



Mining, Minerals and
Sustainable Development

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Part IV: Responses and Recommendations

Chapter 15 Regional Perspectives



International
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Chapter 15: Regional Perspectives

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The minerals sector often has a uniquely local profile. While a large copper mine or a small gold mine may look similar in different parts of the world, the technical, management, social, political, and environmental skills needed to operate in different localities will result in a different type of project in each case. Mine localities themselves, with different histories, cultures, and environments, have great bearing on the way mining and processing are viewed and the way a project is implemented and managed at the local level.

This diversity cannot be effectively captured and reflected from an office in London or by those who have not lived and worked with mining in these localities. The MMSD Project was therefore critically and substantively informed by diverse research and stakeholder engagement that was undertaken by the project's regional and national partners in various parts of the world.

The MMSD Work Group in London established regional partnerships in Australia, North America, South America, and Southern Africa. In each case, the partner organization was asked to establish a broad-reaching process of consultation and research. In some cases, further partnerships were drawn up at a national level, for example between the South American MMSD regional partner and organizations in Bolivia (Servicios Ambientales S.A. MEDMIN), Brazil (Centro de Tecnologia Mineral), Chile (Centro de Investigación y Planificación del Medio Ambiente), Ecuador (Fundación Ambiente y Sociedad/Fundación Futuro Latinoamericano), and Peru (Grupo de Análisis para el Desarrollo – GRADE). MMSD, despite an attempt, did not establish a regional process in Europe, where mining

has been in decline and the key issues for the sector revolve around market access and metals in use.

MMSD's regional partners designed the regional research work, through a consultation process, to reflect the issues and the locally derived options for change suggested by regional stakeholders. The work in each case was overseen, guided, and reviewed by a regional advisory group or steering committee. The research issues, methods of consultation, and structure of the project were never exactly the same, reflecting the diversity at issue. Yet there were often strikingly similar ways forward suggested as outcomes of the regional MMSD processes.

In other areas of the world, MMSD worked at the national rather than the regional level because of the difficulties of either establishing broad regional entities within the project time frame and resources or defining a cohesive regional unit for the purposes of the project. In Indonesia, the Philippines, and Papua New Guinea, MMSD worked with local organizations or individuals to produce baseline studies on the diversity of local issues, but did not attempt to go into the depth of consultation achieved through other regional partnerships.

Similar arrangements were undertaken in the former Soviet Union through baseline studies done in Russia, Kyrgyzstan, and the Republic of Khakassia. In the latter two cases, the work was reviewed by a multistakeholder committee. A baseline study was also submitted from India. Some areas of the world were beyond the scope and resources of the project: in China, for example, apart from specific work on small-scale mining, the project was not able to extend beyond initial talks with key officials – attending the China Mining 2001 event in Xian. In Japan, the contact was minimal beyond the sponsoring companies and seeking NGO inputs. This is not an indication of the importance of these countries in terms of its mining and processing activity, but a reflection on the MMSD Project's capacity and resources.

Due to space constraints, this chapter can provide only an overview of the considerable work undertaken at national and regional levels. In the case of the regions, the executive summaries were provided by the regional partners; in other cases, summaries have been integrated directly from the baseline studies and background papers.

As far as possible, the chapter is designed to conform to the structure of Part III of the report, but there are limitations to this approach given the diversity of the commentaries and ideas in the regional and national studies. An exact correspondence of issues across sections of the chapter will not be found, which reflects the diversity of regions, the differences of approach, and the preferences of stakeholders.

Reports of the Regional Processes

Southern Africa Regional Report

Partner Organizations: The University of the Witwatersrand, Johannesburg, South Africa, and the Council for Scientific and Industrial Research, Stellenbosch, South Africa

The objective of MMSD SOUTHERN AFRICA is to determine how all stakeholders in the mining and minerals sector can best contribute to the region's transition to sustainable development. The emphasis is squarely on how the industry can be viable within a sustainable development model.

Despite the prevailing economic pressures on the mining industry, the mining sector in the twelve mainland SADC countries directly employed 2.3 per cent of the regions' total available workforce, which was estimated at 68 million in 1999. Employment in the sector increased to two million in 2000, not including informal miners, except in Tanzania. While these figures do not account for the millions of people dependent on miners' incomes for their livelihoods, they do emphasize the importance of the mining sector as a source of employment.

Today, despite recent adverse economic developments and depressed commodity prices for many metals and mineral products, mining and its associated industries continue to form the cornerstone of the economies of most southern African countries.

The wealth generated by the mining and minerals industry has not always been used to rehabilitate environmental degradation caused by mining nor to benefit the communities affected by the industry. In spite of this history, current trends in the mining and minerals sector indicate that it can contribute to the region's move towards sustainable development. The industry remains a most significant factor in the region's future development.

Small-scale mining is an important source of income for many people in the region and is likely to grow in importance. For most small-scale miners, however, poverty and lack of skills are major constraints to changing subsistence activities into more profitable ventures. In addition, the cumulative environmental impact of the growing small-scale mining sector is increasing due to a lack of awareness and the inability to implement environmentally friendly technologies and management programmes. This activity is usually wasteful of non-renewable resources and hazardous to human and environmental health. However, it has the potential to economically empower disadvantaged groups and enrich nations by virtue of its low investment costs and the short lag-time from discovery to production.

The mining industry has shaped the lives of women in rural southern Africa for many generations. Rural economies are impoverished by the loss of labour to the mines. The poverty is intensified when male workers in particular are retrenched and return, to the rural community, which has become dependent on his wages. The important role women play in the rural economy, while the men leave to work in the mines, is a key feature of the mining industry. Positive results have been achieved by multistakeholder initiatives that aim to reduce the impact of retrenchment on communities, especially in areas providing labour.

HIV/AIDS is arguably the most significant threat to sustainable development in southern Africa. A decade ago, HIV/AIDS was regarded primarily as a health crisis. Today, it is clear that the disease is a development crisis. The economic implications are dire: loss of productivity, loss of the benefits of education and training, and the diversion of resources from investment to health, orphan care, and funerals.

The mining and minerals industry has been a key player in the fight against HIV/AIDS, providing a substantial proportion (and sometimes almost all) of the initiative and effort in the region. However, neither the responsibility nor the capacity rests with one stakeholder group, and positive signs of cooperation between various stakeholders are emerging in the region.

The southern African region is rich in natural resources including minerals. However, future regional growth and development may be constrained by the increasing scarcity of one of the most critical resources – fresh water. Water pollution caused by mining activities is a significant problem in several countries in the SADC region.

In November 2000, at a Multistakeholder Meeting in Johannesburg, stakeholders identified five key areas for research. A sixth research report – a baseline study of the industry – was commissioned and funded directly by the global MMSD project. The five key areas were:

- small-scale mining and sustainable development in southern Africa;
- HIV/AIDS, the mining and minerals sector, and sustainable development in southern Africa;
- social issues within the mining and minerals sector in southern Africa;
- mining, minerals, the biophysical environment, and the transition to sustainable development in southern Africa; and
- mining, minerals, economic development, and the transition to sustainable development in southern Africa.

At the various meetings, certain over-arching issues were prioritized by stakeholders. These issues have to be addressed if progress towards sustainable development is to be achieved and they appear as cross-cutting issues in the recommendations. The critical issues were identified as poverty alleviation, capacity building and skills training, gender equity, job creation, and governance.

The MMSD Southern Africa process produced 42 specific recommendations for action. While there is not sufficient space here to relate all of these, which are detailed both in the final report and the executive summary, some of the key points are as follows:

Poverty alleviation – In a region where the average daily income is just above US\$2, it is to be expected that poverty alleviation is a critical issue. It is notable that no expectations of ‘hand-outs’ were articulated in stakeholder interactions. The most important way in which poverty can be alleviated in the above recommendations is through the involvement of all stakeholders. The processes involved include education, policy making, and facilitating means of avoiding increased poverty, such as joining medical benefit schemes. Job creation

and capacity building are recommended as essential to poverty alleviation and specific emphasis is placed on the small-scale sector of the economy.

Job creation – Unemployment rates throughout the region are high, and exacerbate poverty and its attendant ills. The minerals sector, on the one hand, contributes to this situation through resettlement, downscaling, closure, and retrenchments. On the other hand, the sector can do much to alleviate the problem. The recommendations envisage job creation through education, by providing opportunities for development in local communities and by stimulating the growth of the small-scale mining and agricultural sectors.

Capacity building and skills training – A lack of skills and capacity is prevalent in the southern Africa region, and is a challenge in the move towards sustainable development. The recommendations envisage capacity building by a variety of means: education, government policy, self-regulation within a stakeholder group and consultative and collaborative approaches. An imperative in the move to sustainable development is multi-stakeholder cooperation. This is an aspect of the majority of recommendations, and is epitomized in the recommendation which proposes cooperation across a broad spectrum of activities by all stakeholders to deal with the threat of HIV/AIDS.

Governance – Very few of the recommendations are proposed without the supporting framework of good governance.

If the wealth generated by the mineral sector is to be managed sustainably, and shared equitably between all stakeholders, good governance is required. Government policies determine whether such an enabling environment exists or not. However, governance is not just the responsibility of the state, but of all stakeholders, and the benefits accruing from good governance affect all stakeholders. The recommendations address the unsustainable practice of child labour and the situation of marginalized and disempowered sectors of the community, such as women, resettled communities, and people infected with HIV/AIDS. Good governance as a factor in regional cooperation is addressed, as is protection of the natural environment. The equitable distribution of the rents from mineral exploitation is ensured by good governance.

Gender Equity – In a region where the majority of the population are poor, women are among the poorest. Culturally, historically and economically they are also disempowered and form a significant marginalized group. The recommendations address all these issues, and, in addition, urge women to take steps to their own situations. The main thrust of the recommendations is the empowerment of women, because equity will flow from this. This empowerment is educational, economic, in the realm of job opportunities, and involves recognition of their status as legitimate stakeholders by others.

The recommendations listed above provide only an overview of a much more comprehensive set of calls to action and the final report must be read to fully appreciate the breadth of the work.

Stakeholders expressed reservations that the research and subsequent recommendations would end up where many initiatives had ended up before – gathering dust on shelves. An urgent request was made that a structure or structures should be put in place that could

implement the recommendations of the MMSD SOUTHERN AFRICA process. Such a structure would not only be needed to implement recommendations, but also to coordinate the move towards sustainable development across the region. Greater regional cooperation was stressed as an essential element of a successful transition to sustainable development.

It is noted that the World Summit on Sustainable Development will be held in South Africa and that mining in the region may also develop within the framework of the New African Initiative for 'Millennium Africa' proposed by President Thabo Mbeki of South Africa.

North America Regional Report

MMSD Partner Organization: International Institute for Sustainable Development, Winnipeg and Ottawa

The International Institute for Sustainable Development, based in Canada, was identified as the MMSD regional partner organization. An initial Working Draft Action Plan was completed in early December 2000 and vetted at meetings in Canada (18/19 December) and the United States (9/10 January). These meetings brought together a cross-section of the important communities-of-interest. Following review of the issues of concern identified in the Working Draft Action Plan, the participants of MMSD North America opted to pursue four tasks (as well as producing the final report) in discharging their mandate:

- Task 1: To develop a profile of the US and Canadian mining industry from the perspective of the nature of the companies that comprise the industry and to articulate the contribution and implications of mining through the eyes of various communities of interest and it has changed over time.
- Task 2: To develop a test/guideline for sustainability that consists of a set of practical principles, criteria, and/or indicators that could be used to guide the exploration for, design, operation, and performance monitoring of operations in terms of their compatibility with concepts of sustainability. Further, to suggest strategies for effectively implementing such a test.
- Task 3: To collaboratively develop an 'Agenda for Change' with specific actions and timelines for the North American mining industry and related communities of interest to meet in moving towards sustainable development.
- Task 4: To develop of a set of scenarios that bracket the likely futures to be faced by the North American mining and minerals industry and the related communities of interest. These scenarios could be used as a tool for discussing risks and opportunities, areas of both consensus and disagreement on their resolution, and potential options for adjusting mining- and minerals- related policy, practices, behaviour, and infrastructure.

MMSD North America has been successful in generating some innovative methodologies for addressing the challenge of sustainability in the North American context. The work has been based on the understanding that as much as anything else, the sustainability discussion is about security and re-establishing a sense of confidence that:

- people can/will have an opportunity to participate in the decisions that affect their own futures;

- resources will be made available to ensure that they will have the capacity to participate effectively;
- in spite of economic and social dependencies that can arise in a community because of a short-term mine, a reasonable degree of confidence that acceptable post-closure outcomes will be achieved and can be established for all communities of interest;
- all communities of interest, including companies, governments, and others, will fulfil the commitments that they make regarding human (social, cultural, economic) and ecological conditions; and
- a greater degree of alignment in expectations and actions can be achieved across all communities of interest and along the full life cycle, from exploration through post-closure – a point that applies as much to a company’s sense of security as it does to a community’s.

Much of the work in the United States and Canada has focused on tasks 2 and 4. The scoping of task 2 led to the proposal that seven fundamental questions must be answered to establish a project’s contribution to sustainability. To answer each fundamental question, data and information of varying complexity is required.

In the approach that follows, an ideal answer to each of the seven questions posed is also described as a means of beginning the task of detailing the required knowledge base. The elements of the ‘ideal answer’ are linked to measurable objectives that in turn are described with ‘indicators’ and ‘metrics.’

The result is an information hierarchy that ranges from general questions to specific metrics.

- *Engagement* – Are process of engagement committed to, designed, and implemented that are understood; consistent with the legal, institutional, and cultural environment of the project; and ensure that all affected communities of interest are participating in the decisions that influence their own future and in a way that they are satisfied with?
- *Environment* – Will the project/operation lead, directly or indirectly, at least to the maintenance of ecosystem well-being preferably, and to improvement over the long term?
- *People* – Will the project or operation lead to at least a maintenance and preferably an improvement of peoples’ well-being?
- *Economy* – Will the project/operation lead to at least the maintenance of, and preferably an augmentation of, desirable economic activity at the project level, in the community, the region, for the government, and for broader society?
- *Traditional and Non-market Activities* – Will the project/operation lead to at least the maintenance of, and preferably augmentation of, desirable traditional and non-market activities in the implicated community and region?
- *Institutional Arrangements and Governance* – Are the institutional arrangements and systems of governance in place to provide a reasonable degree of confidence that the capacity to address project or operation consequences will continue to exist through the full life cycle. including post-closure?

- *Alternatives and Need* – Have all reasonable alternatives been considered and has the need for the project/operation and the produced commodity been demonstrated, taking into consideration current and future needs of the local community; indigenous peoples; the regional and national economy; the company and its employees, shareholders, and investors; national security; broader society; and the ecosystem?

To address these questions, the MMSD North America participants developed a logical framework that provides idealized answers and suggests indicators and metrics that, if followed, will provide a well-structured approach to achieving sustainable development in association with mining.

Task 4 initiated the development of a set of scenarios for the future of the mining industry within the region. By using today’s events as early indicators of the direction that the mining and mineral industry is going towards sustainable development, the scenarios can be used to process events as they unfold in today’s world.

Scenarios development involved sequential consideration of four discrete steps:

- identification of the forces driving change in North American mining- and minerals-related activity (see Figure 15–1);
- identification of the major uncertainties facing North American mining and minerals;
- choice of the two most dominant uncertainties and development of a framework for developing a distinctly different logic for each of four scenarios; and
- development of the characteristics and logic of each scenario.



Following completion, review, and revision of the scenarios, some time was spent using the insight gained through the scenarios exercise to identify key issues facing North American

mining and minerals. In a brainstorming session, 55 such issues were identified. These were subsequently grouped into 11 major issues in three categories

Impact on Practices

- Develop effective processes by which communities of interest can encourage good performance and discourage bad performance among their peers.
- Develop an approach for identifying and assessing the distribution of costs, benefits, and risks associated with mining and minerals projects involving all communities of interest.
- Collaboratively design and implement a dispute resolution mechanism accepted by all communities of interest.
- Develop a way to adjust the financial/business/economic model currently taught in mining (and business) schools and used by mining companies, the financial services industry, and government, such that it captures not only traditional economic costs, benefits, and risks but also those that are environmental, social, and cultural in nature.
- Establish processes that will enable a shift in the mining/minerals industry's principal focus from a producer of certain commodities to a material service provider that embraces the principles of industrial ecology.
- Establish some kind of mechanism and resources for facilitating and tracking progress achieved on these actions over the next 10 years in North America.

Addressing the Legacy Issue

- Develop a comprehensive approach to reconcile current values/perspective on acceptable mining practices with the negative legacy that has been left as a result of past values, perspectives, and practices.
- Establish an approach (policies, rules, practices) to mining and minerals projects that will create a reasonable degree of confidence for all communities of interest that acceptable post-closure outcomes will be achieved.

Enhancing Capacity

- Establish the academic and learning support required to build the mining- and minerals-related human capital needs of industry, government, and other communities of interest.
- Strengthen leadership capacity in all communities of interest including companies, communities, indigenous peoples, labour, NGOs, and government to facilitate more effective design and implementation of change.
- Build the capacity of all mining-focused communities of interest in a meaningful way such that they are able to interact more effectively with each other.

Each of the above issues was subsequently described in terms of underlying implications, specific actions arising, and the implications of inaction. This material stands as a starting point for developing MMSD North America's Agenda for Change.

South America Regional Report

MMSD Partner Organizations: International Development Research Centre – Minerals Policy Research Initiative, Montevideo, and the Centro de Investigación y Planificación del Medio Ambiente, Santiago

The South American regional report is based on a process of research and participation undertaken by two institutions: the Centro de Investigación y Planificación del Medio Ambiente in Chile, and the Mining Policy Research Initiative in Uruguay. A 15-member multistakeholder Advisory Group contributed to ensuring transparency in the execution of project activities and to achieving balance among the existing different perspectives.

MMSD South America's activities concentrated on five countries: Bolivia, Brazil, Chile, Ecuador, and Peru. It is recognized that in this way key economies such as Argentina were inadequately covered. In each of these work groups were established in institutions with experience in mining and sustainable development to embark on research and participatory activities at the national level. Five national reports were produced, which were synthesized by the regional coordinators into MMSD South America's regional report.

MMSD South America based its activities on a list of key regional issues that served to guide the research and participatory efforts. The research component did not aim to produce original research around these topics, but to provide a comprehensive literature review of the 'state-of-play' in the sector.

The participatory process sought to produce relevant agendas – entirely based on stakeholder input – that suggest new public and corporate policy directions where needed and increased research and engagement capacity to bridge gaps. Both components benefited from the wealth of information based on the opinions and knowledge of over 700 individuals from a variety of backgrounds in about 50 workshops and two regional meetings.

Some region-specific characteristics of this process need be noted. Mining activities in South America are primarily restricted to the production of minerals (extraction and processing). Their contribution to world metal production is over 20%, and in some cases over 80%, while the region's consumption of these materials only reaches 7–8%.

The analysis was based on the life span of mining projects and the commercialization of minerals. In addition, the MMSD South America process took place in an environment where relationships among different social actors have long histories, and their respective perceptions on these topics have evolved according to the changing (or unchanging) nature of their relationships with other actors. Consequently the project was able to go only as far as the capacities and actual disposition of the various actors permitted. This points, however, to one of the project's main contributions in South America: the creation of new conditions for dialogue and the construction of national, regional, and local agendas in a process that could continue beyond the life of the MMSD project.

There is the belief across the region that the sector can contribute to sustainable development in so far as it can continue to evolve sustainably. Minerals production and

export in South America is expected to continue during this decade. No significant changes in consumption are expected. There could be scope for a more dynamic large-scale mining industry; with improved technologies; a more modern outlook on its economic, environmental, and social aspects; and increased potential as an important source of tax revenue.

Despite these potentially positive contributions of the sector, numerous challenges were identified. These concern the industry's environmental and social performance, the contribution of mining activities to local development, governments' capacities and methods, and an array of issues related to small-scale mining. The extent to which these lessen the sector's contribution to sustainable development in South America vary from country to country.

In all five countries, however, there is a lack of integrated national sustainable development visions that could serve as strategic guides, and policy and legal frameworks for developing national, local, and sectoral development plans. Governments are challenged with building an agile, effective, and transparent institutional framework – one that can protect the rights of the most vulnerable groups, while offering a stable and healthy investment environment that attracts companies with high environmental and social performance standards. Governments should develop instruments that enable such a framework. As a priority, these instruments should create or improve baseline information systems and address environmental management and local development issues. In addition, specific instruments need to be created to address the multicultural context in which mining activities exist.

Despite improvements in companies' environmental and social performance, work remains to be done on the decision-making processes surrounding issues that are not the responsibility of a single actor but of all. If companies are to incorporate environmental, social, and cultural considerations into their long-term planning of mining projects effectively, the processes by which decisions are made need to be participatory and well-informed.

The constant exchange of timely, reliable, and adequate information is essential. Further, it is necessary to ensure communities' adequate access to information in appropriate and accessible formats, which will contribute further to building trust. There is a need for spaces and mechanisms to ensure effective participation of all actors in decision-making regarding the evaluation and management of potential impacts. Needless to say, achieving this requires action by all actors, including governments and communities.

While recognizing that most of the responsibility for local development falls on governments, there is an active role for companies to play in the promotion of sustainable local development in the communities where they operate. Actions need to be taken to reduce the dependency of communities on the life of the mine and to reduce the perception that mining brings only temporary benefits. There are some ideas and initiatives in the region that promote 'clusters' of development and sustainability funds for local development, which should be supported. There is a role for companies in supporting the strengthening of government capacity at the local level.

Acknowledging the complexity of the challenges – related mainly to pollution, environmental degradation, health and safety, child labour, and migration – posed by artisanal and small-scale mining activities (ASM), it is imperative to implement integrated policies and tools regulating ASM, given its potential for poverty alleviation. ASM is recognized as a reality in the region that cannot be ‘dismissed’ as irrelevant, a view which has previously prevailed thought in previous decades. Adequate policies can turn ASM into an important contributor to decentralization and local development, given its potential for generating local revenues, linkages to other economic activities, and employment. These include actions by governments and companies alike.

Australia Regional Report

MMSD Partner Organization: The Australian Minerals, Energy and Environment Foundation, Melbourne

The Australian Regional report prepared by the Australian Minerals, Energy and Environment Foundation and entitled *Moving into the Light* is based on comprehensive research and consultation with numerous stakeholders.

The MMSD Australia Project began in February 2001. In April 2001 – following a call for research proposals – the Regional Reference Group agreed that the foundation should commission research coordinators to conduct studies on:

- a baseline assessment of the Australian minerals industry and sustainable development;
- the management of minerals industry impacts on biodiversity;
- the development of new approaches to stakeholder engagement in the sector;
- the management of Australia’s minerals wealth;
- the operation of voluntary sustainable development initiatives;
- people, power, and participation – a study of mining–community relations; and
- mining company agreements with indigenous communities.

Moving into the Light recognizes that Australia’s minerals sector has played a critical role in the development of its national and local economies, as well as the development of regions within the country. The sector has brought forward important technical innovations in environmental management. It has also begun to work constructively with remote and indigenous communities. Stakeholder recognition of the leadership shown by the industry will also do much to reinforce the industry’s commitment and capacity development through difficult economic periods.

The report also recognizes that the future cannot look like the past. Economic development has too often increased divisions between rich and poor, threatened social cohesion and cultural diversity, and contributed to the degradation of the natural environment.

Sustainable development demands that economic development:

- distribute national prosperity more fairly;
- is more inclusive in decision-making, recognizes people’s rights as individuals, and strengthens the sense of community; and
- maintains the ecological and environmental integrity on which all life depends.

The minerals industry needs to understand the changing social and political environments in which it operates – or face real difficulty in getting access to land and capital, managing risk, and recruiting and retaining quality staff. It needs to overcome its insularity and question the assumptions under which it operated to broaden its vision and move forward on the basis of greater trust and understanding.

Few issues addressed by the sector are purely technical questions. All substantive questions require value judgements – and particularly those that involve highly complex social, economic, and environmental impacts. Stakeholders have a right to participate in decisions over industry impacts and the choice of management strategies.

Minerals production is likely to continue to play an important role in the development of Australia. However, minerals income cannot forever be sustained by increasing production to offset falling commodity prices – especially as exploration efforts push against the limits of what is possible with our current technology and information base.

It would be unreasonable to assume that the services that metals provide to society can be supplied only through continuing mining. It seems likely that the world is entering an important transitional phase. Mining may take a less prominent role as the minerals industry moves further down the value chain by exploiting new opportunities for reuse, recycling, and reprocessing of metals. Such a strategy would offer more efficient management of finite minerals resources.

Voluntary initiatives in community relations and environmental management – notably the Australian Mineral Industry Code for Environmental Management – have helped sustain the industry's licence to operate. But if voluntary codes of practice are to reduce the need for government regulation, they must remain responsive to changing social conditions and stakeholder expectations. They need to be able to demonstrate that they address real problems, that their compliance levels are appropriately defined and enforced, and that they contribute to significantly improved performance. Given the social contract implicit in the establishment of voluntary codes of conduct, it is appropriate that codes include recognition of the rights of communities and other stakeholders and incorporate opportunities for independent review and verification.

In Australia, stakeholder demands have shifted – as one senior industry figure noted during the MMSD Australia engagement process – ‘from tell me to show me to involve me’. Communities are becoming more familiar with the rhetoric of sustainability and increasingly sophisticated in their response to industry communications. Traditional public relations efforts to bolster corporate reputation will prove counter-productive unless they are accompanied by concrete evidence of change. The community is increasingly asserting its right to participation throughout the lifetime of mining operations – rather than consultation at the outset of projects – and increasing the pressure on industry to build long-term, transparent, and accountable relationships.

Industry in Australia needs to broaden its concepts of its place in the broader community, environment, and economy – its zone of stewardship – and work with stakeholders to develop specific and measurable indicators of sustainability. Industry also needs to accept the need for and to promote independent verification of sustainability performance.

Regional Study: Western Europe

MMSD Research Fellow, Brussels

Western Europe is a particular case in the MMSD project. As a result of early meetings with stakeholders, a decision was made to focus specifically on the questions surrounding metals in use through a desk study incorporating commentary and interviews with key actors. This activity was limited in extent and not meant to replicate the more extensive processes of engagement undertaken elsewhere.

The following key questions were addressed in the report:

- Who are the key stakeholders when it comes to European Union (EU) environmental policy-making? What is their function, how do they work, and what power do they have?
- What are the main principles of EU environmental policy-making and how does this affect the non-ferrous metals industry? What do different stakeholders think about it?
- How do the EU Waste Management Strategy and the Revision of the Chemicals Policy affect the non-ferrous metals industry's licence to market? What drives these policies? What are the different stakeholder perspectives?
- What stakeholder processes/dialogues have been set in place (at EU or European national level) around mining and metals related to sustainable development in Europe? What are they about? How do they function? Who is taking part?

Western Europe, together with the US, is the largest user of metals. Europe uses around 25% of the global total of major non-ferrous metals while it produces only 2–3% of the global metal ore production. Further, the European mining and mineral sector plays an important role in the development of the economic activities of the European Union. Around 190,000 people are directly employed in the European minerals and metals mining industry, which generates a turnover in excess of 5 billion euros.

The sector for construction minerals is by far the biggest employer, with direct employment of about 140,000 people. Many others are employed indirectly in associated industries such as equipment manufacture, exploration, processing, and manufacturing industries. In the European non-ferrous metals industry, for example, thousands of associated companies of different sizes employ more than 1 million people. European consumption trends indicate that Europe has a significant role to play in determining the patterns of metal use needed to make the transition to sustainable development.

The regional study focuses on the perspectives of key stakeholder groups with regard to six initiatives that have implications for practice and consumer trends in Europe with respect to the use of metals. These are the EU Strategy for Sustainable Development (EU SD Strategy), the Sixth Environmental Action Plan, the precautionary principle, risk assessment strategies, the EU waste management and minimization strategy, and the revision of the EU Chemicals Policy, all of which have implications for the mining, minerals, and metals

sector. This summary addresses the issues raised by the European Union Sustainable Development Strategy and the use of the precautionary principle.

In 2001, the European Commission proposed an EU Sustainable Development Strategy, later endorsed by the European Council, which was based on the need to integrate sustainable development into planning within the EU. This strategy is an important context for the focus of the MMSD in the region. From an industry perspective, the SD Strategy raises several questions. One of the biggest concerns is to make sure that it does not limit industry's space to innovate; technological innovation must be placed at the heart of environmental strategy and not be impeded by over-regulation. Mr Fabrizio d'Adda, Chairman of UNICEF's Environment Committee and CEO of the Italian company Enichem, states that 'autonomous initiatives by companies are the main source of cost-effective progress in many environmental areas' as opposed to the 'command and control' regulation of the European Commission.

Environmental organizations are also critical of the SD Strategy and criticize the failure to tackle the international footprint of the EU's agriculture, fisheries, and trade activities. It is maintained that the strategy risks creating an 'ecological Fortress Europe'. Tony Long, director of the WWF-EPO, notes that the EU has for long been 'strong on words and weak on action'. The lack of clear targets and a timetable supports his observation. The European Environment Bureau, an NGO, regrets that the European Council did not adopt the phasing out of environmentally perverse subsidies, environmental tax reform, greening of public procurement, and strict environmental liability.

Another key debating point is the operationalization of the precautionary principle. The non-ferrous metals industry believes that the EU has given the impression that its use implies a search for zero risk. The principle should only be used after the completion of a risk assessment (that is, of exposure to risk) and when there is scientific uncertainty and reasonable grounds for concern as to the potentially dangerous effects of a substance.

Equally, there is a sense that the definition of an 'acceptable level of risk for society' has become politicized. Restrictions on the marketing and use of certain substances (subject to precaution) will hence be driven by a political agenda rather than scientific evaluation. Measures based on the principle should be proportionate and be preceded by a cost/benefit analysis that takes into account the impact of substitution of materials.

The environmental movement is aware that a 'zero-risk' environment is impossible to achieve, but wants to stimulate the prevention of harm. It is therefore in favour of an approach that includes:

- early action on the basis of reasonable suspicion of harm;
- the reversal of the burden of proof, because the traditional approach, which lies with legislators, may cause considerable delays before action is taken;
- the substitution principle: if safer alternatives are or may be available, they should be considered; and
- transparency and democratic decision-making to decide about the acceptability of technologies and activities and the ways to control them.

Some consider that environmental issues will increasingly come to the fore in the EU's policy agenda – this will affect the sector. It is widely recognized that the production and the use of target metals must be environmentally acceptable. A key debate is centred on precaution as a tool to manage hazard and risk of certain substances. This is an important debate for the non-ferrous metals sector since certain uses of some metals have the potential to present risks to public health and the environment. Examples of this are lead in gasoline and cadmium in batteries, if not properly recycled.

The report makes several key recommendations:

- Development of a proactive stance (as opposed to a reactive one) towards legislation. The non-ferrous metals industry needs to share responsibility with authorities and civil society groups.
- Maintenance of an ongoing stakeholder dialogue, through which knowledge and information is shared. Different interest groups need to recognize their mutual dependency. The European Aluminium Association and Friends of the Earth Italy, for instance, cooperated on a study on the environmental performance of aluminium in road vehicles in the EU member states, plus Norway and Switzerland.
- Initiation of more meaningful dialogue at a national level between national associations, NGOs, governments of member states, and others. The United Kingdom Stakeholder Forum on Chemicals, for example, was set up by the UK Department of the Environment, Transport and the Regions in 2000 to promote a better understanding between different stakeholders (government, business, environment, and consumer groups) of people's concerns about chemicals in the environment.
- Increase in exchange of data and information between producers and downstream users.
- Development of more effective public policy and greater transparency to influence the growth and evolution of patterns of production and consumption.
- The development of better systems for determining the impact of metals use within the community on other states and environments outside the EU.

National Baseline Studies

Baseline studies were also commissioned at the national level in some countries. These projects were generally restricted to desk studies, but generally with the incorporation of perspectives gained from a limited consultation with key stakeholders. The national studies do not attempt to replicate the full stakeholder engagement process undertaken at the regional level.

In general, the national studies were developed according to specific terms of reference and tailored to address key issues in the respective countries. Some general terms of reference can be described, but these differed for each country. Baseline studies were commissioned to increase understanding of:

- the main areas of contention and conflict associated with the sector, including legacy issues;

- the structural and political constraints to progress in key areas;
- key drivers of change in particular areas;
- good practice in particular areas of activity; and
- new initiatives that are being proposed and ones that are currently under way

India National Baseline Study

Tata Energy Research Institute, Goa

India produces as many as 84 minerals – 4 fuel, 11 metallic, 49 non-metallic industrial, and 20 minor minerals. The aggregate production in 1999–2000 was about 550 million tonnes, from approximately 3100 reporting mines, producing among other things coal, lignite, limestone, iron ore, bauxite, copper, lead, and zinc.

More than 80 per cent of the mineral production comes from open cast mines. Mining leases numbering 9244 are spread over 21 states and about 13,000 mineral deposits occupying about 700,000 hectares, which is 0.21% of the total land mass of the country. The aggregate value of minerals production in 1999–2000 was more than Rs.450 billion (approximately US\$10 billion).

The contribution of mining and quarrying to gross domestic product has declined marginally – from 2.47% in 1993–94 to 2.26% in 2000–01. The 1991 census data indicates that out of the total work force of 286 million main workers, the mining sector employed about 800,000 workers. Employment of women in the mining and quarrying division was 68,600, which is about 10% of the total employment in the organized mining and quarrying sector, although this is believed to be in decline.

The National Mineral Policy of 1993 has been revised in the form of the Mines and Minerals Act (Regulation and Development, 1994 and 1999) and Mineral Conservation Rules (1988). These revisions allow foreign equity in projects up to a level of 50%, the sanctioning of private-sector exploitation of the 13 minerals previously reserved for the public-sector mining companies (iron ore, manganese ore, sulphur, chromite, gold, diamond, copper, lead, zinc, molybdenum, tungsten, nickel, and platinum group of minerals), and include the requirement for effective mine planning, including environmental management provisions that have to be approved by the Indian Bureau of Mines. Other amendments include provisions for the review of mining plans after five years, including foresight planning for a further five years and the payment of compensation to landowners, accompanied by the requirement for rehabilitation of mining lands and restrictions on the use of forest land.

Key issues revolve around land and the lack of a clear rehabilitation and resettlement policy by central government. Equally, the relationship between mining companies and communities has been characterized by a lack of consultation with local communities, which means that their needs and concerns are only marginally satisfied and that they are rarely involved in decision-making. The result has been a relationship in which confrontations, tensions, and conflict have been predominant.

Campaigns against unjust mining by people's organizations and social action groups have been prominent and have pressed for people's rights over natural resources. Land acquisition is an issue around which many social action groups have agitated for change, forcing companies and government to address that issue along with resettlement and rehabilitation. Policy reform, while potentially far-reaching, is still evolving. Other issues include displacement, human rights violations, environmental degradation, and health hazards.

Indonesia National Baseline Study

Dr R. Wiriosudarmo, Yayasan Ecomine Nusa Lestari (Ecomine), Jakarta

According to the Indonesian constitution, both land and minerals are under the control of the state. According to Agrarian Law No. 5 of 1960, state control over land covers the power of the government to regulate the use and maintenance of land, and to regulate the legal relationship between humans, land, water, and air space.

Rapid economic development in the last two decades has increased competition for land use. Mining projects, which have a long gestation period, could not compete in the race for land. Land use conflicts between mining and other industries, as well as between mining and communities, have increased. Mining no longer enjoys any priority in this respect.

Further, Indonesia is a country of diversified cultures, and the traditional laws governing land ownership are not well codified. As a general rule, it is safe to assume that most communities, particularly outside Java, are strongly influenced by varieties of cultural law ('hukum adat'). Each area may have completely different traditional rules and tolerance for different types of land use.

Land problems associated with mining have been escalating in complexity for the last three years. To some extent, this problem has affected mining investment and has led to the postponement of exploration activities and the closing of mining operations. It has also become the prime source of conflict triggering anti-mining sentiment. Unless an acceptable resolution is found, it is predicted that the land problem will escalate. Specific problems include:

- repressive intervention from the local authority,
- absence of sustainability criteria in assessing the value of compensation, and
- the loss of cultural values associated with the loss of land.

The complexity of cultural land ownership would not be a barrier to investment if industry were willing and prepared to deal with it. One of the problems with cultural land ownership concerns boundaries, which while uncertain in a formal legal sense are definitive among the tribal communities. Legal boundary demarcation in turn confuses issues of compensation. In general, the mining industry may have no objection to the payment of land compensation. The problem arises when the status of land ownership is uncertain. Ideally, codification of cultural land ownership throughout the country would assist investors.

Post-mining land use in Indonesia is not well regulated. Mining Law No. 11 of 1967 and other subordinate mining regulations only stipulate the responsibility of the mining industry to compensate and conduct land rehabilitation after mine closure. The move towards regional autonomy is expected to foster the implementation of spatial planning at the regional level to address such issues.

A general lack of government interest in the social aspects of mining is evident throughout the structure of the Department of Energy and Mineral Resources (DEMR, formerly the Department of Mines and Energy). There is no single agency or even a desk in the DEMR that deals with the social aspects of mining.

Further, the government has not established a policy framework for the accommodation of social considerations associated with mining. Social issues are commonly approached through the narrow window afforded by the Environmental Impact Assessment regime. The relationship between the mining industry and the community has never been part of the development framework. This lack of attention to community perspectives has created the perception that the community is a liability to the sector, rather than an asset that can be nurtured for mutual benefit.

Mining is also associated with an adversarial approach to recruiting local and particularly unskilled labourers, most of whom are poorly qualified. For certain job specifications, pre-employment training would be a practical option to increase the capacity of local labour to fill such positions; a policy rarely practised by mining projects, particularly those with short timelines.

The absence of a government social policy framework and the voluntary nature of community development have succeeded in separating development implementation from the integrated planning of mining projects. Most mining companies do not even think of community development as a strategic issue. There have been many complaints from the mining companies that they have spent heavily on development, but the present framework narrows the chances of a successful outcome.

Lack of transparency in the mining industry is another issue. While the mining industry perceives transparency as a controlled flow of official information from mining company to the public, people perceive it as the 'right of the people to know'. This is a question of 'good will' versus 'good governance'. The first is voluntary, while the latter should be obligatory.

Despite laws to the contrary, environmental impact assessment reports and data obtained from environmental monitoring and environmental audits, for example, are not always available to the public. Further, the government is often reluctant to release information concerning environmental issues. This situation is exacerbated by the inability of the government to collect information concerning environmental baseline conditions. In the event of environmental conflict, the government relies greatly on information provided by the mining industry.

Past development practised in Indonesia has created imbalances between the wealthy and the poor. These imbalances are not acceptable to any standard of human values. The current multidimensional crisis in Indonesia is an expression of these imbalances. One

group enjoys excessive benefits from the development of natural resources, while the other struggles for existence without the means to produce even a bare subsistence livelihood. Within this context, the mining industry is perceived as one that creates social injustice.

Several key points emerge from the Indonesia national report:

- Development practised in the past supported increases in economic output that depended on unsustainable depletion of natural resources and the life-support capabilities of the ecosystem.
- The development practised in the past systematically excluded large segments of society, which has resulted in alienation and social conflict. Inclusiveness means that everyone who chooses to be a productive, contributing community member has a right to the opportunity to do so and to be recognized and respected for these contributions.
- The discussion of land use for mining should include use during exploration and production periods and post-mining, as well as the right of the landowner to reject mining.
- The role of the community in mining is controversial. Work is needed to build the capacity of communities and to explore procedures for involving communities in decision-making.
- The devastating impact of illegal mining has negated the positive values of small-scale mining. The challenge is to establish a concept of community-based small-scale mining.
- On the question of regional autonomy, two main issues surfaced. What is the role of local government? And what adjustments does the sector have to make to work within a sustainable regionalized structure?

Philippines National Baseline Study

M.V. Cabalda, M. A. Banaag, P. N. T. Tidalgo, and R. B. Garces (Independent Consultants) and Steering Committee, Manila

The Philippines is well endowed with metallic and non-metallic mineral resources. In the past two decades, the growth of the industry has been seriously impeded by lack of foreign investment due to political instability, a 60:40 limitation on foreign ownership; soft metal prices; excessive taxation; high operating, production, labour, and energy costs; civil unrest; and a series of natural disasters.

The approval of the long-awaited new Mining Act in 1995 breathed hope of the industry's impending resurgence and was met with enthusiasm by both local and foreign mining investors. Not long after, however, the act became the target of NGOs and the central focus of opposition, primarily because it allowed wholly owned foreign mining companies to operate mines within the country and was regarded as tacit permission for foreign companies to plunder the national patrimony at the expense of the environment and the Filipino people.

Meanwhile, the local mining industry has been hard pressed to meet current regulations as well as societal expectations, despite applying a lot of effort to these demands. Given the industry's precarious situation, however, progress toward this end has been slow.

The government, on the other hand, is faced with accusations that it is in collusion with the industry and is not doing enough to punish errant mining companies. Yet government is at the same time being accused by the industry of being an 'anti-mining NGO', because of what is seen as a highly prescriptive approach to regulation as well as the lengthy and tedious period needed to permit a mine and to complete a mining contract.

One thing is certain, a culture of change – a paradigm shift – must be integrated into the way in which mineral resources development is undertaken in the country, one that considers the concerns of the stakeholders, the government, and the industry.

In terms of regulation, the Philippine Environmental Impact Statement system was formally established under Presidential Decree No. 1586. Under the system, mining (and quarrying) projects are classified as 'environmentally critical projects', hence they require an Environmental Compliance Certificate prior to development.

The Contingent Liability and Rehabilitation Fund is the primary financial mechanism for mine rehabilitation. Multi-partite monitoring is mandated through the Mine Rehabilitation Fund (MRF) and damage compensation through the Mine Wastes and Tailings Reserve Fund. The MRF is established and maintained by each operating mine as a deposit to ensure the availability of funds for the satisfactory compliance with these statutes and commitments.

The Philippine Mining Act of 1995 in one of its governing principles clearly states 'the grant[ing] of mining rights shall harmonize existing activities, policies and programs of the government that directly/indirectly promote self-reliance, development and resource management'.

Current regulations mandate mining contractors to: rehabilitate land disturbed by mining activities to a physically and chemically stable and self-sustaining ecosystem, based on a final land use more productive or approximating to the original land use as agreed with the communities and local governments; establish safety and health management systems and ensure continual improvement of safety and health performance, based on a risk management approach; contribute to the establishment of sustainable/alternative livelihood opportunities and skills for the host and neighbouring communities during and after the operation of the mine; and equitably share the economic benefits derived from mining with major stakeholders – national and local government and communities. The overriding objective is to guarantee that future environmental conditions are not compromised, that social stability is maintained, and that no financial liability is absorbed either by the government or the community .

The Mining Act notes that 'activities, policies, and programs that promote community-based, community-oriented, and process development shall be encouraged, consistent with the principles of people's empowerment and grassroots development.'

The challenges that are before the Philippine Mining Sector include:

- a low level of government support;
- a lack of local government unit acceptance – the industry needs strong national government leadership to work with local government units in assisting investors to meet requirements;
- industry conservatism – the industry needs to showcase new ‘world best practice’ mines, and the government must strategically support remaining development proposals that demonstrate examples of best practice;
- a lack of clarification/ codification and clear land title for all stakeholder groups, which impedes access to ‘ground’;
- the fiscal regime for foreign mining companies – an acceptable agreement on the fiscal regime is needed that allows for an equitable sharing of revenues between the government and the investing company;
- the Supreme Court challenge to the Mining Act – investors will not make high-risk investments in mining while there is uncertainty over the unresolved Supreme Court case on the constitutionality of the Mining Act filed in 1997; and
- the indigenous peoples rights act – uncertainty will continue until this matter is resolved and it is determined who owns the mineral resources of the Philippines.

Other key issues include:

- environmental degradation – contamination of water and crops, water depletion, and siltation of water bodies, and so on;
- land disputes – conflict between mining claims, tenurial rights and other claims (with indigenous people, for example), and the comprehensive Agrarian Reform Law;
- land conversion/use; and
- the presence of large-scale mining companies resulting in the displacement of panning and small-mining activities within the neighbouring areas, leading to competition for scarce resources.

Papua New Guinea National Baseline Study

Dr Glenn Banks, Independent Consultant – Australian Defence Force Academy at the University of New South Wales

The current mining industry in Papua New Guinea (PNG) ranks as one of the largest in the Asia-Pacific region. There are five operating mines, and a vibrant small-scale sector involving up to 50,000 small-scale miners.

PNG has seen several dramatic changes that undermine, or make largely irrelevant existing policies, including:

- greater emphasis on the involvement of local communities in the mineral development process,
- a marked shift in the distribution of revenue flows from mining operations from central government to local communities and institutions, and
- the de facto surrender of state sovereignty over mineral resources with the payment of the full value of royalties from the sector to local communities and provincial institutions.

Some of these changes have led to an exodus of large companies from the country.

The small-scale mining sector is increasingly being recognized as a significant contributor to gold production and, more important, local livelihoods across at least 10 provinces in Papua New Guinea. Small-scale mining has considerable economic impact estimated at K100 million in gold and silver per year, with high-end estimates placing production closer to K150 million, or over 1% of gross national product.

Local communities, while always involved in or affected by mining in PNG, came to prominence as stakeholders in the minerals sector in the late 1980s. This period was marked both by the beginnings of the ‘minerals boom’ and the closure of the BCL mine. The two events meant that local communities became engaged in negotiations and discussions to a far larger extent than they had previously. The Mining Act 1992 enshrined this participation in legislation, and subsequent developments have seen communities become major economic beneficiaries of large-scale mines.

Any brief discussion of mining and community issues is sure not to reflect adequately the variety and complexity of the issues at different mining operations. Mining has wrought massive social and economic changes for local communities in Papua New Guinea. Three areas where new initiatives of note are proposed or currently under way are the development of a national-level mine closure policy and guidelines, a sustainability policy for the minerals sector, and some of the initiatives occurring in terms of the relationships between mining corporations and local communities and governments.

The development of a sustainability policy for PNG will focus on:

- definition and measurement of the economic sustainability of the industry and the implications of this for communities,
- definition of the interface between the social and environmental impacts,
- effective arrangements for benefits distribution,
- development of systems or institutions to ensure the development initiated by a mine project can be sustained after mining ceases,
- identification and establishment of sustainable income replacement economic activities for communities post-mine,
- measures required to sustain essential services provided by the mining company beyond mine life, and
- the creation and management of long-term funds to provide resources for the continuation of sustainable development activities.

The Papua New Guinea mining industry has experienced a boom in the past decade, and despite the problems described, it has continued to operate, in some places very successfully for most stakeholders. Given this experience there are a number of key areas where in particular the structure and management of relationships between stakeholders in PNG could provide positive models applicable more widely.

Four of these are:

- *The Development Forum* – premised on the view that all key stakeholders should be involved in discussions concerning a potential mine from the time that the developer submits a proposal for development.
- *Communication and relationships* – developed using a number of different means of communicating with local stakeholders. These various channels seek to either provide information to other stakeholders, or receive information about the community, or both.
- *Local-level initiatives* – focusing on facilitating and nurturing the capacity of local-level government and institutions so they are able to deliver, on a sustainable basis, community-level development. This is an important shift in emphasis from previous corporate efforts that had sought to provide local-level infrastructure and governance directly.
- *Sustainability and Mine Closure Policy*. The Department of Mining and the Office of Environment and Conservation drew up a draft policy and set of guidelines for Mine Closure in late 2000. This comprehensive document seeks to ensure that mine closure is an integral part of mine development and operational planning. There is provision for mine closure bonds and trusts, and detailed guidelines for both physical (environmental) and social aspects of mine closure. Following discussions with industry, NGOs and government departments, and the receipt of a World Bank loan for mining sector institutional strengthening, the social aspects of mine closure were incorporated into the development of the sustainability policy, discussed below.

While there has been a raft of studies and reports on various aspects of the industry, particularly in the last decade, the understanding of a number of critical aspects is still relatively thin:

- *Economic impact of the industry at the national level* – The recent mining and hydrocarbon fiscal review drew largely on Internal Revenue Commission figures, and did not, for example, calculate the contribution of the personal income taxes of mining company employees, nor import duties paid by the companies.
- *Revenue flows and utilization at the local level* – An assessment of how these revenues can better contribute to sustainable development requires a more complete knowledge of the variations that exist within the sector.
- *Processes of change in communities*. – While there have been a number of detailed and high-quality studies on processes of community change in Papua New Guinea, the vast majority of these have been limited in terms of the time period over which the research has been carried out.
- *Communication* – Linked to the above issue, there is a need for more detailed work on the form and effectiveness of current mechanisms for communication between mining companies, local-level government, and affected communities.
- *Long-term impacts on flora, fauna, and water quality* – There is still a need to draw together and summarize more effectively the environmental information gathered from the various mining projects over the years.

- *Policy* – There is a need for a more coherent policy focus within Papua New Guinea in terms of the minerals sector.
- *Practice* – Three areas where efforts by corporations and governments can be targeted to improve practice are in terms of communication, links between local authorities, and the mining operations and social monitoring.

There are also three areas of significance where capacity needs to be strengthened to enhance the ability of the minerals sector to contribute to sustainable development: government regulators, community affairs sections, and provincial and local-level governments.

Kyrgyzstan National Baseline Study

Community and Business Forum: The Mining Industry and Sustainable Development in Kyrgyzstan

Based on world prices, official information, and forecasts, Kyrgyzstan has a gross value of production estimated at US\$73 million, with coal production making up US\$29 million of this.

Since the 1930s the State Geologic Agency has been carrying out active exploration of deposits in the Republic. Kyrgyzstan is fortunate to have a geologic database containing technical information that can be favourably compared with and sometimes exceeding those of many other countries. Yet the organization of this database is not compatible with modern computerized information systems.

Since the demise of the Soviet Union, the industry has been beset with problems including:

- the deterioration of equipment, the absence of a high-quality repair base, and a lack of funds for maintenance of equipment at operational capacity or for reconstruction and modernization;
- an inability to comply with state health and environmental standards;
- the insolvency of domestic consumers and unregulated increases in prices for equipment and services;
- an antiquated legislative system, especially with regard to taxation (in particular, an extremely high rate of royalty of up to 30% for gold; 12% for lanthanide, mercury, and antimony and a custom duty of 70 % for rare-earth elements), which hinders the existence and development of the industry; and
- ineffective mechanisms for the production, sale, and purchasing of materials – functions that are loaded onto enterprises that have little experience in this field.

The industry has also gone through profound crisis and transformation, including:

- drastic increases in the cost of fuel for energy,
- assuming the burden of social infrastructure costs after the collapse of the former Soviet Union,
- the loss of markets and production of antimony and uranium to Russia and Kazakhstan,
- the need to export all production, and
- the need to import most raw materials.

At present, the cost of labour in Kyrgyzstan is low in comparison to world standards. Miners are the highest paid group of workers, earning 22 cents per hour and working 176 hours per month. When the costs for social programs (health, education, paid vacations, and so on) are factored in, this increases to up to 33 cents per hour. As in other post-Soviet Union countries, there is an oversupply of labour. So as the Kyrgyz economy opens to the international market, the wage component will be treated with increased concern and will inevitably lead to reductions in labour. One of the key problems for the industry is the emigration of highly skilled and experienced staff to Russia and other republics. Regardless of production decreases, the importance of the industry for the economy of the republic is still great.

At present, potential investors, when making marketing, legal, financial, and project decisions, generally resort to the services of international experts, well-known in the field but unfamiliar with local conditions. Experts' recommendations often meet the interests of their clients, but are in conflict with the requirements of rational resource use and the objectives of national economic development. It is necessary to build up a native infrastructure and expertise base that can contribute to decision-making and that factors in market conditions, local circumstances, and leading-edge thinking, while still reflecting local specificity and national concerns.

With regard to the regulatory environment in Kyrgyzstan:

- Deposits are state-owned.
- The developer is obliged to pay a royalty for the right to exploit the deposits and a one-time 'bonus'.
- There is mandatory reclamation and rehabilitation of land and other natural heritage after mining
- The law favours investment and mining business development.
- Foreign investors are encouraged and capital repatriation is allowed
- The transfer of licences to third parties is permitted with the authorization of an appropriate governmental body.

In the present environment, small enterprise development can play an important role in strengthening the Kyrgyz economy. Small deposits can be developed by using comparatively inexpensive portable equipment, and this sector does not require the same degree of extensive infrastructure, which allows a reduction in the volume of inputs and the degree of financial commitment, as well as a potential reduction in the degree of environmental and social impact. Further, the rehabilitation of small areas involves less environmental performance cost. Reduced costs also allow the entry of local developers into the sector. Such companies are small in size, with few staff, but remain independent and can perform well in terms of sustainable development under the right conditions.

Yet the development of small deposits still creates the new jobs that are important in the absence of other economic activity and helps to support local development through

contributions to revenues, providing that local administrative systems facilitate the use of such revenues to achieve development-focused objectives.

Other challenges include the legacy of uranium mine tailings left after the demise of the former Soviet Union, which used Kyrgyzstan as a major source of supply until the late 1970s. From the mid-1950s up until the present, 18 mining plants have been closed. Present estimates determine that these plants have been responsible for 520 million cubic metres of waste stored in 63 dumps, and 56 million cubic metres of beneficiation and metallurgical processing wastes stored in 44 tailings and slag carriages.

Significant radioactive contamination has been identified with pathways into surface waters and the atmosphere. The waste dumps at Tuyuk-Suu for example, contain approximately 765,000 tonnes (430,000 cubic metres) of uranium mill tailings. More than 1720 hectares of land are occupied by existing waste facilities, including previously productive agricultural land. Few funds are available for rehabilitation, although at the time of writing, a draft law on 'tailings and dumps' is pending.

The Ministry of Environment and Emergency is not well enough organized, lacks appropriately prepared personnel and equipment, and is unsure of its roles and responsibilities. Further, existing legislation in the field of environmental protection is based on the practices extant in the former Soviet Union and does not consider the specific environmental problems caused by these hazards.

Citizens and public unions are entitled to take part in decision-making related to the siting of tailings disposal facilities. People living on land near tailings dumps are entitled to receive compensation for damage caused by radiation and other forms of pollution that exceed specified concentrations. Since the break-up of the former Soviet Union, such payments have not been maintained.

The industry has also gone through a major restructuring in a struggle to reduce production costs, which has led to job losses of 50–70%. In some instances, minimal subsidies have been granted to the worst affected communities. Counter to this, the government has also been taking measures to try and improve the contribution of the mining and minerals sectors to the development of local communities. The Government of Kyrgyzstan has developed a long-term plan for the development of new mining enterprises in all regions of the republic in an attempt to create jobs and increase foreign exchange.

Russia National Baseline Study

[[Pending submission of report]]

Sustainable Development : Global Challenges Local Solutions

The definition of sustainable development outlined in Chapter 1 speaks to the need for five fundamentals; fulfilment of needs, for everyone, in an equitable fashion, with consideration for the environment and for future generations. Globally, we are far from achieving these

objectives, therefore articulating the dimensions of the challenge is essential if society is to move towards designing a framework for change.

Defining both the extent of the challenges facing society and the framework for addressing these from the perspective of any particular industrial sector is not solely the preserve of expert knowledge: There are negotiations to be had within society, negotiations about convergent planning, complimentary political and economic structures, effective and efficient use of resources, trade-offs, north-south equity and so on. The challenge to the MMSD regional partners has been to act as a barometer and to take the temperature of these negotiations regionally and as they relate to the mining, minerals and metals sector.

The regional partners have attempted what is in some senses a limited exercise, to define the sustainable development challenge that faces the stakeholders in one sector and within a specified region. The task has been confined further to looking at key issues, low-hanging fruit and things that will make a significant difference to the fit of this sector within the sustainable development paradigm. The task, even limited in this way, has been enormous as is evident both from the diversity of undertakings within each region and between regions.

Themes run throughout the regional work which mirror those articulated by the global MMSD project. Issues of capacity and governance, issues of equity and transparency and issues of subsidiarity. Within this complex milieu, it is evident that the potential solutions and courses of action are often local in nature; strategies for community involvement in decision, making for example (a key component of sustainable planning), may be very different in South Africa, North America and India. The sustainable development paradigm however, provides a framework that ensures that society is working towards the same goals. It is also clearly a 'best-bet' option in terms of the sector's ability to meet the diverse needs and demands of the societies in which it operates.

