to be carried out in AM priority areas</td>
<td>Remediation activities start to be carried out in AM priority areas</td>
<td>Increase reclamation fees paid by artisanal miners. (P)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Institution established or reorganized.</td>
<td>Remediation activities start to be carried out in AM priority areas</td>
<td>Remediation activities start to be carried out in AM priority areas</td>
<td>Increase reclamation fees paid by artisanal miners. (P)</td>
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</thead>
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<tr>
<td><strong>Effectively incorporating the artisanal mining sector in reforms (continued)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community benefits and environmental governance</td>
<td>Develop or strengthen innovative training programs and marketing opportunities for artisanal miners, the access to which is tied to improved environmental and social performance. (TA)</td>
<td>Training programs and marketing opportunities are developed.</td>
<td>Promote replication of successful programs.</td>
<td>Reduction in negative externalities caused by AM in program areas.</td>
<td>Increase in downstream value</td>
<td></td>
</tr>
<tr>
<td>Community benefits Child labor</td>
<td>Establish a fund for innovative initiatives to (i) increase the downstream benefits from artisanal mining to communities, (ii) increase the benefits from artisanal mining to women, and (iii) reduce the dependence on child labor in artisanal mining for poor families. (TA)</td>
<td>New initiatives are developed.</td>
<td>Women are receiving increased benefits from AM with less gender discrimination in access to and control of resources.</td>
<td>Promote the replication of successful initiatives. (P, TA)</td>
<td>Less use of child labor in AM due to incentives to families.</td>
<td></td>
</tr>
</tbody>
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5.6 Risk Analysis

221. In the presentation of the recommendations in sub-section 5.4, some of the important risks that comprehensive mining sector reforms will face were discussed. Most of these were related to inadequate funding, insufficient implementation capacity, opposition of powerful stakeholders (particularly with respect to artisanal mining), and the need for complementary reforms (particularly in the areas of land reform and civil service). This section begins with a risk analysis of the more concrete actions specified in Table 8. It concludes with a broad risk analysis of the mining sector reform package, with an emphasis on building support for reforms, and enhancing their legitimacy in the eyes of stakeholders.

Strengthening Environmental Governance

222. The GOSL appears quite committed to mining sector reforms as well as strengthening NaCEF, as indicated in the progress of the new NaCEF Act. While the risk seems low for policy changes, the situation is much less clear on the details of some of these policies and even more for their implementation. This is partially due to the funding situation but also due to possible resistance by stakeholders, both in and out of government.

223. There may be resistance to two of the most important actions identified in Table 8 — setting up a framework for tripartite negotiations and establishment of a dispute resolution mechanism. Powerful interests in and out of government are likely to prefer bilateral agreements directly with companies. The judiciary may balk at establishing an alternative legal procedure. Similarly, there may be resistance to directly involve civil society in monitoring the actions of mining operations, thus reducing the possibilities of rent-seeking. It will be important that the various stakeholder groups are vigilant during design of the details in new mining policies and the accompanying regulations.

224. The ability of NaCEF (and the environment department of the MMR) to monitor mining operations will necessitate a very large increase in its budget, in a situation where almost every government agency can claim to be underfunded. Just as important, without a change in salary structures — i.e., complementary civil service reforms — it will be difficult to attract and keep capable staff.

225. The success of several of the medium-term actions in strengthening environmental governance will depend significantly on resolving the land tenure issue in Sierra Leone and capacity building of local government. The current stalemate on the former indicates that there are powerful interests, such as the various chiefs, that do not want the existing situation to change. There will have to be some incentives for these groups to want to change. Capacity building in local government will depend on funding in general and the willingness of central government to devolve power and finances. While the actions in recent years by the GOSL indicates a willingness to decentralize, the greater risk likely lies in the amount of available funding and the ability to attract capable staff to the countryside. It should also be emphasized that a situation in which environmental monitoring and enforcement is the responsibility of very poorly paid staff
could have the outcome of a big increase in rent-seeking rather a large improvement in environmental performance.

226. The long-term actions build upon their predecessors although it is worth highlighting the move from process-oriented to outcome-based monitoring and enforcement for NaCEF. This will require a large amount of specialized equipment and highly trained staff. The main risks in this area are, once again, funding but also a mismatch between equipment and personnel capable of using it.

Enhancing Benefits to Communities

227. The short-term actions associated with enhancing benefits to communities (see Table 8) have risks for policy design, implementation, and capacity. In the area of policy design, the main risk is that obligations of the various actors are so vague as to be unenforceable or, somewhat counterintuitively, so rigid that in many cases they cannot be implemented. There will usually need to be a built in flexibility that allows stakeholders to react to new opportunities as they unfold but at the same time has a monitoring mechanism to ensure that legitimate responsibilities are being met.

228. In sub-section 2.5 the inability (or unwillingness) of some companies to meet their obligations indicates that implementation will be a risk, particularly in the small mine sub-sector. There is also likely to be, at least for several years, shortages of local capacity to work in or provide goods and services to mining operations. In addition, there is a risk that employment in mines or contracts to service mines will be captured by elite groups. Similar risks, enhanced by the patrilineal nature of Sierra Leonean society, will be faced by activities whose primary goal is to increase women’s participation in decisions concerning the mineral sector.

229. Nevertheless, the greatest risk in this area is that the various levels of government lack the capacity to uphold their obligations. In such a situation, pressure will be placed on companies to provide services, infrastructure, and, ultimately, governance. Many will not be willing or able to do so, which could lead to conflicts. Even when companies do undertake the responsibilities of government, there are strong negative implications for long-term sustainable development.

230. The activities undertaken in the medium-term and long-term with respect to enhancing benefits to communities build upon short-term actions. The most important new actions are the move to a regional planning framework in areas of high mining activity and the creation of regional development funds to sustain public services and infrastructure after mine closure. The main risk in the former action is that too many obligations are put upon the mining companies. For the latter activity, there is clearly a risk that funds will be diverted to other areas, whether legally or not.

Effectively Incorporating the Artisanal Mining Sector in Reforms

231. The risks are higher for many of the actions in this category (see Table 8) than in the other two due to the difficulties associated with organizing the large number of
miners and the powerful interest groups that control the sector. Among the short-term actions, there is likely to be opposition from chiefs to any attempt to reduce their power with respect to granting licenses. Similarly, supporters and other middlemen are likely to resist efforts for them to report their activities and the artisanal miners they support. This is largely because their businesses thrive under lack of formality and control from the government. Also, they are likely to strongly resist any responsibility for the degradation caused by miners that they support. Supporters are likely to challenge this process, encouraging artisanal miners to resist any attempt by the government to register them. The government, therefore, would have to define an incentive package to persuade the artisanal miners that the advantages of registration outweigh its costs. In all cases, it will be important that other stakeholders are mobilized to get these policy changes through and ensure they are implemented.

232. While the undertaking of the various initiatives and training programs outlined in the short-term actions is not inherently risky, there is a danger that programs will not pay sufficient attention to low-cost replicability and, ultimately, have only small impacts. It is important that success of an innovation is not determined by its elegance but by its functional nature.

233. In medium-term and long-term actions, the greatest risks are associated with formalizing the activities of supporters and middlemen and reclamation. Supporters are very powerful individuals in Sierra Leonean society and any action that is likely to make their incomes more transparent — and, hence, more taxable — will be resisted. Even if policy measures are initiated, they could lead more to rent-seeking than actual enforcement. Accordingly, any policy and implementation plan will have to be well-designed.

234. The success of land reclamation by artisanal miners will hinge significantly on the success of other actions, such as creating an umbrella organization, organizing miners into cooperatives, formalizing supporters and strengthening land tenure rights. For some time, the most effective plan will likely be one that reduces the amount of damage done to the land by particularly harmful practices.

Building Support for and Legitimizing Mining Sector Reforms

235. In dealing with risk, the whole is often more than the sum of the parts when it comes to major economic reforms. This is likely the case for mineral sector reforms in Sierra Leone. Although each action carries its own level of risk, even apparently successful actions may become unhinged or lose their impact over time if the reforms as a whole are not successful. For the entire reform package to be successful, the reform process must be undertaken in a strategic manner. It is crucial to build support for reforms in the early stages and, not unrelated, for the reforms to be perceived as legitimate by all or most of the major stakeholders. In the case of a sector as crucial as mining is to Sierra Leone, this means that there must be widespread buy-in across society. It is as easy to envision scenarios where reforms are destroyed by powerful interests within the government in Freetown as by disgruntled youth in the provinces.
236. Many of the actions described in sub-sections 5.4 and 5.5 are precisely intended
to increase the legitimacy of reforms by paying special attention to groups such as
women, youth, and artisanal miners (diggers) who otherwise may be shunted aside or
ignored, and to the large mass of Sierra Leonean society that would benefit little if
mechanized mining activities are undertaken in an enclave style with no or few links to
the rest of the economy. In fact, much of the risk described above is related to: (i) the
ability of powerful interest groups to prevent, capture, or effectively inhibit
implementation of prescribed actions; and (ii) the inability or unwillingness of GOSL and
local governments to implement reforms that will spread the benefits of mining activities
throughout society.

237. Given the current situation in Sierra Leone, where the only truly dynamic sector
in the short- and medium-term is mining, the success of reforms has implications for the
entire society. In fact, it is highly likely that the vast majority of society would benefit
from reforms that lead to a big increase in large-scale activities, coupled with better
environmental practices in all mining sub-sectors and a strong emphasis on sustainable
local community and regional development. Even individuals like supporters, who
benefit strongly from the current situation, would likely find themselves significantly
better off in a vibrant Sierra Leonean economy with a great expansion of entrepreneurial
opportunities.

238. Nevertheless, there will be groups that fight explicitly or implicitly against
mineral sector reform, whether it is because they are not farsighted enough to see the
long-term benefits or they are pessimistic about its eventual outcome. It will be important
to prevent these groups from destroying the reforms through a combination of vigilance
and benefit sharing.

239. It is particularly important that the civil service, both at the central and local
levels, supports reforms or implementation of many actions, both those described above
and core policy changes. Consequently, it is crucial that civil servants see a relationship
between successful reforms and their own salaries and working conditions. Otherwise,
stronger policies and regulations may be seen just as an opportunity for rent-seeking. In
the absence of larger civil service reform, it could be critical to at least upgrade the
working conditions of civil servants in key areas of the reforms.

240. For supporters, middlemen, and other elite groups, it is important that they
become aware of the new opportunities that successful reforms would create. Even if they
dislike the greater transparency and more equitable distribution of benefits that reforms
envision, they will also be eager to provide goods and services to mining companies and,
hence, could be turned into strong supporters of, for example, tripartite negotiations.

241. In the short-term the average citizens of mining areas may be reasonably satisfied
with policy changes that lead to more consultation on events that affect their lives.
However, in the medium term it is crucial to the success of reforms that they begin to see

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28. In light of recent petroleum discoveries off the coast of Sierra Leone, mining may soon be joined by
its extractive industry cousin.
some of the benefits, whether through increased job and training opportunities, improvements in infrastructure and public services, or improvements in their natural environment. The greatest risk from these stakeholders is that they see mining companies as a type of de facto welfare state that provides them with a temporary increase in their standard of living. Such an outcome is more likely if the capacity of local governance is not improved over time. If the only significant beneficiaries from mechanized mining are the relatively small number of people who work in those mines, the reforms will soon lose legitimacy in the eyes of the general public.

242. In sum, when evaluating the success and risks of mining sector reforms, it is necessary to analyze individual actions. It is also important to keep an eye on the overall picture and analyze whether important interest groups (large or small) that could impede further progress or destroy what has been achieved, have been neglected. If that is the case, it will be important to make adjustments to the reform agenda.
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______ 2005. Environmental and Social Assessment for the Mining of Ore in Gendema, Bo District. Report prepared for Majestic Mining Co. Ltd. Sierra Leone: CEMMATS.

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29. The MMSD project is the Mining, Minerals and Sustainable Development Project, the largest study of the mining sector in history, undertaken under the auspices of the International Institute for Environment and Development and the World Business Council for Sustainable Development. Breaking New Ground, edited by Starke, was the central report of this research.


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Annex 1: Core Mineral Policy: Strategic Objectives

The strategic objectives of the Core Mineral Policy are summarized below (Government of Sierra Leone, 2004a:4).

1. Review and amend mining laws, regulations and associated laws to make them as attractive as possible for investment here rather than in neighboring countries with similar mineral potential.

2. Strengthen the institutions that administer, regulate and monitor the mineral industry in Sierra Leone to allow the mining industry, especially with respect to the diamond industry, to be turned around to become a positive for Sierra Leone.

3. Attract private investments into the minerals sector. Encourage private investment to use the implementation of the Kimberley Process as a positive at the forefront of selling diamonds for peace and development properly registered by the Kimberley Process.

4. Develop and strengthen human resources in the minerals sector.

5. Improve the regulation and efficiency of artisanal and small-scale mines.

6. Minimize and mitigate the adverse impact of mining operations on health, communities, and the environment.

7. Promote improved employment practices, encourage participation of women in the mineral sector, and prevent the employment of children in mines.

8. Ensure that Sierra Leone’s mineral wealth supports national economic and social development.

9. Add value to mineral products and facilitate trading opportunities for mined products.

10. Improve the welfare and benefits of the individuals and communities participating in and affected by mining.
Annex 2: Artisanal Mining and Its Associated Marketing Hierarchy

It is estimated that there are 200,000 to 300,000 artisanal miners in Sierra Leone. Artisanal mining operations are usually small-scale and carried out by miners with very little capital using rudimentary equipment. Mining and process recoveries are often low. Artisanal mining licenses are allocated by the chiefdom mining committee before being processed by the MMR. An artisanal mining license can be granted to an individual who is a citizen of Sierra Leone or to a cooperative registered in Sierra Leone under the Cooperatives Act Cap 253. A financier sponsoring an artisanal mining activity may be a licensed dealer or exporter. Heavy earth mining machines such as excavators and dredges cannot be employed in artisanal mining licensed areas and pit depths must target alluvial deposits only and not kimberlite deposits. The area covered by an artisanal mining license cannot exceed 5 acres.

ASM often provides the only source of income for a miner and his or her dependents. Therefore, ASM activities are not likely to disappear naturally unless more attractive alternative employment options are created.

Support System for Artisanal Mining

Understanding the chain of hierarchy and relations among different players in ASM is necessary to address the myriad problems of the sector and have a complete perspective on the likely divergence of responses to sector reform within this stakeholder group. Many license holders do not even have enough money to purchase a license and they receive up-front funds from their supporters. Supporters are also needed for capital equipment costs. License holders are notionally in charge of the diamond plot, supervise the mining, and pay the diggers. They sell to dealers who are normally businessmen or women in surrounding communities. In most cases the dealer is also the supporter. The hierarchy of marketing is illustrated below.

Diggers

Many diggers are migrants. Their compensation varies, with most arrangements calling for diggers to share in revenue from the collected gems. Some receive daily allowances plus food that may or may not be deducted from their share of revenue. A more recent practice is the payment of fixed daily wages to miners, irrespective of production levels.

Supporters and Dealers

Supporters are the financial backers for most artisanal diamond mining. They are generally businessmen living in the diamond mining areas, and the vast majority of them are also dealers. In most cases, there are no legal agreements defining the conditions of supporter’s investment; however the license holder has an informal obligation to sell his diamonds to his supporter. Miners are heavily dependent on financial supporters. In return, the supporters, generally closely tied to the domestic diamond-buying cartel, assume de facto control of a “supported” miner’s mineral output. Dealers possess the first real expertise in valuation in the diamond chain, allowing them to set the prices for gems,
while in turn demanding a reasonable market price from the exporter. As noted earlier, dealers who are also supporters influence or control the license holders. The main players in this support system are the Lebanese and Marakas.

The Lebanese have played a major role in the Sierra Leone diamond mining sector since the introduction of the Alluvial Diamond Mining Scheme (ADMS) in 1956. Sierra Leone diamonds were used to support various factions in the Lebanese civil war from the late 1970s to the early 1990s. Various Lebanese militia sought financial assistance from their compatriots in Sierra Leone, and the country’s diamonds became an important tax base for different factions.

Apart from the Lebanese, the other main category of diamond traders and exporters are West Africans known as Marakas. They are usually foreigners in the countries where they trade and include Guineans, Gambians, Mauritanians, Malians, and Senegalese from a variety of ethnic groups. The Marakas are mainly active at the lower and middle end of the diamond trade and many of them are supporters. They buy diamonds from miners in the bush and small towns and sell them to exporters in large cities.

Supporters and dealers to a large extent ensure that they gain out of this exploitative system. They would welcome any changes that will lead to increased efficiency in mining and processing. They are, however, likely to be loathe to schemes that will empower miners or improve miners' livelihoods at their expense. More unsavory dealers and supporters involved in diamond smuggling may not welcome any improvement in transparency or changes in the current system.

Exporters
A few diamond exporters take their product to the Government Diamond Office for valuation before selling them abroad. Their operations are based on keeping to government regulations relating to the export of diamonds, with international certification being crucial. Exporters take very little risk. They would, however, be worried about any schemes that would increase their operating costs. Also, they are bound to be resistant to any profound changes in the marketing system.
Annex 3: Stakeholder Prioritization in Regional Workshops

Southern Province
In Southern Province, a consensus-based approach was used to prioritize issues. Approximately 60 stakeholders were asked to rank issues based on their perceived importance, but this did not work very well. There was almost always some group (or even individual) who thought that an issue was very important, thus most issues were ranked very high. Consequently, it was necessary to rely significantly on the discussion to identify key issues.

Issues concerning land were the most important topics in the vocal morning discussion, which had widespread participation. This is likely because: (i) the mine uses a lot of land, (ii) the previous owners believe that the company has the resources to make proper compensation, and (iii) the community believes that the company has the ability and obligation to reclaim land where mining is completed. Hence, the main priorities were better compensation for land and tree crops, better relocation with more participation, and land reclamation. Concerns were raised on the techniques used to extract minerals. Currently, areas are flooded and the soil is dredged at the time of mining, leaving large quantity of contaminated water when mining is completed. It is interesting to note that on-going environmental damage was not perceived as a major problem as long as lands would be reclaimed after mining completion. Benefits to the community from mining were also considered high priority. It was believed that more local people should be hired (and trained if necessary) to work in the mine. The company should also provide more infrastructure to the community, especially paved roads and electricity. Health facilities and schools were also mentioned. One consultant mentioned that in most large mines, a lot more employment is usually generated through outsourcing by the mining company rather than direct employment and this is something that the community might want to focus on. Many of the participants were intrigued by this point but seemed unaware of the magnitude of outsourcing that generally takes place.

Priorities from Southern Province include:

1. Land and crop compensation;
2. Relocation;
3. Land reclamation;
4. Mine employment; and
5. Provision of infrastructure (especially paved roads and electricity).

Western Province
In the three other provinces the stakeholder ranking process was much more successful. In each province stakeholders ranked both “horizontally” across each issue and “vertically”. In the horizontal ranking, each participant was asked to rank issues using scores 1 (high priority), 2 (medium priority), 3 (low priority) and 4 (not applicable or no risk) on three variables — health and environmental risk, sociocultural risk, and the
number of people affected. Then the scores of all participants were added. The issues with the lowest score were considered to be the highest priorities. In the vertical ranking, each stakeholder chose their top five priorities. Each time an issue was included in someone’s top five ranking, it received one point. The priorities were then ranked based on the number of points, with the highest being the highest priority.

<table>
<thead>
<tr>
<th>Table A3.1: Stakeholder prioritization in the Western Province</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issue</td>
</tr>
<tr>
<td>-------------------------------</td>
</tr>
<tr>
<td>Deforestation</td>
</tr>
<tr>
<td>Water pollution</td>
</tr>
<tr>
<td>Child labor</td>
</tr>
<tr>
<td>Sanitation</td>
</tr>
<tr>
<td>Soil degradation</td>
</tr>
<tr>
<td>Air pollution</td>
</tr>
<tr>
<td>Land tenure system</td>
</tr>
<tr>
<td>Post-closure reclamation</td>
</tr>
<tr>
<td>Competing land uses</td>
</tr>
<tr>
<td>EA procedures</td>
</tr>
<tr>
<td>Village relocation</td>
</tr>
<tr>
<td>Land and crop compensation</td>
</tr>
<tr>
<td>Environmental data</td>
</tr>
<tr>
<td>Community development</td>
</tr>
<tr>
<td>Alternative jobs for artisanal miners</td>
</tr>
<tr>
<td>Local government participation</td>
</tr>
<tr>
<td>National economic contribution</td>
</tr>
<tr>
<td>Maximizing benefits to artisanal miners</td>
</tr>
<tr>
<td>Local services and infrastructure</td>
</tr>
<tr>
<td>Long-term sustainable development</td>
</tr>
<tr>
<td>Surface rents</td>
</tr>
<tr>
<td>Mining tax distribution</td>
</tr>
</tbody>
</table>

In the horizontal ranking, clearly environmental issues dominated, with all forms of pollution scoring very high. However, when issues were compared against one another in vertical ranking, the community compensation and development issues dominated.
(including sustainable development), with two environmental issues — sanitation and the related water pollution — still scoring very high. Based on the results and discussion during the workshop, the following elements appear to be top priorities for the stakeholders from the Western Province:

1. Sanitation and water pollution;
2. Village relocation and land and crop compensation;
3. Community development and participation; and
4. Deforestation and soil degradation.

**Eastern Province**
The only significant difference in the ranking process between this workshop and the one in Western Province is that the prioritization was done by sub-group consensus in Eastern Province. The stakeholders were divided into the following groups to undertake the ranking: NGOs, civil servants, vulnerable people (representatives of women and children), local authorities, miners and mining companies, and youth (ages 15 to 30).

The priority issues identified by the stakeholders of the Eastern Province are similar to those of the Western Province, with environmental issues dominating in the horizontal ranking but a mix of community development and environmental issues prioritized at the top of the vertical ranking. Two other issues were found quite important in the Eastern Province, blasting effects and child labor. Because most mining in this area is ASM, child labor remains a problem. It is also interesting to note that community development was not ranked as high as in the first two regions, likely because little is expected from the ASM for direct benefit to the community. Overall, the priority issues identified by stakeholders in the Eastern Province are:

1. Water pollution (with sanitation also being important, albeit less so);
2. Blasting effects;
3. Land and crop compensation and village relocation;
4. Child labor; and
5. Deforestation and soil degradation.

**Northern Province**
The Northern Province followed the same process as the Eastern Province. The results are similar to the other provinces but there are some notable differences. Child labor was the top priority in both horizontal and vertical rankings. Environmental issues remain high in the rankings, but community issues are no longer in the top ranked issues except land compensation. The environmental and socioeconomic effects of in-migration of artisanal miners were considered high priority in the horizontal ranking. Assuming that the effects of in-migration are captured in the other issues and given that it did not receive any votes in the vertical ranking, we do not include it explicitly as one of the priority items.
Table A3.2: Stakeholder prioritization in the Eastern Province

<table>
<thead>
<tr>
<th>Issue</th>
<th>Horizontal ranking</th>
<th>Score</th>
<th>Vertical ranking</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local participation</td>
<td>1</td>
<td>16</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Water pollution</td>
<td>2</td>
<td>18</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Blasting effects</td>
<td>2</td>
<td>18</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Child labor</td>
<td>2</td>
<td>18</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Deforestation</td>
<td>2</td>
<td>18</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Soil degradation</td>
<td>2</td>
<td>18</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Air pollution</td>
<td>2</td>
<td>18</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Sanitation</td>
<td>8</td>
<td>19</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Mining tax distribution</td>
<td>8</td>
<td>19</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Long-term sustainable development</td>
<td>8</td>
<td>19</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Surface rents</td>
<td>8</td>
<td>19</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Village relocation</td>
<td>12</td>
<td>21</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Tailings disposal</td>
<td>12</td>
<td>21</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Maximizing benefits to artisanal miners</td>
<td>12</td>
<td>21</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Environmental data</td>
<td>15</td>
<td>22</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Land tenure system</td>
<td>16</td>
<td>24</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Land and crop compensation</td>
<td>17</td>
<td>25</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Post-closure Reclamation</td>
<td>17</td>
<td>25</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Local services and infrastructure</td>
<td>19</td>
<td>26</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>National economic contribution</td>
<td>19</td>
<td>26</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Community development</td>
<td>21</td>
<td>27</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Competing land uses</td>
<td>22</td>
<td>28</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Alternative jobs for artisanal miners</td>
<td>22</td>
<td>28</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Environmental assessment procedures</td>
<td>24</td>
<td>29</td>
<td>12</td>
<td>0</td>
</tr>
</tbody>
</table>

Overall, the prioritization for the consulted stakeholders in the Northern Province is:

1. Child labor;
2. Water pollution and sanitation;
3. Deforestation and soil degradation;
4. Land and crop compensation; and
5. Post-closure reclamation.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Horizontal Ranking</th>
<th>Score</th>
<th>Vertical Ranking</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child labor</td>
<td>1</td>
<td>19</td>
<td>1</td>
<td>6</td>
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<tr>
<td>In-migration implications</td>
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<td>19</td>
<td>14</td>
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<tr>
<td>Deforestation</td>
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<td>Water pollution</td>
<td>4</td>
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</tr>
<tr>
<td>Village relocation</td>
<td>5</td>
<td>23</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>Tailings disposal</td>
<td>5</td>
<td>23</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>Soil degradation</td>
<td>7</td>
<td>24</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Sanitation</td>
<td>7</td>
<td>24</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Surface rents</td>
<td>9</td>
<td>25</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>Post-closure reclamation</td>
<td>10</td>
<td>26</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>National economic contribution</td>
<td>11</td>
<td>27</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>Resuscitating old mines</td>
<td>12</td>
<td>28</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Community development</td>
<td>12</td>
<td>28</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Alternative jobs for artisanal miners</td>
<td>14</td>
<td>29</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Maximizing benefits to artisanal miners</td>
<td>14</td>
<td>29</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>Land and crop compensation</td>
<td>16</td>
<td>30</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Mining tax distribution</td>
<td>16</td>
<td>30</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>Local participation</td>
<td>18</td>
<td>31</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>Local services and infrastructure</td>
<td>19</td>
<td>32</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Air pollution</td>
<td>19</td>
<td>32</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Environmental assessment procedures</td>
<td>21</td>
<td>33</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Competing land uses</td>
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<td>14</td>
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<tr>
<td>Long-term sustainable development</td>
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<td>35</td>
<td>14</td>
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</tr>
<tr>
<td>Land tenure system</td>
<td>23</td>
<td>35</td>
<td>14</td>
<td>0</td>
</tr>
</tbody>
</table>

**Political Will to Resolve Issues**

Participants were also asked to rate the political will to resolve the various issues. They thought that there was very little political will to resolve most of the issues, although responses probably took into account implementation capacity. Table A3.4 gives the summary of political will across the four regions for the high priority issues. High,
medium, and low political will are scored 1, 2, and 3 respectively. The lower score corresponds to the higher political will as perceived by stakeholders. Political will to resolve priority issues is perceived low except for child labor. The result suggests that there are important political, political economy, and capacity constraints that stakeholders feel will make resolution of the priority issues very difficult.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Average score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land and crop compensation</td>
<td>2.3</td>
</tr>
<tr>
<td>Village relocation</td>
<td>2.4</td>
</tr>
<tr>
<td>Sanitation</td>
<td>2.5</td>
</tr>
<tr>
<td>Water pollution</td>
<td>2.5</td>
</tr>
<tr>
<td>Deforestation</td>
<td>2.2</td>
</tr>
<tr>
<td>Soil degradation</td>
<td>2.6</td>
</tr>
<tr>
<td>Child labor</td>
<td>1.7</td>
</tr>
<tr>
<td>Post-closure reclamation</td>
<td>2.4</td>
</tr>
<tr>
<td>Economic and community development</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**Expected Remediation/Implementation Costs**

Stakeholders were also asked to rank the expected remediation or implementation costs to resolve the issues from 1 to 3. The lower score corresponds to the higher costs as perceived by stakeholders. The result shows stakeholders feel that reform is very costly.

The high expected costs for all issues gives support to the conjecture made above that one of the reasons that political will is generally expected to be low is due to the lack of capacity to tackle the problem.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Average Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land and crop compensation</td>
<td>1.4</td>
</tr>
<tr>
<td>Village relocation</td>
<td>1.4</td>
</tr>
<tr>
<td>Sanitation</td>
<td>1.5</td>
</tr>
<tr>
<td>Water pollution</td>
<td>1.3</td>
</tr>
<tr>
<td>Deforestation</td>
<td>1.5</td>
</tr>
<tr>
<td>Soil degradation</td>
<td>1.4</td>
</tr>
<tr>
<td>Child labor</td>
<td>1.3</td>
</tr>
<tr>
<td>Post-closure reclamation</td>
<td>1.4</td>
</tr>
<tr>
<td>Economic and community development</td>
<td>1.4</td>
</tr>
</tbody>
</table>
Annex 4: Questionnaire for Stakeholders’ Workshop in Southern Province (Large-Scale Mining Area)

Social Issues Relating to the Mining Industry

Issue 1 — Loss of land used for agricultural and other purposes to mining activity
Under what conditions are communities willing to give up agricultural land and what alternative livelihood arrangements would be suitable for them?

Issue 2 — Surface rent payments for mining land
What are your views on the adequacy of surface rent payments and their distribution? If there are any perceived problems, what are your suggestions for a solution?

Issue 3 — Relocation of villages
Mining companies often require villagers/communities to be relocated. How willing are you to relocate from your village if required by mining activities. What issues in your opinion should be addressed to make relocation acceptable?

Sub-issues/associated questions — Should companies build houses at new settlements or do you prefer other options?

Issue 4 — Compensation payment and method
What factors do you think companies should use to determine the level of compensation for crops destroyed due to mining activities and the amount of compensation farmers receive for crops lost due to mining activities? Do you think this is adequate?

Issue 5 — Economic and community development issues
To what extent do you think your communities have benefited from infrastructural, economic, and community development due to mining activities?

Issue 6 — Contribution of mining to national economy
Is the contribution to the national economy more important than community development? What recommendations would you give so that mineral wealth contributes meaningfully to the national economy as well as promotes community development?

Issue 7 — Health and environmental sanitation problems
What are the major sanitation problems in mining communities in your area? How should these problems be addressed?

Issue 8 — Increase in crime rate
What are the common crimes in your communities? Do you attribute these to the influx of strangers? How are these crime issues being addressed in your area?

Issue 9 — Issues related to safety and accidents
Considering that some mining methods like dredging may have a considerable negative impact on the environment, should certain methods be prohibited even if others could not be economically justified? How often do you see accidents at mining companies? Are
employees encouraged to use safety equipments? Is there any increase in road accidents since mining operations started in this area?

**Environmental Issues Relating to the Mining Industry**

**Issue 10 — Dredging and pond creation as a mining method**
Is dredging with large ponds the only mining method that is economically feasible? If it is, what likely actions should be taken to minimize its effect on communities?

*Sub-issues/associated questions* — Why not small pond mining? How have past initiatives on the use of ponds after mining worked? What alternatives are provided for transportation?

**Issue 11 — Surface and groundwater pollution from mining activities**
What are the effects of mining on surface and groundwater quality and quantity for water uses and drinking purposes? How could pollution be avoided or remedied?

**Issue 12 — Availability of water due to changes in surface and groundwater elevations**
What are the effects of dredging and can they be avoided or minimized?

*Sub-issues/associated questions* — If not possible, can alternative arrangements be made for water supply?

**Issue 13 — Soil degradation due to erosion, nutrient leaching, and changes in physical quality of the soil**
Does the dredging process cause erosion in neighboring areas and affect the quality of the soil? How can this be avoided or minimized?

*Sub-issues/associated questions* — Precautions taken to avoid flooding should be pursued.

**Issue 14 — Deforestation**
How has this affected your livelihood in terms of logging, hunting, loss of biodiversity (loss of plants and animal), and ecotourism?

**Issue 15 — Effects of radiation from natural radioactive sources and radioactive tailings from mineral processing**
Have your communities experienced any abnormalities that could be associated with impact of radiation from natural radioactivity?

**Issue 16 — Effect on air quality**
To what extent have you been affected by air contaminants from particulate matter and exhaust gases in your surrounding atmosphere? How do you think this problem can be minimized?

**Issue 17 — Environmental and ecological effect of the discharge of chemical-laden tailings from mineral processing**
Have there been any observed effects that could be related to the contamination of soil and water due to the discharge of chemical-laden tailings?
Issue 18 — Post closure state of mining area
What are your expectations about the post-closure state of the parts of your community that are being mined? How do you think this can be done? What do you think should be the commitments to achieve this by miners and governments?
## Annex 5: Policies, Legislation, Responsibilities, and Governance in Sierra Leone in the Priority Areas

Table A5.1: Policies, legislation, responsibilities, and governance in the priority areas

<table>
<thead>
<tr>
<th>Priority area</th>
<th>Most important policies, legislation</th>
<th>Responsibilities for implementation</th>
<th>Overall governance</th>
<th>Type of mining</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land and crop compensation</td>
<td>Lands Policy, Lands Act, 1996 Mines and Minerals Act (MMA), 2004 Local Govt. Act</td>
<td>MMR, MLCP, MLGCD, MAFS</td>
<td>MMR</td>
<td>Crop compensation more applicable to LSM</td>
</tr>
<tr>
<td>Relocation</td>
<td>1996 MMA, Lands Act, Lands Policy, 2000 Environmental Protection Act (EPA)</td>
<td>MMR, MLCP, NaCEF, MLGCD, MWHTM</td>
<td>MMR</td>
<td>More applicable to LSM and to a lesser extent SSM</td>
</tr>
<tr>
<td>Land reclamation</td>
<td>1996 MMA, 2000 EPA</td>
<td>MMR, NaCEF, MAFS</td>
<td>MMR</td>
<td>More applicable to LSM</td>
</tr>
<tr>
<td>Mine employment</td>
<td>1996 MMA, Work permit and other labor regulations</td>
<td>MMR, MLIRSS</td>
<td>MMR</td>
<td>More applicable to LSM and SSM</td>
</tr>
<tr>
<td>Provision of infrastructure</td>
<td>1996 MMA, 2000 EPA</td>
<td>MMR, NaCEF, MWHTM</td>
<td>MMR</td>
<td>More applicable to LSM and SSM</td>
</tr>
<tr>
<td>Blasting effects</td>
<td>1996 MMA, 2000 EPA</td>
<td>MMR, NaCEF, MWHTM</td>
<td>MMR</td>
<td>Specific to one mining company, Koidu Holdings</td>
</tr>
<tr>
<td>Child labor</td>
<td>1996 MMA, Child Rights Act, Child Rights Policy</td>
<td>MLIRSS, MSWGCA</td>
<td>MMR, MLIRSS, MSWGCA</td>
<td>More applicable to ASM</td>
</tr>
<tr>
<td>Deforestation and soil degradation</td>
<td>1996 MMA, 2000 EPA, National Agriculture Policy, Lands Act, Lands Policy</td>
<td>MMR, NaCEF, MAFS, MLCP</td>
<td>MMR</td>
<td>More applicable to ASM</td>
</tr>
<tr>
<td>Sanitation and water pollution</td>
<td>1996 MMA, 2000 EPA, National Health Policy, Sierra Leone Water Company Act</td>
<td>MMR, NaCEF, MHS, MEP</td>
<td>MMR, MHS, MEP</td>
<td>More applicable to LSM and SSM</td>
</tr>
<tr>
<td>Community development and participation</td>
<td>1996 MMA, 2000 EPA, 2004 Local Govt. Act</td>
<td>MMR, NaCEF, MLGCD</td>
<td>MMR, MLGCD</td>
<td>More applicable to LSM and SSM</td>
</tr>
<tr>
<td>Post-closure reclamation</td>
<td>1996 MMA, 2000 EPA</td>
<td>MMR, NaCEF, MAFS, MLGCD</td>
<td>MMR, NaCEF</td>
<td>More applicable to LSM</td>
</tr>
</tbody>
</table>

Source: Compiled by CEMMATS
Annex 6: Devolution Plan Template for Ministries, Departments, and Agencies

Important functions that are scheduled to be devolved to lower levels of governments (Government of Sierra Leone, 2004c).

Ministry of Health and Sanitation
- Public health information, education, and communication
- Environmental health care
- Primary health care
- Secondary health care

Ministry of Internal affairs
- Child welfare
- Community-based organizations
- Gender issues

Sierra Leone Roads Authority
- Maintenance of primary feeder roads
- Maintenance of chiefdom roads/tracks

Ministry of Mineral Resources
- Establishment and management of community development fund
- Coordination of mining licenses
- Rehabilitation of mined-out areas

Ministry of Youths and Sports
- Youth affairs
- Local sports
- Waste management

Ministry of Lands and, Country Planning and the Environment
- Land surveying
- Land registration and control of illegal sale of land
- Land use plans and strategic local plans
- Issuance of building permits
- Sand dunes
- Education and sensitization on environmental issues

Ministry of Education
- District education schools
- Primary to mid-secondary schools (JSSIII)
- School supervision
- Government libraries

**Ministry of Tourism and Culture**
- Cultural villages

**Ministry of Energy and Power**
- Urban water supply
- Peri-urban water supply
- Rural water supply

**Ministry of Labor, Social Security and Industrial Relations**
- Main power planning
- Enterprise development
- Trust fund-based and safety net schemes

**Ministry of Development and Economic Planning**
- Local level planning

**Ministry of Agriculture, Forestry and Food Security**

**Forestry Division**
- Conservation of national forests
- Community forest woodlots
- Environment
- Forest utilization
- Sensitization campaign for forest conservation
- Energy conservation
- Wildlife conservation

**Crop Division**

*Main functions*
- Extension service
- Plantation development and maintenance
- Vegetable production
- Farmers training

**Land and Water Division**

*Main functions*
- Small-scale swamp development
Ministry of Local Government and Community Development

Main functions
- Community development
Annex 7: Donors and International Initiatives

Department of International Development (DFID)
Donor activity in the diamond sector is led by the Department for International Development (DFID) of the United Kingdom and the United States Agency for International Development (USAID). DFID first became involved in the sector in 2001 and provided an advisor to the Office of the President in 2002. The DFID assistance program that was developed in 2004 provides support for policy development, law reform, and the development of a mining cadastre system in cooperation with the United Nations Development Program (UNDP) and the Sierra Leone Ministry of Mineral Resources. Support is also being provided to the United Mineworkers Union and the Gold and Diamond Office (GDD).

In April 2006, the President of Sierra Leone wrote to the British Secretary of State for International Development, expressing interest in Sierra Leone becoming an implementing member of the Extractive Industries Transparency Initiative (EITI). The implementation requires regular publication of all material oil, gas, and mining payments by companies to governments and all material revenues received by governments from oil, gas, and mining companies to a wide audience in a publicly accessible, comprehensive, and comprehensible manner. The implementation of EITI in Sierra Leone will require significant changes in the level of transparency both for the Government and private companies, and a large capacity-building effort to support the initiative. The GOSL has nominated the Minister of Presidential Affairs as the EITI champion, and an EITI training event was held in Freetown in late 2006.

United States Agency For International Development (USAID)
The USAID program of assistance dates back to 1999 and the Lome Peace Accord, which recognized that diamonds were being used to fund the war. The early work of USAID supported the development of the Kimberley Process and more recently the creation of the Kono Peace Diamond Alliance (PDA), which originated as a directive of the President of Sierra Leone in the summer 2003. USAID has provided resources to the PDA to assist in the implementation of its broad objectives:

- Promoting transparent, fair, and safe local markets in the diamond sector;
- Maximizing benefits to local miners, diggers, and their communities;
- Tracking diamonds from earth to export to facilitate compliance with the Kimberley process;
- Combating corruption by normalizing and rationalizing the market and associated mineral policy; and
- Facilitating and improving effectiveness of local surveillance and mine monitoring.
Additional support to PDA is being provided through DFID by assisting the GOSL with national policy to improve diamond management. The program supported by PDA involves a wide range of stakeholders in the sector including diggers, license holders, dealers, exporters, the chiefdoms, government officials, local NGOs, and the community at large.

PDA has recently invested significant time and resources toward formation of cooperatives. The program has not yet resulted in marked production increases for miners associated with the scheme due to several uncertainties, including the ore grade. However, there have been notable improvements in some areas, which could be replicated. These include:

- Better promotion of fair-trade diamonds;
- Training of miners and diggers on the value of their production;
- Improved combating of corruption issues in the sector;
- Attempts at improving the availability of technical and geological information and improved environmental management; and
- Sustaining the PDA as a vehicle for positive development in Sierra Leone.

Levin (2005:136) reports that one challenge confronting the PDA is to assimilate the Lebanese traders and migrants from other countries in the region: “Space has been made for the Lebanese and ECOWAS communities in the PDA, but their level of participation has been low and the Lebanese dealers’ opinions of the Alliance, as they expressed them to me, betray a deep-founded mistrust and resentment towards it. It may be advisable for the Alliance to attempt to nurture more constructive and trustful relations with these communities in order to assuage potentially volatile situations in the future. This would encourage them to bring their interests to the table, to participate more eagerly in the PDA, and may increase transparency in the industry more generally.”

World Bank

The World Bank has supported many programs in the sector, including the Core Minerals Policy. Currently, the World Bank, UNDP, and DFID are working with the government to pilot and later implement a cadastre system to help better demarcate licensed mining plots. The database for the cadastre system could easily include relevant information on the licensing process related to conforming to management conditions and environmental requirements. The database could facilitate information sharing between local government and the MMR.

Global Witness and the Kimberley Process

The role of NGOs — in particular the UK-based Global Witness — in bringing attention to the problems associated with the mining and trading of diamonds and the use of diamonds in financing the war created pressure for change. The diamond industry responded quickly by forming the World Diamond Council, which united all major trade
associations and companies. In addition, the industry realized that it would need the leadership and support of national governments and the United Nations in order to put in place procedures and legislation for monitoring diamond imports and exports. A series of international meetings was initiated, with the first in South Africa in May 2000. The series of meetings culminated in the Kimberley Process Certification Scheme being designed, implemented and endorsed by the United Nations General Assembly. The scheme is aimed at ensuring that “conflict diamonds” could no longer enter the legitimate diamond trade. The possibility that diamonds may have been used to finance terrorist activities, including the attacks on the World Trade Center in 2001 in New York, added to the sense of urgency for those involved in the process.
Annex 8: NGOs Involved with the Mining Sector in Sierra Leone

Campaign for Good Governance (CGG)  
http://www.slcgg.org/

The Campaign for Good Governance (CGG) is an NGO established in 1996 with the following objectives:

- To assist in the strengthening of democratic institutions in and out of government;
- To conduct civic education campaigns on human rights, peace building and reconciliation, democracy, and good governance working with various local civil groups with the same objectives;
- To strengthen the capacity of various civic groups to enable them to constructively and genuinely participate in the governance of their country; and
- To promote a spirit of tolerance, peace and reconciliation in a multi-party democracy.

CGG exists to increase citizen participation in governance through advocacy, capacity building, and civic education in order to build a more informed civil populace and a democratic state. It has undertaken a considerable amount of advocacy work related to the mining sector, especially in areas related to improving benefits to mining communities and the country.

Network Movement For Justice and Development (NMJD)  
http://www.nmjd.org

The Network Movement for Justice and Development (NMJD) was established in 1988 as a national civil society organization. NMJD engages in advocacy work to strengthen the capacity of civil society organizations to effectively engage women, men, children, communities, government, and other actors for the transformation of society. Its key activities in the mining and extractives industries are:

- Facilitate information sharing on revenues, laws, and mining practices;
- Carry out audit of the Diamond Area Community Development Fund with the communities;
- Engage in advocacy and lobbying at chiefdom level and facilitate the strengthening of community committees;
- Train communities in leadership, lobbying and advocacy, mining laws, and policy for them to be effective in their work;
- Provide technical and financial support to strengthen the capacity of committees; and
- Engage in policy dialogue with the senior officials of the MMR on mining issues.
NMJD is affiliated with Partnership Africa Canada (PAC), with whom they jointly produce the Annual Review for the Sierra Leone Mining Sector. NMJD is by far the most vociferous of the local NGOs in the mining sector and has been particularly effective in drawing attention of the national and international media and international organizations to the inequities in the sector and the perceived excesses of mining companies.

Green Scenery

http://www.greenscenery.org/

Green Scenery was founded in 1989 as a voluntary organization by a small group of teachers. Its vision is “to have an empowered and nationalistic Sierra Leonean people, working towards peace and development, with equitable access to the country’s resources, equal access to facilities and opportunities, and upholding respect for human dignity.” It works on advocacy for policy change, training, and community empowerment initiatives and promoting the rights and interests of disadvantaged people. It uses various approaches to ensure that communities are empowered to undertake their own conservation, protection, and rehabilitation practices. Green Scenery has been particularly active in the mining sector.

National Advocacy Coalition for Extractives (NACE)

The National Advocacy Coalition on Extractives (NACE) is a broader and more inclusive civil society coalition that replaced the Diamond Area Community Development Fund (DACDF) initiative undertaken by NGOs. The DACDF initiative took a portion of the diamond export fees and distributed them to chiefdoms in proportion to the licenses issued to be used for community development purposes. NACE provides a more solid platform for policy engagement by including several government institutions like MMR, MLGCD, and the Anti-Corruption Commission (ACC). While ensuring that the proper, transparent, accountable, and beneficial use of DACDF was the initial objective of NACE, it has evolved into a unique space for direct bilateral engagement between government and civil society. Corporate entities can also participate in this process.
Annex 9: Key Questions for the Political Economy Analysis

The following factors were among those that the political economy analysis of the Sierra Leone mining sector took into account:

1. In what context will the reforms take place? What are the special characteristics of the polity and society in Sierra Leone that are likely to have repercussions on the design and implementation of mining policy reforms?

2. Who are the main “winners” and “losers” of the current mining policy and the manner in which it is implemented?

3. Who are likely to be the main beneficiaries (winners) of successful reforms? How are they organized both within and across groups? How much influence will they have in the design, launching, and implementation of the reforms?

4. Who are likely to bear most of the costs of successful reforms (the losers)? How are they organized both within and across groups? How much influence will they have in the design, launching, and implementation of the reforms?

5. Is there a viable way of compensating the likely losers so that they do not oppose or sabotage the reforms?

6. Are there stakeholders that will likely lose from the reforms in the short-run but gain in the long-run or medium-run? Will they be able and willing to wait to receive their share of the benefits? Are there any mechanisms or adaptations to the reforms to prevent them from opposing the reforms at an early stage? Is there an optimal “sequencing” of the elements of the reforms to increase the probability of success?

7. Are there stakeholders that would have a strong incentive and ability to capture the reforms; that is, can they influence design, content, and implementation in a manner that any benefits from the reforms will accrue mostly to them and the costs to other groups?

8. Will the reforms be seen as legitimate by the various stakeholders? How can this legitimacy be enhanced and, thus, make the reforms sustainable?

9. Even without significant opposition, will the government be able to effectively implement the reforms? Will it depend significantly on cooperation from other stakeholder groups and are they likely to provide it? Are the institutions charged with undertaking and monitoring the reform process functional?

10. Are complementary reforms in other sectors needed to make the reforms functional?
Annex 10: Institutions for Social and Environmental Management of the Mining Sector — International Experience and Good Practice

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30. The paper in this annex was prepared by Gary McMahon as a background paper for this SESA.
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<tr>
<td>ASM</td>
<td>Artisanal and Small-Scale Mining</td>
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<tr>
<td>CSDP</td>
<td>Community Sustainable Development Plan</td>
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<tr>
<td>DFID</td>
<td>Department For International Development (United Kingdom)</td>
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<td>DSRP</td>
<td>Diamond Sector Reform Programme</td>
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<td>EA</td>
<td>Environmental Assessment</td>
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<td>EFA</td>
<td>Effective Financial Assurance</td>
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<tr>
<td>EIA</td>
<td>Environmental Impact Assessment</td>
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<tr>
<td>EMP</td>
<td>Environmental Management Plan</td>
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<tr>
<td>GAMA</td>
<td>Environmental Management in Artisanal Mining (Gestión Ambiental en la Minería Artisanal) (Peru)</td>
</tr>
<tr>
<td>GBC</td>
<td>Global Business Coalition</td>
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<tr>
<td>ICMM</td>
<td>International Council on Mining and Metals</td>
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<td>IFC</td>
<td>International Finance Corporation</td>
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<td>IIED</td>
<td>International Institute for Environment and Development</td>
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<td>ILO</td>
<td>International Labor Organization</td>
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<tr>
<td>MMSD</td>
<td>Mining, Minerals and Sustainable Development Project</td>
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<tr>
<td>NANA</td>
<td>Northwest Alaska Native Association Regional Corporation</td>
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<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
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<tr>
<td>PNG</td>
<td>Papua New Guinea</td>
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<tr>
<td>SADC</td>
<td>Southern African Development Community</td>
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<tr>
<td>SEIS</td>
<td>Social and Economic Impact Statement (PNG)</td>
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<tr>
<td>SIA</td>
<td>Social Impact Assessment</td>
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<tr>
<td>SMC</td>
<td>Shamva Mining Centre</td>
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<tr>
<td>SSMAZ</td>
<td>Small-Scale Miners’ Association of Zimbabwe</td>
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<tr>
<td>TRAC</td>
<td>Transfer Risk and Accelerate Closure</td>
</tr>
<tr>
<td>UNCTAD</td>
<td>United Nations Commission on Trade and Development</td>
</tr>
<tr>
<td>UNDP-ESA</td>
<td>United Nations Department of Economic and Social Affairs</td>
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<tr>
<td>UNEP</td>
<td>United Nations Environment Program</td>
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<tr>
<td>UNIDO</td>
<td>United Nations Industrial Development Organization</td>
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I. Introduction

If the institutions for environmental and social management in the mining sector are weak, changes in mining policies and regulations by themselves may have little impact. Institutions can be deficient due to poor or inappropriate design, poor interaction or communication across institutions — including formal and informal ones — missing institutions, or a lack of capacity. For example, if environmental management by the government is based on regulations developed in a country like Canada, calling for a large cadre of highly trained scientists to monitor mining behavior, the result in a country like Sierra Leone is highly predictable (inappropriate design). Additionally, if formal sector institutions do not take into account the way in which artisanal miners operate and are organized, including their links to local communities, both environmental and social management of the sector are highly likely to be inadequate (poor interaction). Similarly, if the absence of sector-specific dispute resolution mechanisms means that conflicts are resolved by litigation, this may mean that vulnerable stakeholders have little or no protection from mining practices that impinge on their lives and livelihoods (missing institutions). Finally, there must be some minimum level of technical capabilities to be able to monitor and evaluate the extent of environmental and social problems (lack of capacity).

In this report we will examine good international practices that have addressed institutional weaknesses in environmental and social management of the mining sector that are relevant to the Sierra Leonian context. We will continue by briefly outlining the main institutional challenges that the country faces, with special emphasis on the problems prioritized by stakeholders in the previous stage of this work. These challenges are divided into three groups for discussion of the international experience, including good practices:

- Environmental and health problems associated with large-scale (and mechanized small-scale) mining;
- Environmental, health, and social problems (and potential benefits) of artisanal and (non-mechanized) small-scale mining; and
- Good practice in benefit sharing arrangements and how large-scale mining can contribute to sustainable development in local communities and mining regions in general.

The last section includes conclusions and recommendations.

II. Key Institutional Challenges

In the previous stage of the SESA, stakeholder groups prioritized the most important problems that need to be resolved in the mining sector in Sierra Leone. They identified cross-regional and regional priorities (CEMMAATS and INDGA, 2007):

Cross-Regional Priorities

- Land and crop compensation and village relocation;
- Sanitation and water pollution;
- Deforestation and soil degradation;
- Child labor; and
- Post-closure reclamation.

Regional Priorities

- Mine employment (southern);
- Provision of infrastructure (especially paved roads and electricity) (southern);
- Community development and participation (southern and western); and
- Blasting effects (eastern).

The resolution of each one of these priorities will depend not just on changing mining policies and regulations in a certain way but on the creation or strengthening of institutions capable of implementing these policies and regulations and managing the problems that will inevitably arise. Typically, it will not be feasible to copy institutions that are used in richer countries, rather innovative, often cooperative solutions must be found. Moreover, even if the institutions are established, there will be political economy obstacles; that is, certain groups will try to prevent all or parts of the reforms and they must be circumvented or overcome.

Given the above priorities, the biggest institutional challenges in managing social and environmental problems in Sierra Leone include:

- Develop well-defined environmental and health regulations for the large-scale and mechanized small-scale mining sectors.
- Develop innovative ways to monitor and implement these regulations until technical capacity can be built up and is well-functioning (which will likely take several years). In the early years, these solutions should focus on the priority areas — water and soil issues and blasting.
- Develop regulations with respect to environmental and health problems caused by artisanal mining, including remediation of land.
- Devise and undertake innovative solutions to implement regulations in the artisanal mining sector. Such solutions will normally include better ways of organizing the sector.
- Improve enforcement of existing child labor laws, including the use of innovative programs to reduce the incentive for children to work in the artisanal mining sector.
- Include provisions for tripartite consultation between large mines, the central government, and local communities when negotiating contracts with large-scale mines. Land and infrastructure issues should be a central part of these discussions.
- Include provisions for local employment in the contracts of large-scale mines. This will likely mean that training programs will also need to be provided.
• Define the responsibilities of large-scale mines and mechanized small-scale mines with respect to remediation during the period of mine operation and at closure. Contracts must include provisions for financial assurance to undertake this remediation.

III. Environmental and Health Challenges of Large-Scale Mining

Historically large-scale mining has been one of the dirtiest, most environmentally unfriendly activities undertaken by man, at both the extraction and processing stages. However, particularly in the last 30 years due to a combination of improved technologies and public pressure, the industry has become much cleaner and, in fact, in most developed countries the day-to-day environmental (and associated health) effects are minimal. Most problems in industrialized countries are associated with the difficulties of fully reclaiming mined land — especially due to the prevalence of open-pit mining — and rare but catastrophic accidents, usually associated with the failure of tailings storage facilities.

Most health problems (other than occupational health considerations) caused by large-scale mining have an environmental origin. Water or air are contaminated, which over time affects individuals in nearby communities. There is often, however, a social dimension to health problems because large mining developments usually lead to large increases in the population. Given the male-dominated nature of migrants, this generally means a large increase in prostitution and sexual diseases. In addition, water and sewage services, which are usually rudimentary to begin with, can be overwhelmed by the influx and result in severe water contamination. As discussed in the last section, in Sierra Leone, the main environmental and health concerns are water contamination, sanitation, deforestation and soil degradation, and reclamation. In addition, in one area the health effects of blasting were a priority.

Large-Scale Mining and Environmental Management

31. In this section we include both the “majors” and medium-sized mining companies in large-scale mining, although the behavior of the two sub-categories is often quite different. McMahon and Remy (2001b) compare the behavior of large-scale versus medium-scale mines on economic, social, and environmental issues. In addition, some of the problems described below are also relevant for mechanized, small-scale mining, an activity that is increasingly common in Sierra Leone.

32. It is not our intention to discuss technical solutions to specific environmental problems. For a wealth of material on good and best technical practices on specific issues, go to the Good Practice Website, maintained by ICMM, UNCTAD, UNEP, and DFID. http://www.goodpracticemining.com/index.php

33. Around the globe over the last 46 years there has been somewhat less than two major tailings spills per year, of which the vast majority (about 72 of 82) occurred at mechanized small-scale or medium-scale mines. For the complete list, go to http://www.wise-uranium.org/index.html

34. Note that occupational health problems in large-scale mining were not identified as a priority by stakeholders in Sierra Leone. This may be partially due to the desperate employment situation in the country, which could mean that, except in very dangerous occupations, the risks associated with a job in the formal sector are heavily discounted due to the overall higher health risks associated with the low income obtained of informal sector employment and unemployment.
Most large-scale multi-national mining companies, the “majors”, follow environmental practices similar to those of their operations in industrialized countries, so in theory the direct environmental dangers are no different or larger. There are at least two caveats to that statement, however. First, the supporting infrastructure will almost always be much weaker, making it more difficult to contain problems. For example, if there are no facilities to treat sewage or water in surrounding communities, any run-off from the mining operation can have significant consequences. Air pollution will also be much more significant if most roads are not paved, given the large amount of truck traffic generally associated with large-scale mining operations (a particular problem in Sierra Leone). Second, medium-sized companies with fewer resources and a much lower public profile are often not such good public citizens. They are not subject to the same international pressure as the majors and, given fewer resources to fall back upon, are more willing to cut corners in order to increase profit margins. For example, although the vast majority of the major tailings dam failures in the last 46 years have been in medium-scale or mechanized small-scale mines (footnote 40), in general there is only widespread reporting, pressure, and condemnation when the company at blame is a large-scale multinational mining company.

The first task that most developing countries face with respect to the environment and large-scale mining is development of an adequate body of laws and regulations with clear responsibilities for their enforcement. While many of the regulations, especially very technical ones, can be borrowed from legislation in developed countries, it will usually not be possible to copy the institutions themselves, given the high levels of technical capacity that monitoring and evaluation usually require. In fact, the main institutional challenge for most developing countries will be to build the capacity to monitor, evaluate, and enforce relevant environmental laws and regulations, while at the same time developing alternative institutional arrangements to undertake these tasks. In many countries it will be necessary to rely on monitoring by civil society, including NGOs, and self-monitoring, including voluntary codes and guidelines. These factors imply that environmental reporting (and access to sites) needs to be very transparent. There may also need to be more emphasis on the processes used rather than actual outputs, given that the former are much easier to monitor.35 In essence, environmental impact assessments (EIAs) and environmental management plans (EMPs) outline the processes that will be used in the mining enterprise. Accordingly, few medium-scale or large-scale mines proceed without approval (and requirement) of the process that will be employed. Where capacity to monitor at the site is limited, it is essential to put a great deal of emphasis on the processes proposed at these stages and, at a minimum, ensure that they are being followed.36

35. While it is standard in economics to allow firms to choose the cost-minimizing process that leads to a given output subject to environmental regulations, due to the complexity and difficulty of monitoring and measuring the environmental damage in mining operations, it can be optimal from a resource use perspective to monitor processes. Even developed countries almost always have a large list of restrictions on processes used at different stages of the mining cycle.
A specific problem worth highlighting is the requirements associated with the EIA and environmental management system demanded by authorities. The ability to evaluate these documents will often be limited, suggesting that alternative mechanisms may be necessary. There will also often be a deficiency of baseline data upon which to base future evaluations. Accordingly, it will be important that systems are set up to gather the data, which may be partially through social and environmental impact assessments. While EIAs, EMPs, and social impact assessments (SIAs) are important in all countries, they can be crucial in countries with weak monitoring capacity because they set the stage for production methods that will largely be used in the following years.

One decision that the government will face at an early stage is where to house the environmental authority. The sector's environmental management may be left to the ministry in charge of mining, an autonomous environmental department, or some mix of the two. In the first instance, there is the danger that the same ministry which is promoting mining is also responsible for policing it. In the second case, the difficulty lies in the real authority that a separate department, responsible to a different minister on a host of problems of which mining is only one, would have on a powerful mining ministry that generates a good portion of the country's fiscal revenues and foreign exchange. If environmental responsibility is spread across departments, then there may be coordination problems. There does not seem to be any set pattern as to how countries manage this issue. Most countries have general environmental laws that pertain to all sectors and others that are specific to the mining sector. In general, responsibility to enforce these laws is shared between the environmental and mining authorities.

The harmonization of these general environmental laws — with respect to water, air, land — and mining sector-specific environmental laws and regulations is another important consideration. The main challenges are to ensure consistency and, even more crucial, to be sure that responsibility for various aspects of monitoring and enforcement do not get lost in a maze of overlapping and perhaps conflicting mandates.

**Environmental Remediation and Closure**

Land reclamation, especially after closure, is the second most important environmental challenge in the large-scale mining industry. It is becoming very common to establish some type of financial assurance or surety system in which a company has to pay continually over the lifetime of the project. These funds are then used for reclamation as parts of the mining area are closed off or at the end of the project. The main difficulties lie in adjusting the required surety to changes in environmental knowledge or technologies and in managing them in a way to ensure that they are used for the required purpose. In good practice cases the environmental consequences, mitigation measures, and remediation plans need to be agreed on in tripartite negotiations between the company, central government, and local communities.

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37. See McMahon et al. (2000) for a discussion of the way in which Indonesia balances the sharing of these powers between the mining and environmental ministries.
In 1998 and 2005 George Miller undertook two large surveys of the “state of the art” with respect to financial assurance in the mining sector. Miller (2005) is based on a survey of 11 companies at 22 sites and the legal requirements of 22 national and 29 sub-national jurisdictions, including those of 12 developing countries. He sums up the situation as follows: “Financial assurance instruments may be chosen from a large number of options. Different instruments may be appropriate depending on the financial strength of the mining company, the amount of the potential environmental liability, the time frame over which the liability is to be extinguished and so on. For an individual operation, the effective financial assurance (EFA) instrument used should meet two tests: it should be effective in assuring the government that the operator can take all necessary and reasonable measures to protect the environment (or that another party is enabled to do so if the operator fails) and it should be the least costly of all the effective instruments available. It follows that the same financial assurance requirements will not suit all mining companies. It may be appropriate for a large, diversified, profitable company to have less demanding requirements than a smaller, less financially robust company” (Miller, 2005:4).

He continues: “Forecasting mine site reclamation costs is inexact, particularly when long-term care is required. There are many sources of uncertainty, including unexpected site conditions, the presence of acid drainage and actual rather than estimated costs of labor and equipment. Because of this, governments tend to build a safety factor into the amounts of EFA required. It is suggested that governments have a general policy of requiring EFA that is prudent in light of all reasonably foreseeable risks, but that they should not insist on protection against highly unlikely events” (Miller, 2005:5).

The trend in recent years is to strengthen legislation with respect to financial sureties. Some governments are requiring a high amount of financial assurance on the assumption that independent contractors will be needed if there is a default. Reclamation standards and the forms and amounts of financial assurance required vary among jurisdictions but are tending to cluster at the higher end (Miller, 2005:5). A change in the amount and types of financial assurance will affect both new and existing operations in very different ways. It is important that new requirements to existing operations contribute to the goal of environmental protection without causing such operators to close prematurely.

Miller (2005:14) also notes that while some governments have the capacity to review and approve reclamation plans, others will need to depend on the advice of the company or an independent expert. Some jurisdictions minimize government involvement, emphasizing individual company accountability and public scrutiny.

One novel approach (UNEP, 2002:51-52) is the TRAC program (Transfer Risk and Accelerate Closure) used in South Africa and the USA in which the mining company enters into a fixed-price contract for the purpose of transferring the risks and responsibilities for mine closure to a contractor. Contracts usually include responsibilities pertaining to ground and surface water, land, air, socioeconomic, ecological, noise, and legal risks. One shortcoming of TRAC is that it requires extremely detailed contracts and specifications to ensure adequate insurance cover.
There are many different types of instruments for financial assurance, although the most common are irrevocable letters of credit, performance bonds, cash trust funds (deposited with the government or a third-party trustee), balance sheet tests, and corporate or parent company guarantees (Miller, 2005: 12). Some governments leave the choice of instruments to the companies, as long as they meet the government requirements. However, it should be kept in mind that a system with too many options is more difficult to administer as well as open to manipulation and abuse.

Some countries require no financial guarantee (Guinea) or a very small amount (Ghana). In others, it is entirely at the discretion of the government (Jamaica, Indonesia, Surinam). At the other extreme, in Sweden it appears virtually impossible to surrender mining lands under any practical circumstances. Chile allows for voluntary deposit of a security, allowing the developer to proceed with mine development expeditiously. In most jurisdictions, adequate technical standards of reclamation and some hard form of security are formally required. A number of governments (Nevada, Ontario, New South Wales) require an inflated surety on the assumption that in the event of a default caused by business failure, the company will not be in a position to do the reclamation work and independent contractors will be called in (Miller, 2005: 39).

It is important to note that financial institutions involved in financing new mining projects do not see financial assurance as a major barrier in developing countries. Fiscal and royalty issues dominate the negotiations and, in terms of importance to the developer, dwarf reclamation issues. According to Miller (2005: 34), the following procedures are typically used by financial institutions to determine the type and amount of financial assurance for major new projects:

- “Calculated by government on a formulaic basis with regard to type of mining, reclamation plan and track record; specified under legislation;
- Estimated as a percentage of capital cost; negotiated, based on the feasibility study; and
- Established by negotiation between government and mining company.”

Since 1998, the World Bank has provisions to ensure that any project financed by the Bank or its private sector branch, the International Finance Corporation (IFC) includes appropriate standards of mine closure and reclamation, including the nature and amount of financial assurance. If a country does not have corresponding requirements, then the World Bank/IFC measures go into effect. Moreover, new IFC guidelines for precious metal mining include a requirement for fully funding a mine’s closure plan so that the cost of closure can be covered at any stage in the mine life, including premature and unforeseen closure (Miller, 2005: 42). Note that a potential side effect of these and other international undertakings is to undermine the deliberate policies of governments. If a state demands less than full coverage of potential reclamation liabilities as a calculated policy to attract mining, bank financing may not be available for projects there. The legislation of many jurisdictions gives the responsible minister some discretion in setting the nature and amount of required financial assurance (Miller, 2005: 43).
Large-Scale Mining and Healthy Communities

If environmental management is strong, the direct (non-occupational) health impacts of large-scale mining will usually be contained. Thus, many of the solutions for environmental stewardship will be the same for health care. Nevertheless, it is important to monitor health conditions carefully to ensure that there are no unforeseen health repercussions of expected pollution discharges as well as environmental problems that have escaped detection.

"Social" health problems are another matter. As noted above, large mining operations usually bring sexual diseases and unmanageable demands on services in their wake. The problem of sexual diseases can be partially handled through education but will also result in an increased need for social services, including access to condoms and health care and monitoring of places of prostitution. Particular attention needs to be paid to wives of miners, whether based locally or in distant communities, because they (and their children) are often the innocent recipients of diseases contracted by their husbands.

The Republic of South Africa has often been at the heart of discussions on HIV and mining. In 2006 two South African mining companies received prestigious awards for Outstanding Business Action on HIV/AIDS. As noted below, both companies quickly moved beyond their own work forces to aiding the local communities.

In 2004, Xstrata Coal South Africa launched a comprehensive HIV/AIDS Workplace Program after previously identifying 20 percent of its South African employees as HIV-positive. In the early stages of the program, 78 percent of Xstrata's employees underwent voluntary testing and counseling. Soon after, the company expanded its primary healthcare services to the wider community in a public-private service delivery model and is working in partnership with the provincial government to strengthen health services in the districts where it has operations. In 2005, the percentage of employees who knew their status rose to around 89 percent from 78 percent, and 79 percent of HIV-positive employees are receiving treatment (GBC, 2006:23).

For 16 years Anglo Coal has actively addressed HIV within its workforce and throughout local communities in the areas where it operates. Its earliest workplace policies focused on education, awareness, and prevention, and have expanded in compliance with global HIV/AIDS standards. In addition to wellness, voluntary counseling and testing, anti-retroviral therapy, and gender-specific outreach programs, local mines engage in community and governmental partnerships (GBC, 2006:24).

Mining activities often occur in rural areas that could absorb the small amounts of sewage from a low-density population without formal sanitation systems, but are incapable of doing the same for a higher population. It is important that the responsibility — and associated funding — for the provision of water, sanitation, and medical services be clear from the outset of the mining operation. In recent years, mining companies are

38. In light of the recent study, announced recently by the World Health Organization (2007), that male circumcision reduces the risk of HIV infection by 60 percent in males, an innovative policy could be to make it mandatory that all male employees are or get circumcised.
more reluctant to take on such responsibilities, believing that by paying taxes, they are relieving themselves of such obligations. However, if local governments are to be responsible for these activities, in addition to adequate funding, it will often be necessary to build the capacity to manage them. It is essential that an adequate SIA is undertaken to identify likely problems and provide input into a community sustainable development plan (CSDP) that includes commitments from the various stakeholders.

The International Finance Corporation (2003) has prepared a good practice note for SIAs to help practitioners in this regard. In the note the various components of an SIA are explained in detail, including scoping, social baseline studies, analysis of the social impacts, mitigation of adverse impacts, identification of sustainable development opportunities, preparing the social component of the environmental and social action plan (similar to a CSDP), and monitoring.

### Dispute Resolution

No matter how well-intentioned the various parties are and how well-managed the mining sector is, contentious issues will always arise. If there is a well-functioning legal system and an educated and reasonably well-off citizenry, such disputes can be left to the courts. However, in most developing countries this is not an attractive option. Courts may not be well-run or fair, legislation may be used selectively, information is likely to be asymmetric, and local community members will not have the resources to resort to the legal system (except in high profile, very public matters, where international NGOs and other funders may come to the rescue). Consequently it is important that neutral dispute resolution mechanisms be set up that can help resolve most conflicts.

Third parties may also be called upon to help resolve disputes as illustrated by the Oxfam Community Aid Abroad Mining Ombudsman. The ombudsman’s office assists communities whose basic human rights are threatened by the actions of Australian mining companies by raising their cases directly with the companies in Australia to get a fair, negotiated resolution. The ombudsman receives complaints from communities and landowners in Asia, the Pacific, Africa, and Latin America. All claims are investigated and validated through site visits before being taken to the company for initial response and resolution. The mining ombudsman may or may not mediate the negotiation process leading to resolution (Starke, 2002:217).

The World Bank and IFC have an ombudsperson to which complaints can be brought about Bank- and IFC-financed projects. Such complaints can be brought to an inspection panel. A similar type of process could be set up to cover activities of all multinational mining companies.

Finally, mining seems to be a particularly promising area for the use of mediation, given the long delays and power imbalances involved in traditional court systems and arbitration. Mediation is generally much less expensive than other forms of dispute resolution, making it more accessible to poor communities in developing countries. The Economist (2007:41) notes that in London, 70 percent of commercial mediations are resolved in a day or two while a typical arbitration takes nearly 17 months. Many
jurisdictions, including American states, are now making mediation mandatory, although non-binding. Andrew (2003) argues that mediation may be the most appropriate instrument for resolving disputes between companies and communities. It is generally much less costly than using the legal system or arbitration, and its non-binding nature would likely make it more appealing to community representatives concerned with information and power imbalances. The use of an impartial mediator, often from a different country and acceptable to both sides, is another attractive feature.

IV. Artisanal and Small-Scale Mining

The greatest institutional challenge confronting a mining authority is usually how to manage the environmental and social costs of artisanal and small-scale mining (ASM).39 Formal mining laws and regulations are rarely effective in the context of tens or hundreds of thousands of highly mobile miners with little to lose in remote regions of a country. Over the last 20 years, there have been many attempts to try and regularize the ASM sector, or at least make it operate in a more socially acceptable manner. Many of these attempts have been driven by external donors with a greater focus on environmental and occupational health matters than social problems, but most have one thing in common — limited or no success. As will be discussed further below, the most common situation where substantial progress has been made is when artisanal miners and large mining companies find a common solution.

The most important reason for the limited success in resolving problems in the ASM sector is the lack of any formal institutions among the miners. Miners work individually or in small groups and there is rarely any type of collective authority that other stakeholders — governments, local communities, donors, large mine owners — can negotiate with. The inability to bring a common solution to the sector means that the free rider problem dominates the situation; some miners may be willing to work with different methods or behave in a different manner but if most others do not (or they fear that most others will not), they will bear a cost and the solution will still be far away. There is also a second free rider problem associated with their organization. Miners are reluctant to form cooperatives because they will then have to monitor shirking among workers, as well as attempts to hide particularly lucrative discoveries (especially gemstones). In addition, as emphasized in the case of Sierra Leone by Levin (2005:109), a common solution implies that the various stakeholders have more or less the same objectives and opportunities, but the reality is that different people have different opportunities depending on their assets and how they fit in a region’s political economy.

There is a large literature on the environmental and social problems associated with ASM and it is not the intention to review it here (for example, see Hentschel et al., 2002). However, the problems can be roughly aggregated into seven different groups:

39. In this section, ASM includes miners with very little to modest amounts of capital, but in the latter case it must be highly mobile. We are not including substantial investments — which can be well over USS 1 million — that are often included in small-scale mining, the solutions for which are closer to those of medium-scale and large-scale mining than the ASM sector.
- Occupational health problems, especially due to the use of toxic substances such as mercury and cyanide and working in unsafe conditions (e.g., mine tunnels without proper support);
- Environmental neglect in the mining process, including mercury and cyanide pollution, deforestation, silting of rivers, dumping tailings in rivers, poorly constructed tailings dams, erosion, and deforestation;
- Environmental health problems due to contamination of water with toxic materials or untreated sewage;
- Complete neglect of restoration after mine closure;
- Problems associated with the lack of social services and infrastructure to meet the needs of a rapid population increase;
- Similar to large-scale mining, social problems such as prostitution, sexual diseases, crime, and drug and alcohol abuse associated with a large increase in the male population, often consisting mostly of outsiders; and
- Conflicts between miners and local residents, particularly over access to land.

Four main approaches to resolving problems of the ASM sector have been to:

- Repress it, using force if necessary;
- Subject it to a control framework similar to the one used for large-scale mining;
- Assist mining groups in the development of more environmentally friendly and productive technologies; and
- Create or encourage education programs for mining technologies and social issues related to mining, including HIV.

Given the large numbers of miners often involved and the ability to disperse and return when safe, attempts at repressing ASM have had little success, and have often resulted in violent conflicts to the lasting benefit of no one. Attempts at banning or outlawing ASM are just likely to make it move further into informality with even worse working conditions and environmental and social abuses.

Subjecting ASM to a regulatory framework (or mining law) similar to large-scale mining is likely to be an exercise in futility. On one hand, the miners usually do not have the capital (or access to it) for meeting even the most basic standards, never mind undertaking, for example, an EIA and an EMP. On the other hand, the authorities in most developing countries have no possibility of evaluating, monitoring, and enforcing such regulations on large numbers of artisanal miners. Regulations have a better chance of enforcement if they focus on the processes used; that is, certain types of mining processes are illegal or required. The “enforcement” of technological behavior is often done through the incentive of obtaining access to some other benefits, such as processing mills or fair trade markets, both discussed further below.

A large amount of well-intentioned donor money has been used to help ASM miners develop more environmentally friendly technologies. In most cases, the intent is to turn artisanal miners into semi-mechanized small-scale miners, who use both more productive and cleaner processes. While the success of such attempts at the project level
is debatable, they are rarely replicable due to what are for the miners very large amounts of capital. Other technology-oriented solutions have focused on making or adapting simple affordable products that can be employed by all miners in a region or country. While these have had more success, economic considerations have often meant that even seemingly very inexpensive solutions have not been adapted.

The most well-known example of such a situation was the promotion by UNIDO of a clear retort. A retort is a device that both reduces the exposure of gold miners to mercury fumes and allows for mercury recycling, greatly reducing the amount that is discharged into the environment. However, many artisanal miners will not use it because they are unable to see what is going on in the amalgamation process. While the clear retort solved this problem, its price tag of $300 to $500 meant that it was rarely used if not given out free. On the other hand, the use in Papua New Guinea of a retort made out of two discarded fish tin cans, which are abundantly available, has caught on to some extent (Hentschel et al., 2000:38). In general, it must be realized that in most settings the use of a given technology is, as emphasized by Hinton et al. (2003:101), akin to a “voluntary initiative”. There must be some type of net gain to the miners, which acts as a strong incentive to adopt the technology.

It should also be noted that most attempted solutions — especially those which are technology oriented — have been developed by an outside stakeholder, at times with input from artisanal miners. If the miners have not been involved, there is a good chance that they will not find the technology suitable, but even if they are involved, this does not mean that it will be acceptable by the local communities; nor does it mean that there will be any meaningful impact on social problems.

Many, if not most, ASM technology programs have educational components attached to them, although there are other on-going activities to promote more efficient and environmentally friendly practices, as well as to deal with social problems associated with the ASM sector. The main challenge facing all of these programs is to reach miners when they are both widely dispersed and in remote areas as well as to continually reach out to new miners. As Hilson (2005:6) emphasizes, there are continually new entrants into the sector and a large turnover. Nevertheless, new and less expensive existing technologies (such as internet access) have greatly broadened the education possibilities, as well as made less excusable neglect of dissemination of research results and education programs.

**Promising Institutional Mechanisms**

For any institutional innovation to have a good chance of success, it must directly face the free rider problems discussed above and the generalized lack of financing available to miners. A common solution for the former problems is to form cooperatives. As noted, artisanal miners are often reluctant to do so, but even when they are willing, the numbers relative to the total mining force may be too small to overcome the free rider problem.

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40. See Babut et al. (2003) for a discussion of the use of the clear retort in Ghana.
There must be a strong incentive for them to do so or such programs are likely to have limited success.

One of the most ambitious attempts took place in Ecuador. In 1994 all individual or groups of miners in Ecuador were required to do an EIA and EMP. However, because this was beyond the means of artisanal and small-scale miners, they would ignore the law and try to hide their activities or hire one individual to do a quick and generally useless report. However, in 1996 the government allowed collective EIAs for the ASM sector, combined with individual declarations by miners that they would fulfill the recommendations of the EIA. While this program, called ECO+, had success in the early years covering an area with approximately 100,000 miners, in 2002 the Ministry of Mines and Energy ended the program because it limited the opportunities for incentives during the approval process.41

It is usually more feasible to set up associations of artisanal miners rather than cooperatives. Such organizations would be like unions in that they represented the interests of the miners while at the same time acting as a focal point for discussions with other stakeholders, including representatives of the government and local communities. The Kias Explorer’s Association in the Philippines is a good example of how such an association can work. While the members owned the mine and the mining permit, the Association was not involved in production or processing. According to Bugnosen (1998:3), the main roles of the Association are to:

- Maintain legal ownership of the property by complying with reporting requirements, and to renew the permit when due;
- Liaise with appropriate government agencies and other organizations on behalf of the group;
- Coordinate group activities of the Association especially in relation to environmental protection such as tree planting and forest fire prevention; and
- Settle disputes that may arise within the membership.

The other components and features of the mine — such as mine workings, housing, processing plants, water supply systems, and aerial tramlines for ore transport — are generally owned separately by individual miners, or by a group of miners. It should be noted, however, that membership in the association had declined by over 80 percent from 1986 to 1998 and it is not clear if it is currently still functioning.

Innovative attempts to organize ASM may have gone furthest in Peru than in any other country. Of particular note is the project Environmental Management in Artisanal Mining (GAMA), a program financed by the Swiss Agency for Development and Cooperation and the Peruvian Ministry of Energy and Mines.42

41. For more details on ECO+, see Wotruba et al., 2005:247-265.
42. A large amount of information on this project can be found at http://www.gama-peru.org. However, it is all in Spanish.
Its objective “is to improve the environmental situation of artisanal mining in the Puno, Ica, Arequipa and Ayacucho areas. For this purpose, GAMA plans four action areas: technical environmental, environmental health, organizational economy, and legal-administrative. The technical environmental area has the objective of mitigating environmental contamination produced by the beneficiation of ores, improve the working conditions of the miners, and improve the sustainability of mining activities. The environmental health area intends to diminish the impact caused by artisanal mining work and of the affected population, improve health and environmental conditions and the inter-institutional coordination in this respect and to obtain adequate systems for environmental healing and primary health attention. The organizational economy is to contribute to an improvement of procedure capacities of the productive organizations and obtain that the more capable organizations drive the sustainable processes for the improvement of the environmental situation and of the quality of life of the artisanal mining communities. The legal-administrative area seeks to propose legal and administrative conditions for sustainable artisanal mining and to promote environmental norms, control mechanisms and fiscalization of artisanal mining” (Kuramoto, 2001:44).

The objectives and to some extent the design of this project — which mostly concerns gold miners — may well be the initiative anywhere in the world that is most similar to the Diamond Sector Reform Programme (DSRP) in Sierra Leone. However, as it enters phase 3, GAMA has gone much further in execution. The main result of the first phase was promulgation of a law for artisanal mining, distinguishing it from mechanized small-scale mining, and providing its own requirements, including the ability for cooperatives to have joint EIAs in a simple, manageable format. The second phase, which began in 2002 and ended in early 2006, consisted of a number of initiatives led by the project organizers and a large number of projects run by the miners themselves. Its results include:

- A progressive increase in the number of microfirms (cooperatives) being formed by artisanal miners, changing the previous tendency to form associations;
- The organization of unions representing artisanal miners in two of the most important artisanal mining regions in Peru;
- A large increase in the number of artisanal miners who have title for their concessions;
- Development of new simple technologies that are being tested with and accepted by artisanal miners;
- The new format for EIAs has mostly been approved by the State; and
- The unions representing artisanal miners have demonstrated a capacity to negotiate politically without further external assistance (Projekt Consult GmbH, 2006:3).

43. Note that while the artisanal sector in Peru is large, it is about 25 percent to 35 percent the size of the sector in Sierra Leone. In addition, the percentage of the population that depends on artisanal mining is on the order of ten times as large in Sierra Leone as in Peru.
The third phase of GAMA, just underway, will focus on sustainable dissemination of project experience as well as experience from the artisanal mining community about firm management, good and best environmental practices, and social organization. Two important focuses of this work will be: (i) use of information technology as an interactive device to ensure that results are diffused and continually upgraded; and (ii) improving life for thousands of women working in this sector, particularly organization, education, and access to information on improvements related to the sector, as well as on alternative forms of income (Projekt Consult, 2005:8-14).

While progress to date has been impressive, the jury is still out on GAMA. The number of miners involved has increased tremendously but according to the coordinators: “The technical and managerial training realized in the first 2 phases of the project have obtained sustainable changes in the attitudes of the participants, but the number of participants has still not arrived at a critical mass, partially due to the large increase in the group in recent years [due to the rise in gold prices]. The forms of hands-on training used have been very useful to give the initial impulse to formalization of the sector; however, their relatively high cost limits the sustainability of a continuous process of this type of training to the artisanal miners” (Projekt Consult GmbH, 2006:4).

The most successful method of formalizing the ASM sector has generally been when their workings are on the claims of large mining companies. While this situation usually results in conflict at first, there are several examples of a company working with miners in a way that is beneficial to both parties. The compromise solution is usually based on the miners adhering to certain environmentally acceptable practices and in return being allowed to work deposits on the claim of the large company, which also processes the ore. The case of Mali and Anglo Gold Mining Company is often cited as one of the best examples of this solution.

Hentschel et al. (2002:19) report on this case: “When large-scale mining operations by the Anglo Gold Mining Company began in the traditional artisanal gold mining area of Sadiola, a resurgence of artisanal activities was observed. However, the Anglo Gold Mining Company resettlement of the villages of Sadiola and Farabakouta led to the loss of artisanal gold-mining sites for the local communities. To lessen these impacts, the mining company introduced the Sadiola Gold-Mining Project aimed at promoting artisanal mining and diversifying local economic activities through the development of sustainable revenue generating activities. The project affects a gold-mining population of approximately 500 people in the villages of Sadiola, Farabakouta, Medina, and Neteko. The Sadiola Gold-Mining Project was implemented in several stages. The preparatory stage included a two-pronged approach, one aimed at assisting artisanal mining and one aimed at diversifying the local economy. In terms of artisanal mining activity, positive changes generated by the project include organizational and management capacity building for efficient resource extraction. In terms of community development: revenue generating activities that complement artisanal mining were

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44. To date, the author has not been able to obtain information on the percentage of miners that have been “formalized".
developed, local entrepreneurship was stimulated, purchasing power in local communities was improved, and a decrease of subsistence-related activities was noted.\textsuperscript{45}

Of course, not all or even most deposits that are attractive for ASM are on the claims of large mines, so this solution is ultimately limited. Nevertheless, it does illustrate that it is possible to get better behavior from the sector if the incentives are appropriate. Two options for eliciting more environmentally and socially sound practices for miners meeting certain criteria are: (i) provide access to extension services, including joint processing plants, which are more efficient and environmentally friendly; and (ii) provide the ability to sell output through special channels, such as fair trade markets.

While joint processing plants (often in cooperation with a large-scale mining operation) are one of the more common solutions proscribed for ASM, they are limited by the ability of miners to get their ore to the processing plant. Consequently, they are most likely to be successful in well-contained mining areas. The most often sited joint processing operation is Shamva in Zimbabwe.

In 1989 Shamva Mining Centre (SMC) began as a joint initiative between the Ministry of Mines, the Intermediate Technology Development Group, the Small-Scale Miners’ Association of Zimbabwe (SSMAZ), and several donors. Its objectives were to provide a commercially viable and sustainable custom milling facility for small-scale gold miners, create jobs, and train miners in health, safety, and sustainable mining methods. During Phase 1 (1989-1990), a stamp mill, a low-cost shaking table, an amalgam barrel setting pond, and a retorting facility were established. Due to the high demand — partially encouraged by training programs — in Phase 2 a ball mill with capacity to process 1 ton of ore per hour was built.

In its first six years of existence, Shamva was very successful both with respect to the number of miners using the facility and the amount processed. Eventually the demand for its services became bigger than it could supply, and it largely restricted access to miners with at least 10 tons of ore. However, major problems arose when SSMAZ took over the mill in 1999 because a competent manager was not appointed and by 2001 the mill was running at a loss and well-below capacity. As noted by Mugova in IIED (2002:13), “Great care has to be taken in working with associations to ensure that a few powerful people in the association do not reap the benefits for their own individual gain . . . [Moreover], small-scale miners, like any other entrepreneurs, require a complete package of business development services to thrive and grow. In addition to technology, they require skills in business planning and management, mining methods, sustainable environmental management, and access to credit and profitable markets.”\textsuperscript{46}

Fair trade initiatives in mining are a more recent development. They generally involve some certification given to the miner’s product when it is produced with an

\textsuperscript{45} For more information on the relationship between the Sadiola gold mine and artisanal miners in Mali, see the IIED (2002:18-22).

\textsuperscript{46} See IIED (2003:9-13) for more details on the Shamva Mining Centre. It should also be noted that the decline of the mill occurred when grave political problems were affecting all aspects of economic life in Zimbabwe.
environmentally and socially acceptable process. This certification allows it to be sold in special markets where it receives a higher price or where it would not be allowed at any price without certification (as in the case of so-called blood diamonds). Fair trade initiatives may also allow the producers to sell directly to end users, or at least avoid some middlemen, and hence get a higher percentage of the final price. As noted in Hentschel et al. (2002:65), there are strict conditions to meet in order to be eligible: “Candidates are to be legally constituted small-scale producers operating within a democratically organized trade framework (e.g., in the form of a cooperative society or association, etc.). Their approach to mining is to reflect a responsible attitude towards the environment. [Finally, they must have] a social conscience and commitment to ILO conventions including child labor in regard to the welfare of workers and their families.”

While still a relatively new initiative, there has already been some progress. For example, according to Hentschel et al. (2002:67) in Bolivia “the gold produced by the Cotapata Cooperative is smelted into bullion and delivered to the jeweler who crafts the gold into the 18 ct jewelry. The cooperative is immediately paid according to the gold price quoted on the London precious metals market. After the jewelry has been sold, the cooperative and the jewelry receive a bonus from the margin yielded between the finishing and trading stages, which for the miners means that the reward for their work increases by around 15 percent to 20 percent.”

An even more recent example is the case of “green gold” (oro verde) in Colombia. To be certified for its fair trade program — which means receiving a higher price for gold — miners cannot use any machinery during excavation and must not use any unrecovered chemicals during beneficiation.47

Finally, the stakeholders who often benefit the least but suffer the most from ASM activities are women. Accordingly, it can be necessary to have special programs or institutions that deal directly with the problem of getting more benefits to women and reducing the costs to them. Among the key topics to be considered are division of labor, access to and control of resources (including land), women’s ability to attain knowledge of resources, their decision-making capacity or political power, and beliefs or attitudes that support or impede the transformation of gender roles (Hinton et al. 2003:13).

The first step in many countries will be for the organization of women in mining, which will make it more likely that their issues will be presented and heard. In recent years there have been a number of examples of the formation of associations or cooperatives by women, including the SADC Women in Mining Trust, which includes representatives from eight countries in Southern Africa. Nevertheless, the movement for greater equality and protection for women in ASM is in its infancy and, with a few exceptions at the level of individual or small groups of women, has not moved much beyond rhetoric.

Supporting the Local Community

47. More information on green gold can be obtained at: http://www.greengold-oroverde.org/ingles/oroverde_img.html
Representatives of local communities must be involved in granting licenses to artisanal miners. It is important that decisions to open up areas to mining are decided with the participation of all local stakeholders and not just individuals who may benefit from granting permits.

A much bigger problem occurs when there is a “mineral rush”; that is, very lucrative deposits of some metal (usually gold) or gemstone are discovered and tens of thousands of miners descend upon an area. It is almost always beyond the scope of local government authorities to manage such a situation. Accordingly, it is crucial that the national government has a contingency plan to react to a mineral rush and protect the local community, especially with respect to law and order.\(^48\)

As noted, most attempts at resolving the problems of ASM have focused mostly on the miners, although if their environmental performance improves, certainly the nearby communities will benefit. Nevertheless, if ASM is to truly contribute to local communities in a sustainable manner, it is important that small industries are developed to add value to the output of the miners. Again it is important that the local community members, not just those involved in mining, are included in any discussions about how best to proceed in this direction.

In Madagascar, for example, residents are being trained in different aspects of gemology — including training of trainers — both to increase the value received for its gems but, more importantly, to greatly reduce the 97 percent of stones that were leaving the country in a rough state as recently as 2001.\(^49\)

The example of Mali that was discussed above showed how a large mining company can help develop sustainable benefits from an ASM area. In most cases, the impetus for such a program would have to come from the government or international assistance. The UN Department of Economic and Social Affairs (UNDP-ESA) spearheaded an alternative or sustainable livelihoods program around ASM in four African countries — Ghana, Uganda, Tanzania, and Ethiopia. The idea is that information collected and analyzed in the program can assist in the up-scaling of artisanal mining and identify alternative activities to replace or run in parallel. In general, such programs try to identify alternatives in agriculture-related activities to replace ASM. However, Hilson and Mohammed (2007) criticize such an approach for not taking into account what the individuals themselves want to do, which is usually not to go into agriculture but to develop skills that can be used in mining or other industrial activities. Nevertheless, an approach centered on how ASM can generate an increase in assets (physical and knowledge) that will increase its own efficiency, upstream and downstream benefits of mining, and alternative livelihoods holds promise. However, it is important — as stressed by Hilson and Mohammed — that the types of assets that are created are driven by demands from miners and community members.

\(^{48}\) Note that the author has not been able to find a good example of such a national plan despite the broad consensus that countries should have them.

\(^{49}\) For more information on gemstone processing and marketing in Madagascar, go to http://www.miningreview.com/archive/mra_4_2005/2.pdf
Conclusions

There are few more difficult challenges in a low-income developing country with weak regulatory institutions than managing the artisanal and small-scale mining sector in a way that is environmentally and socially sound and also contributes to sustainable development. Nevertheless, there are promising developments in situations where the territorial extent of the activity is relatively limited and “bounded” and the number of miners is not so overwhelming as to make cooperative solutions difficult. When the number of miners in an area runs to tens of thousands the problem becomes more intractable, with the most difficult situation occurring during mineral rushes. As will be discussed further in the final section, it will often be essential to negotiate with smaller groups (or subsets of individuals involved in the industry) who in turn can put some form of pressure on the miners.

In large ASM areas, it is critical for the government to establish authority with respect to both acceptable environmental and social behavior, as determined in trilateral discussions with the miners and local communities. This will usually entail some form of organization of the miners to act as an interface with the representatives of the government and local communities. Alternatively, monitoring and enforcement could focus on the much smaller population of financiers and traders, upon whom the miners depend. Pressure on the “middlemen” for more sustainable mining practices with respect to both the environment and society could be translated into pressure on the miners themselves. The preferred (and most practical) solutions would likely induce a fair amount of self-policing by the miners themselves or their recognized representatives. Representatives of local communities will unavoidably have a large role to play.

When mineral rushes occur, it is essential that the national government has a contingency plan. Such a rush can result in thousands of miners invading an area in a very short period of time, so it is not desirable to try to find a solution after the fact but to manage the situation as it evolves. The biggest challenge is to avoid large-scale conflict, which can easily arise in such a setting.

V. Large-Scale Mining Activities and Regional and Local Development

Until the 1970s the main benefit from large-scale mining was the very large number of jobs associated with mining operations, always in the thousands and often over 10,000. However, with increased mechanization and the move from underground to open pit operations, modern mines rarely employ more than 1,000 people and usually many less. Consequently, beginning in the 1990s in developing countries (and somewhat earlier in developed countries), there has been a great deal of emphasis placed on new arrangements to share benefits among mining operations, national governments, regions (including states and provinces), and local communities. At first the question was framed in the context that if local communities have to suffer the environmental and social consequences of large mining operations, how can they be compensated. Over time, however, the context has been changed to the ways in which mining operations can contribute to the long-term sustainable development of a region.
It is important to first understand that there is no fixed package that is suitable to all communities in a country or across countries. The goal is to maximize the benefits to the local communities, not adhere to a strict set of conditions. The types of programs that are suitable will depend upon a number of conditions, including the viability of the area to sustain a large community after the mine closes or if the area is (or likely will be) host to several mines over a long period of time or it is just a one-off experience.

Nevertheless, there is a trade-off to adhering to the seemingly sensible policy of adapting to circumstances. If mining policies (and laws) become context dependent, then there is the danger that mining companies will receive different contracts depending on the ability of mine owners to negotiate, which could lead to non-uniform application of mining policies. When all mining contracts follow the same template, the amount of discretion and associated corruption is likely to be reduced. In a small country such as Sierra Leone where habitability and distance from markets do not differ very much, it is preferable that all contracts follow the same pattern or template.

The first rule of modern mining laws is that in the case of large-scale mines, the precise type of benefits to be delivered should be determined in tripartite consultations that include the national government, the mining company, and representatives of the local community, including civil society and local government. It will also often be necessary to include NGOs, which may or may not be located in the region, if local capacity is limited. Canada and PNG — countries at opposite ends of the income pole — are two of the jurisdictions most advanced in tripartite negotiations.

While not unique, the use of tripartite consultations and agreements has developed particularly rapidly in Canada, especially when the mining area is on land belonging to aboriginal (indigenous) peoples, the situation in a large part of the northern half of Canada. One of the most telling examples is a uranium mine in northern Saskatchewan, an area almost exclusively inhabited by aboriginal peoples. After many years of strife and conflict, an investigation called the Bayda Commission tried to resolve the problems. McMahon and Remy (2001b:31) summarize its impact: "Implementation of the recommendations of the Bayda Commission resulted in an about face in the acceptance of uranium mining by aboriginal peoples, whose opposition to uranium mining declined by over 50 percent in the 1980s as the benefits to aboriginal communities increased and the cost declined. Among the recommendations of the Bayda Commission were: (i) a movement from bipartite to tripartite consultations; (ii) inclusion of socioeconomic and cultural effects into the decision making process, rather than a sole focus on the environment; and (iii) northern revenue sharing of fiscal revenues generated by uranium mining. More importantly, the Commission laid out the foundation for uranium development in northern Saskatchewan that evolved and developed through the 1980s to include: (i) best efforts (rather than targets) to deliver social and economic benefits; (ii) cooperative tripartite negotiations; (iii) increased monitoring of environmental and occupational health and safety performances; (iv) community-based consultation procedures; and (v) recognition of social spending as a legitimate royalty deduction for companies. The heart of the programs supported by Cameco [the main uranium company] and other mining companies are training for northern residents — most of
whom have not completed secondary school — for both direct mine employment and mine procurement."

Banks (2001:41-42) explains how the process has evolved in Papua New Guinea: "Participation begins during exploration when hearings are held in the area of the proposed lease. At this stage there is often little understanding of the process or likely outcomes, and the role of the Department of Mining representative is important. Once a mine is likely to proceed to development, the community becomes involved in a number of negotiations and forums. Community consultation has been part of the EIA and SEIS process since the 1980s, but recently this has become much more participatory, with the work carried out as part of the Ramu [mine] EIA involving widespread community participatory and strengthening programs. Three of the most critical sets of negotiations prior to large mines receiving approval from the National Government are the negotiation of compensation and relocation agreements, and the Development Forum. In the most recent cases these three occurred as part of one process, with the protracted negotiations over what is known as an Integrated Benefits Package. . . . The Development Forum concept became incorporated into the Mining Act of 1992 after the concept had proved so useful in the negotiations in the case of Porgera [mine] in 1988-89. While the compensation and relocation agreements are critical in terms of determining a significant proportion of the material benefits that communities receive, the Development Forum is the most high-profile involvement of communities in the mine development process. In brief a Development Forum is a process of negotiation between National, Provincial and Local-level governments, affected landowners and the mining corporation that occur prior to the issuing of a mining lease. The outcomes in the past have been a tripartite set of agreements between national government, provincial government and landowners, and a Mine Development Contract between the national government and the mining corporation. Once a mine is operating, ongoing consultations between communities, the company and the various levels of government do occur, although there is often no legislative basis for this. The form that these consultations take varies between mine operations. In the Porgera case, it includes monthly Community Issues Committee meetings between landowner representatives and mine management, the involvement of landowners on the management board meetings, and the involvement of both company and landowner representatives on a range of other boards and committees."

There are four major issues to be discussed in these tripartite consultations: environmental ramifications (including remediation and closure plans), compensation for landowners, mine employment and outsourcing, and putting the local communities on a sustainable development path, including benefits for other local community members (i.e., those not getting compensation or mine employment, or providing services to the mine).

**Compensation for Landowners**

The second major issue to be decided in the tripartite consultations is compensation for landowners. There are two critical points here. First, the company must decide on how

50. See Parsons and Barsi (2001) for a detailed history of uranium mining in northern Saskatchewan.
much land to purchase. At one extreme, it can purchase all the land that it may need within reasonable expectations at the very beginning; at the other extreme, it can just purchase what it needs now. The problem with the former is that the company may buy much more land than it will ever actually need. The problem with the latter is that land values will likely change over the lifetime of the mining area, but if the company pays significantly different amounts to different owners for similar types of land, there will be a great deal of resentment and complaints. For example, as noted in McMahon and Remy (2001b:12), "Yanacocha in Peru paid much larger amounts for land bought in the late 1990s versus the early 1990s, amounts that largely reflected changing market conditions caused by the renewed dynamism in the area due to the mining operation itself as well as the defeat of Sendero Luminoso. This led to a great deal of bitterness on the part of early sellers who in turn were able to bring social forces like the Catholic Church on their side. In the end the early contracts were renegotiated and there were a number of side payments, including jobs and social programs. Antamina [also in Peru], perhaps learning from the difficulties that Yanacocha had faced, bought almost all the land that it thought it might need at one time, paying the same amount for land of similar quality."

The second point on compensation is even more important. Experience has shown that many landowners who receive a lump-sum amount for their land, however just the amount may be, will not be able to manage this sum well and in a short time will find themselves without both money and a livelihood. Consequently, it may be preferable to offer employment in the mine (or in providing a service to the mine), which may be coupled with some payment for the land (as Yanacocha ended up doing). Another alternative is that a steady stream of income goes to the landowner — usually part of a tax or license payment paid by the mining company — for as long as the mine exists (as currently is the situation in Sierra Leone via the land rent, although the amount may not be adequate). The problem with this form of compensation is that unless the land can be returned to its former state, when the mine ends, the landowner may have no form of earning income.

There can also be difficulties if land is held in customary form without individual land tenure, making it difficult to determine who should be receiving the compensation (or how it should be divided). Without legal status, users of the land may not receive compensation even if their families have used it for hundreds of years. The situation is even worse for squatters using areas previously ignored by the state or the private sector (Starke, 2002:149). Some countries have established well-defined processes for determining compensation. As noted above, in 1988 PNG established a development forum process to address issues of community participation and landowner compensation.

An important issue in many jurisdictions is the rights of indigenous peoples with respect to mining, particularly the ability to veto a project. This issue is most contentious where indigenous peoples are in a minority position, or even if they are the majority, because political power lies with the descendants, including those of mixed blood, of the former colonial powers. In such cases, there is a slow tendency toward increasing the

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51. For a full discussion of the case of Peru and large-scale mining, see Pascó-Font et al. (2001).
rights of indigenous persons to determine whether mining can proceed at all. Philippines is one of the more dramatic cases. Under the 1997 Indigenous Peoples Rights Act, indigenous peoples can veto any mining project. This legislation had the effect of bringing mining development to a standstill in the Philippines (Cabalda et al., 2002). It is not clear if similar legislation would be practical in a country (such as Sierra Leone) where almost the entire population is indigenous.

The issue of land compensation is intimately tied to the problem of resettlement. In most cases, part or all of the compensation package will include resettlement to a new village and/or farming area.\textsuperscript{52} In addition to loss of land, there are at least nine other potential risks that accompany resettlement: joblessness, homelessness, marginalization, food insecurity, loss of common lands and resources, increased health risks, social disarticulation, the disruption of formal educational activities, and the loss of civil and human rights (Downing, 2002:3). Starke (2002: 160) reports on the experience of India, a country that has had to manage the resettlement of an extraordinary large number of people over the years.

“India has had considerable experience of dealing with displacement issues and, in terms of policy at least, has developed a unique approach to the problem. A conservative estimate of the number of people displaced due to planned development from 1950 to 1991 is about 21.3 million due to the construction of dams, mining projects, wildlife sanctuaries, and industries. In 2000 a Land Acquisition, Rehabilitation and Resettlement Bill was prepared by integrating the Land Acquisition Bill and the rehabilitation and resettlement policy. The main and most salient features of the draft bill, prepared by voluntary organizations, are as follows:

- The doctrine of eminent domain is replaced by a Principle of Trusteeship, in which government is a trustee of the property and has a moral and legal responsibility to justify that the acquisition is for the welfare of the people.
- The term ‘project-affected person’ is defined to include those deprived of livelihood resources (rural artisans, traders, collectors of non-wood forest produce, and so on).
- Provision is made for providing information at different stages regarding the nature of the project, cost/benefit analysis, extent of acquisition, and displacement so that those who wish to raise objections can do so on an informed basis.
- In any public hearing on project-related matters, 50 percent of the participants should be women.
- Provisions are made for the payment of compensation, and payment is monitored.
- Displacement shall not take place unless the compensation is paid, an alternate land is allotted, and the rehabilitation and resettlement process is complete.”

\textsuperscript{52} If compensation is all (or almost all) resettlement to what is deemed by the authorities to be a better or an equivalent farming area, a full answer is needed to the question on why the area was not previously being used.
Most problems in resettlement are caused by under-financing (Starke, 2002:161). It is not enough to give fair market value for their land and then expect rural, uneducated farmers to begin life anew. Historically, mining companies, financiers, and governments have externalized displacement costs to the weakest party — the displaced. Government has a leading role to play, including strengthening mechanisms so that people without formal legal rights have access to a system that recognizes their position and provides compensation. Most important is the recognition that affected communities have a right to be at the negotiating table and present their position. Finally, if resettlement is undertaken, there must be a series of checks on the responsibility of the state and other actors to provide negotiated compensation and benefits to communities (Starke, 2002:161).

Local Employment Issues

The third major issue in the tripartite discussions is likely even more important in the context of sustainable community development — that is, increasing local employment in the mine and providing goods and services to the mine. It is becoming common in mining policies that contracts must include a schedule of graduated benefits to the local community; that is, a certain percentage of employment in the mine, which grows over time, must go to local community members. Such a policy is often combined with an obligation of the mining company to provide training to local community members to make them employable. Just as or more important, it may be an obligation of the mining company to procure an increasing percentage of its outsourcing from local providers, with a similar training obligation. It is important to emphasize that the skills learned in providing goods and services to the mine are often more important than those obtained working in the mine because they are likely to be more transferable over time.

The very large Escondida copper mine in the Atacama Desert of northern Chile may be the best example in a developing country of a company dedicated to employing local people and procuring from local businesses. As discussed in Castillo et al. (2001), it not only provides extensive training for local people to prepare them for mine employment, but the company also: (i) trains individuals in work habits and attitudes in order to help them adjust to permanent employment in a large industrial complex; and (ii) trains employees and managers in small and medium-sized companies in the mining industry in order to help them improve the quality and costs of their services. In the latter case, this has often resulted in suppliers to Escondida becoming suppliers across the large Chilean mining sector.

The example of uranium mining in northern Saskatchewan, Canada was noted above. A similar, perhaps even more successful case is that of the Red Dog mine — the largest zinc mine in the world — in northwest Alaska. It operates under a lease from the Northwest Alaska Native Association (NANA) Regional Corporation, an Alaskan native corporation. The Red Dog Operating Agreement includes commitments to provide training and employment for NANA shareholders, about 6,800 Inupiat, who receive an increasing share of profits over the 40-year expected life of the mine. Red Dog and its contractors employ 630 people, of whom 62 percent are NANA shareholders. While the original agreement forecast that 100 percent of employees would be NANA shareholders
by 2001, it was difficult to find enough skilled employees in the sparsely populated region. To encourage Inupiat to work in the mine, the company introduced flexible working hours so that people can still find time for hunting and other traditional activities during Alaska’s brief summer. Teck Cominco, the parent company, also provides training and scholarships to students interested in pursuing a career in the mining industry (Starke, 2002:215).

**Sustaining Development After Mine Closure**

The fourth and most important major issue with respect to local and regional development is how to maximize the probability that the community is on a development path that will be sustainable once the mine closes. We will limit ourselves on this point to situations in which the community could be viable once the mine closes (which is generally not the case for communities in regions where the climate is very hostile — such as deserts and arctic regions — or where markets are distant). We have already noted that programs which lead to increasing direct and indirect mine employment will lead to some transferable skills. Despite these efforts, there will still likely be a large percentage of community members who do not benefit from employment or providing inputs to the mining operation. Nevertheless, there are several other ways to provide benefits to the community.

While some individuals will benefit from multiplier effects — selling goods and services to the miners, for example — others may even suffer due to increased costs of basic foodstuffs and living accommodations. Accordingly, it has become common to set up training programs — often funded through foundations established by the company — to provide assistance to local community members to build skills for both provision of goods and organizational skills (or social capital).

The efforts by the Sadiola gold mine in Mali to expand benefits outside the direct mining community were discussed above. Such a pioneering effort was undertaken by the Inti Raymi Foundation, established by the Inti Raymi gold mine in the altiplano (highlands) of Bolivia in the early 1990s. As described and analyzed in Loayza et al. (2001), the foundation had a number of unique features at that time: (i) projects were chosen in a participatory manner in workshops with community members; (ii) the bulk of the funds went to nearby communities that did not receive many of the direct benefits from the mine; and (iii) an investment fund was created with a primary goal to increase the social capital of the peasant communities.

Within this framework, the foundation designed projects that emphasized agricultural and livestock activities, as well as those geared toward improving health, basic education, hygiene, and water supplies. In general, the study found that the foundation had positive effects on its area of social influence. The most effective programs were those oriented to the provision of public goods and services, such as basic infrastructure, basic health and education services, and the formation of social capital. Projects whose objective was to directly increase the productivity of private investment
had positive impacts but their efficiency and sustainability is debatable (Loayza et al., 2001:83).

The provision of infrastructure will also help the community develop by opening up new opportunities, including access to other markets. It is essential that at the beginning of development, the responsibility for provision of roads and power is made quite clear, including earmarking taxes if necessary. It will also usually be desirable that if the mining company needs to construct a dedicated power source, it is obligated to provide power to surrounding communities. There must also be a clear plan for maintenance of any such facilities after mine closure. Similarly, preferably through taxation, local community members — and not just the families of mine employees — should benefit from better education and health facilities. Once again, a critical issue will be the maintenance of these services after mine closure. To date, however, with respect to health, education, and infrastructure, except in areas with other strong resource endowments or strategic geographical locations, there are not many examples of successful post-closure maintenance of facilities at or near their previous level.

One important example is the Porgera Mine District Plan in PNG. Starke (2001:221) notes: “The company aims to provide additional resources and capacity for local administrative structures and to establish durable economic, social, and administrative institutions and activities. A Porgera Management Team will be responsible for developing and implementing the plan, in addition to communicating with local stakeholder groups. A series of rolling five-year sectoral plans cover health, education, infrastructure, justice, primary industry, and services. Each of these will be developed with local community input, including specific goals for the period. Internal and external monitoring, auditing, and evaluation will be central to the plan. This case has the advantage of working through existing frameworks, because district plans are meant to be prepared in any case. What is new is the formal structure, the management team, and the resources of the mining company.”

Conclusions

In order to meet the challenge of all four major issues in community development discussed in this section, local governance will be extremely important. Accordingly, there may need to be an overarching program of capacity building in local government to provide goods and services, but, just as important, to manage relations between the mine and the community. The Inti Raymi example in Bolivia illustrates one attempt to overcome some of these problems. It is also essential that there is a dispute resolution mechanism that is satisfactory to all parties in order to avoid the general legal system as much as possible. Such a mechanism would not only save a great amount of time and money, it would also help level the playing field because local community members will

53. When Sierra Rutile was forced to close in 1995 due to the war, the local infrastructure quickly deteriorated, and although the mine is functioning again, it is not clear whether it will be brought back to its previous standards.
generally not have the resources to battle large mining companies in the more formal legal system.

The use of alternative dispute resolutions — at both the national and international levels — was discussed earlier with respect to environmental and health problems of large-scale mining. Mechanisms such as ombudspersons and mediation can serve equally well in disputes about compensation and community benefits.

As a final issue, it will also be necessary to set up systems of monitoring and evaluation, not just for environmental indicators, but also to measure the socioeconomic well-being of the community. It is important to validate the benefits to the community; moreover, different programs will have different effects depending on the situation and it will usually be necessary to make adjustments as experience is gained. Well-executed EIAs and SIAs can provide most of the baseline data, but constant follow-up is necessary. While many large companies track important indicators, there are then questions of the availability and trustworthiness of this information. Ultimately, it is preferable for governments, perhaps through NGOs, to collect this data themselves.

VI. Conclusions and Recommendations

While the challenge of making mining more environmentally and socially friendly in developing countries — including contributing in a significant way to sustainable development — may seem daunting, there has been a great deal of progress on environmental issues over the last 30 years and on the social issues during the last 10 years or so. There are still areas where little progress has been made, such as artisanal mining and in many aspects of mechanized small-scale and medium-scale mining, but even in these cases innovative programs and improved technologies are providing some results.

Most existing problems are due to institutional and coordination failures, whether we are talking of the sector in general or the specific priorities in Sierra Leone. In the large-scale mining sector, the vast majority of the problems are well-known and there are considerable resources to manage them. Most problems associated with international, large-scale mining operations can be resolved through a well-developed system of tripartite negotiations among the company, national government, and local communities and government. These negotiations and accompanying dialogue must be continuous throughout the life of the mine. Monitoring and enforcement can rely on voluntary behavior to a large (but not total) extent because these companies are concerned about their reputations. The most difficult problems to resolve generally are concerned with the delivery of services, which means that tax dollars have to flow back to the communities and there must be adequate governance capacity.

While tripartite agreements should also be required for mechanized small-scale and medium-scale companies, voluntary initiatives or behavior are almost never realistic monitoring and enforcement strategies in these cases. Until there is adequate capacity to monitor at a high level the environmental and social outputs and behavior of these companies, it is our contention that the emphasis should be placed on: (i) setting aside a
part of the mining royalties paid by these companies for environmental reclamation; and (ii) approval of processes that are the most environmentally friendly of realistic options at the EIA stage. Civil society groups, NGOs in particular, would then have the main responsibility to ensure that the companies followed these processes in a sound manner, including the right to pursue violations with legal authorities. While a focus on processes rather than outputs is less desirable in the long-run, in the short-run it is easier for the governments and NGOs of countries like Sierra Leone to monitor the processes employed by these companies.

Coordination is, of course, most difficult in the artisanal mining sector. There is a need for innovative programs to improve both the coordination mechanisms and the environmental and social behavior of artisanal miners. The first step in any such effort is to identify how the miners themselves are stratified. While they may not be legally organized into a cooperative, many miners work in “gangs”, most of which have a gang leader, who usually serves as the focal point for negotiations. In addition, these gangs may be very dependent on support from outside individuals (called “supporters” in Sierra Leone). It may be even more fruitful to try and organize the sector at this level.

It is important, however, that new initiatives, if successful, can be replicated across thousands of miners at little cost. There have been more than enough pilot projects that depend on heavy subsidies to a small group of miners and can only be replicated with more subsidies. It is important to emphasize that artisanal miners are not likely to change their behavior even if the cost is very small unless there are incentives to do so, whether of the carrot or the stick type. Given the difficulties of coordinating the miners, it may be necessary to put pressure on individuals higher up the ladder, such as traders and financiers.

Of course, all of the above depends ultimately on the behavior of the mining authorities. Laws, regulations, coordination mechanisms, capacity building, and pilot programs may all be working fine, but if the authorities are willing to turn a blind eye to environmental and social violations by mining companies, all the rest will be in vain.

54 See Levin (2006) for a discussion of the roles of gang leaders, supporters, and other stakeholders in the ASM sector in Sierra Leone.
References


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55. The MMSD project is the Mining, Minerals and Sustainable Development Project, the largest study of the mining sector in history, undertaken under the auspices of the International Institute for Environment and Development and the World Business Council for Sustainable Development. *Breaking New Ground*, edited by Starkes, was the central report of this research.


