

EXECUTIVE SUMMARY

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Mineral products are essential to contemporary societies and economies. Many basic needs cannot be met without them. But simply meeting market demand for mineral commodities falls far short of meeting society's expectations of industry. The process of producing, using, and recycling minerals could help society reach many other goals – providing jobs directly and indirectly, aiding in the development of national economies, and helping to reach energy and resource efficiency targets, among many others. Where industry is falling far short of meeting these objectives, it is seen as failing in its obligations and is increasingly unwelcome.

The mining and minerals industry faces some of the most difficult challenges of any industrial sector – and is currently distrusted by many of the people it deals with day to day. It has been failing to convince some of its constituents and stakeholders that it has the 'social licence to operate' in many parts of the world, based on the many expectations of its potential contributions:

- Countries expect that minerals development will be an engine of sustained economic growth.
- Local communities expect that the industry will provide employment, infrastructure, and other benefits that counter the risks and impacts they experience and will leave them better off than when the project started.
- The industry's employees expect safer and healthier working conditions, a better community life, and consideration when their employment ends.
- Local citizens and human rights campaigners expect companies to respect and support basic rights, even when they are operating where government does not.
- Environmental organizations expect a much higher standard of performance and that the industry will avoid ecologically and culturally sensitive areas.
- Investors expect higher returns and have shown considerable concern about the industry's financial results.
- Consumers expect safe products produced in a manner that meets acceptable environmental and social standards.

Companies must do much more, sometimes with fewer resources. There are boundaries to the responsibilities companies can take on in society: most people would be uncomfortable in a world where companies were the main sources of education and

health care, the principal agencies protecting individual rights, or surrogate governments. Other actors have important roles to play – governments above all. Government must provide an enabling environment, define the standards expected of industry, assure those standards are being met, and have meaningful incentives and sanctions to encourage compliance. It must be a better service provider and a better protector of minority rights.

Success will require improved capacity and performance by all in the minerals sector – industry at all stages from exploration to processing, government, international organizations, non-governmental organizations (NGOs), academia, civil society, communities, labour, lenders, insurers, and consumers. All will need to learn to pursue their own objectives in ways that move society as a whole forward.

Against this background, and with the World Summit for Sustainable Development planned for 2002 in mind, nine of the world's largest mining companies decided to initiate a project to examine the role of the minerals sector in contributing to sustainable development, and how that contribution could be increased. Through the World Business Council for Sustainable Development, they contracted with the International Institute for Environment and Development to undertake a two-year independent process of research and consultation – the Mining, Minerals and Sustainable Development Project (MMSD). The project ultimately attracted support from more than 40 commercial and non-commercial sponsors. From April 2000, Project teams in London and four key regions worked to meet four broad objectives:

- to assess the global mining and minerals sector in terms of the transition to sustainable development,
- to identify how the services provided through the minerals supply chain can be delivered in ways that support sustainable development,
- to propose key elements for improving the minerals system, and
- to build platforms of analysis and engagement for ongoing communication and networking among all stakeholders in the sector.

The project was supervised by an independent Assurance Group of 25 experienced individuals from different perspectives and regions who served as individuals rather than representatives of any organizations. The group met eight times to review

progress and advise on future direction. The project management maintained independence throughout the process. The main components of the project are set out in Box ES-1.

Breaking New Ground presents an analysis of a large and heterogeneous sector through the many stages of minerals and metals exploration, production, use, re-use, recycling, and final disposal. The project assumed from the start that sustainable development could provide a useful framework to guide the minerals sector. It also believed that by setting out the challenges – from all perspectives, in a balanced way – new ways forward would emerge. This Executive Summary provides a basic guide to the priority issues facing the sector, which MMSD identified in its consultations

Box ES-1. The MMSD Process

Regional Partnerships. The project included four regional partnerships, each with its own governance structure, research priorities, and process of consultation: Southern Africa, South America, Australia, and North America.

National Projects. Through the regional partnerships, or in some cases directly from the project centre, MMSD organized national efforts in approximately 20 countries. In some cases these were simply reconnaissance research reports; in others they included more ambitious research and consultation processes.

Global Workshops. Some 700 people from diverse backgrounds attended the 23 global workshops or expert meetings that dealt with issues from the handling of large-volume wastes and biodiversity to indigenous concerns, human rights, and corruption.

Commissioned Research. Approximately 175 individual pieces of research were commissioned globally and by the regional partners in the course of the project. Much of this was discussed or debated at the workshops or consultation meetings.

Presentations, Communications, and Bulletins. The MMSD staff presented emerging ideas to a wide variety of audiences and asked for comment. The project posted key documents on its website and received substantial communication in response. Over the course of the project, 21 Project Bulletins were sent to a list of more than 5000 people, updating them on project activities and asking for ideas and feedback and comment on the draft report.

with different stakeholders, and outlines some of the most important policy recommendations that came out of the process of consultation and analysis.

A process of this nature has not been attempted on this scale before in any major industrial sector. It has not been an easy task, given the low levels of trust in the sector on the one hand and the complexity of the issues on the other. Though it is premature to attempt an assessment of the all lessons from MMSD, Box ES-2 provides some preliminary observations from the process.

Much of the substance of *Breaking New Ground* is based on research and consultation undertaken through the regional processes in Australia, North America, South America, and Southern Africa. Mirroring the global process, the regional reports are based on extensive dialogue with key stakeholders through workshops, regional forums, and regionally convened advisory groups and on research commissioned on priority topics. The regional partners generated a picture of the sector's contribution to sustainable development and the key priorities in their respective regions. Most important, they identified regionally

Box ES-2. Multistakeholder Processes: Some Observations from the MMSD Project

- A broad-based, inclusive process of initiation is fundamental to the success of the effort.
- The time frame must take into account the differing capacities of participants as well as the need for a timely outcome.
- No one group should own access to the process or its follow-up.
- A group that is trusted for its diversity and its insights must be given primary responsibility for steering the process on behalf of all others.
- No process should override the importance of local endowments (cultural, environmental, and economic); thus decentralization should be the guiding rule.
- The initial scope must be agreed to by all, and be subject to revision as the dialogue unfolds.
- The process cannot succeed if any one stakeholder attempts prematurely to claim the high ground in public or works in private to circumvent due process.
- The rules of evidence are crucial – everyone needs to work to the same standards of rigour, honesty, and transparency.
- Any financial resources applied should not affect the relationship; at the same time, appropriate responsibilities for follow-up have to be recognized.

specific actions for the way forward. The regional analyses and outcomes are available as separate reports.

Sustainable Development

One of the greatest challenges facing the world today is integrating economic activity with environmental integrity, social concerns, and effective governance systems. The goal of that integration can be seen as ‘sustainable development’. In the context of the minerals sector, the goal should be to maximize the contribution to the well-being of the current generation in a way that ensures an equitable distribution of its costs and benefits, without reducing the potential for future generations to meet their own needs. The approach taken to achieve this has to be both comprehensive – including the whole minerals chain – and forward-looking, setting out long-term as well as short-term objectives. It requires:

- a robust framework for sustainable development based on an agreed set of broad principles;
- an understanding of the key challenges and constraints facing the sector at different levels and in different regions and the actions needed to meet or overcome them, along with the respective roles and responsibilities of actors in the sector;
- a process for responding to these challenges that respects the rights and interests of all involved, is able to set priorities, and ensures that action is taken at the appropriate level;
- an integrated set of institutions and policy instruments to ensure minimum standards of compliance as well as responsible voluntary actions; and
- verifiable measures to evaluate progress and foster consistent improvement.

Box ES-3 provides a framework based on a set of guiding principles for each of the four dimensions or ‘pillars’ of sustainable development. These should be seen as high-level aspirations and be interpreted in a way that recognizes diversity, limitations in knowledge and capacity, and society’s need for minerals. Although laid out in different spheres here for ease of interpretation, these principles should be applied in an integrated manner in decision-making. Thus, for example, the role of mineral wealth in maximizing human well-being should be acknowledged, but it must be managed in a way that protects the environment and other social and cultural values.

Similarly, the decision of whether or not to mine in a certain area should be undertaken through a democratic decision-making process and be based on an integrated assessment of ecological, environmental, economic, and social impacts.

Box ES-3. Sustainable Development Principles

Economic Sphere

- Maximize human well-being.
- Ensure efficient use of all resources, natural and otherwise, by maximizing rents.
- Seek to identify and internalize environmental and social costs.
- Maintain and enhance the conditions for viable enterprise.

Social Sphere

- Ensure a fair distribution of the costs and benefits of development for all those alive today.
- Respect and reinforce the fundamental rights of human beings, including civil and political liberties, cultural autonomy, social and economic freedoms, and personal security.
- Seek to sustain improvements over time; ensure that depletion of natural resources will not deprive future generations through replacement with other forms of capital.

Environmental Sphere

- Promote responsible stewardship of natural resources and the environment, including remediation of past damage.
- Minimize waste and environmental damage along the whole of the supply chain.
- Exercise prudence where impacts are unknown or uncertain.
- Operate within ecological limits and protect critical natural capital.

Governance Sphere

- Support representative democracy, including participatory decision-making.
- Encourage free enterprise within a system of clear and fair rules and incentives.
- Avoid excessive concentration of power through appropriate checks and balances.
- Ensure transparency through providing all stakeholders with access to relevant and accurate information.
- Ensure accountability for decisions and actions, which are based on comprehensive and reliable analysis.
- Encourage cooperation in order to build trust and shared goals and values.
- Ensure that decisions are made at the appropriate level, adhering to the principle of subsidiarity where possible.

Decision-making processes are as vital as the end results and usually entail making choices and trade-offs between competing interests. There may be conflicts among different groups of stakeholders and between global and local priorities. Various groups, acting in concert, need to evaluate the acceptability of, for example, sustaining minor environmental damage in exchange for major social and economic gain, or of sacrificing economic and social goals for a significant environmental benefit. In each case, the principle of subsidiarity should be adhered to, which recognizes that decisions should be taken as close as possible to and with the people and communities most directly affected.

Implementation of sustainable development principles in the minerals sector requires the development of integrated tools capable of bringing these diverse principles and objectives into focus in a manageable decision-making structure. A wide range of instruments is available, including regulatory, fiscal, educational, and institutional tools. Instruments need to be effective; administratively feasible; cost-efficient, with incentives for innovation and improvement; transparent; acceptable and credible to stakeholders; reliable and reproducible across different groups and regions; and equitable in the distribution of costs and benefits.

Any suggested actions have to be:

- consistent with the sustainable development framework;
- based on clearly defined objectives and incentives to change towards better practice;
- SMART (specific, monitorable, achievable, realistic, and time-bound);
- moving towards higher levels of trust and cooperation; and
- where possible, built on existing structures and institutions.

Challenges Faced by the Minerals Sector

MMSD focused stakeholders' concerns into nine key challenges facing the sector, as laid out in Box ES-4. These represent the most pressing issues identified through the various consultative mechanisms used by MMSD through its almost two-year life.

Box ES-4. Nine Key Challenges

Viability of the Minerals Industry. The minerals industry cannot contribute to sustainable development if companies cannot survive and succeed. This requires a safe, healthy, educated, and committed work force; access to capital; a social licence to operate; the ability to attract and maintain good managerial talent; and the opportunity for a return on investment.

The Control, Use, and Management of Land. Mineral development is one of a number of often competing land uses. There is frequently a lack of planning or other frameworks to balance and manage possible uses. As a result, there are often problems and disagreement around issues such as compensation, resettlement, land claims of indigenous peoples, and protected areas.

Minerals and Economic Development. Minerals have the potential to contribute to poverty alleviation and broader economic development at the national level. Countries have realized this with mixed success. For this to be achieved, appropriate frameworks for the creation and management of mineral wealth must be in place. Additional challenges include corruption and determining the balance between local and national benefits.

Local Communities and Mines. Minerals development can also bring benefits at the local level. Recent trends towards, for example, smaller work forces and outsourcing affect communities adversely, however. The social upheaval and inequitable distribution of benefits and costs within communities can also create social tension. Ensuring that improved health and education or economic activity will endure after mines close requires a level of planning that has too often not been achieved.

Mining, Minerals, and the Environment. Minerals activities have a significant environmental impact. Managing these impacts more effectively requires dealing with unresolved issues of handling immense quantities of waste, developing ways of internalizing the costs of acid drainage, improving both impact assessment and environmental management systems, and doing effective planning for mine closure.

An Integrated Approach to Using Minerals. The use of minerals is essential for modern living. Yet current patterns of use face a growing number of challenges, ranging from concerns about efficiency and waste minimization to the risks associated with the use of certain minerals. Companies at different stages in the minerals chain can benefit from learning to work together

exploring further recycling, re-use, and re-manufacture of products and developing integrated programmes of product stewardship and supply chain assurance.

Access to Information. Access to information is key to building greater trust and cooperation. The quality of information and its use, production, flow, accessibility, and credibility affect the interaction of all actors in the sector. Effective public participation in decision-making requires information to be publicly available in an accessible form.

Artisanal and Small-Scale Mining. Many millions of people make their living through artisanal and small-scale mining (ASM). It often provides an important, and sometimes the only, source of income. This part of the sector is characterized by low incomes, unsafe working conditions, serious environmental impacts, exposure to hazardous materials such as mercury vapours, and conflict with larger companies and governments.

Sector Governance: Roles, Responsibilities, and Instruments for Change. Sustainable development requires new integrated systems of governance. Most countries still lack the framework for turning minerals investment into sustainable development: these need to be developed. Voluntary codes and guidelines, stakeholder processes, and other systems for promoting better practice in areas where government is unable to exercise an effective role as regulator are gaining favour as an expedient to address these problems. Lenders and other financial institutions can play a pivotal role in driving better practice.

Viability of the Minerals Industry

The greatest challenge to embedding sustainable development in minerals companies is the difficulty of linking the concept to financial success. Most companies are struggling to establish a clear business case for pursuing this path. There is indeed a business case for addressing sustainable development concerns: lower labour and health costs, improved access to lenders and insurers, lower post-closure costs, and often reputational and market advantage.

Some companies are undertaking specific measures to integrate the principles of sustainable development into corporate practice, but most are far from developing a detailed vision. Several tools are commonly used, including corporate strategy and policy, change management programmes, formal risk management procedures, implementation and auditing of internal objectives and targets, project appraisals, and core staff training programmes.

Many of the large international publicly quoted mining and mineral companies state that they are committed to shareholder value. A properly implemented switch from the cost culture to the value culture can potentially ensure that sustainable development issues are factored into business decision-making on a more disciplined and systematic basis.

Minerals companies as a group have a poor record of safe and healthy working conditions. There has been significant progress in recent years, but more needs to be done to ensure that employees can work without injury or illness. Effective safety management on a day-to-day basis requires partnership among management, workers, and unions. Companies need to demonstrate that they are meeting the minimal standards required under the International Labour Organization core conventions, including the right of workers to choose to form trade unions and the observation of minimum standards for health, safety, and hours of work.

The Control, Use, and Management of Land

Exploration and mining pose some significant challenges in terms of land access and management. The most appropriate use of land is best decided within an integrated land planning framework that seeks to balance competing interests between national and local levels, for example, or between mining and conservation. There are trade-offs that may be made in order to generate benefits in one domain, but decisions on these can only be achieved through inclusion of and negotiation with all of those likely to be directly affected by the results. The planning process will be more effective in the presence of equitable and inclusive rules of tenure, compensation schemes for those affected, and strong governance, including mechanisms for arbitration where necessary.

Land, Mining, and Indigenous Peoples

Indigenous lands have been and, many would say, are still under threat from all sorts of exploitative uses, including mining. Land is often used without the consent of indigenous peoples. Companies should act as if consent to gain access to land were required even when the law does not demand this. Decision-making processes appropriate to the cultural circumstances of indigenous peoples must be respected.

Resettlement

Resettlement has often been accompanied by

landlessness, unemployment, homelessness, and loss of access to common resources, among other problems. Companies today would not support the practices of the past, and there is a more equitable approach to resettlement issues around contemporary projects. Where resettlement takes place, companies need to ensure that living standards are not diminished, that community and social ties are preserved, and that they provide fair compensation for loss of assets and economic opportunity among others. Roles and responsibilities for ensuring the long-term well-being of resettled communities need to be defined and monitored.

Protected Areas

Protected areas are essential to the conservation of key ecological, social, and cultural values. There should be broader discussion of protected areas management and trade-offs. Both the local stake in the success of protected areas and the resources available to manage them need to be increased. Minerals development could in principle help fill these gaps, but there is profound suspicion of any proposal to mine in or near protected areas. A lack of successful examples where this principle has been concretely demonstrated is a major obstacle to progress. Environmental, mining, and other interests should be considered in conjunction with those of the often poor and politically marginalized peoples who commonly live in these areas.

Minerals and Economic Development

Minerals development is hard to justify if it does not bring economic benefits, particularly to countries and regions that lack alternative sources of development and are otherwise unattractive to foreign investors. In addition to gaining hard currency from taxes and royalties, benefits from mineral development should include employment, infrastructure such as roads and hospitals, linkages upstream to industries that supply goods and services or downstream to industries that process mineral outputs, and technology transfer. In some countries, however, mineral activities have not brought sustained economic development. Sudden wealth may have detrimental effects on social and political life, leading to or supporting corruption, authoritarian government, human rights abuse, or armed conflict.

Tariff and non-tariff barriers have also inhibited developing economies from capturing more value

added in the minerals chain. A lack of economic resources, institutional capacity, and political will are often the source of inequities and underdevelopment. Where governance and national-local linkages are weak, communities may see little of the mineral revenues. The solution is to find better ways to capture and manage mineral wealth and to ensure that it is invested for lasting benefits in support of national, regional, and local development.

Corruption

Corruption is a major obstacle to the equitable distribution of minerals revenues. Many operations take place in countries where corruption is prevalent. Some companies in the minerals sector may have colluded in a variety of illicit activities – bribery to obtain licences and permits; to get preferential access to prospects, assets, or credit; or to sway judicial decisions. The minerals sector also has characteristics that heighten the risk of corruption, such as the large capital expenditures involved, the extensive regulation required, and the fixed locations.

Human Rights

Some mining companies have been accused of human rights abuses, for actions taken either independently or in collusion with governments. Some of the worst cases have occurred when companies have relied on national security forces to gain control over land or defend established premises. Miners' rights are also threatened by difficult and dangerous working conditions, with a long history of labour-management conflict, particularly in authoritarian states. Some advocates argue that multinationals should take responsibility not just for respecting but for promoting human rights.

Conflict

In politically unstable areas of the world, mining has provided a source of funds to sustain outbreaks of violence – where combatants sell minerals through illegal channels to fund military campaigns. Large-scale in-migration at mine sites can cause resentment among those already living there. When mining revenues are not equitably shared, armed conflict may be provoked. Similar disruption can occur at mine closure.

Local Communities and Mines

Few areas present a greater challenge than the relationship between mining companies and local

communities. The legacy of abuse and mistrust is clear. Widespread community demands for relevant, direct, and sustained benefits from mineral wealth are a relatively recent phenomenon, so frequently neither government institutions nor companies or communities themselves have been properly equipped to respond to them. In areas of weak governance, communities often turn to the operating companies, which have found themselves providing development services to obtain or to maintain their social licence to operate.

A new relationship is beginning to emerge, based on recognition of the rights of communities and the need for community participation in decision-making. Moreover, new initiatives seek to avoid the company assuming the role and responsibilities of government, but rather focus on improving the capacity of local government and other local institutions to deliver mine-derived benefits over the long term. It is increasingly recognized that NGOs and other civil society groups can also act as independent mediators, facilitating the flow of information to and from communities and implementing actions in partnership with companies and government.

Ideally, the share of revenue received by the community should be determined through a democratic process and incorporated into initial agreements between governments and mining companies. The design of policy, regulations, and agreements must reflect the capacity to implement them. In the short term, where there is insufficient capacity, the best option is to take a collaborative approach. Of course, the most appropriate path will vary on a case-by-case basis, depending on the community's relationship with government and the availability of economic activities, services, and savings opportunities to which funds and revenues can be directed.

It is important to ensure that the benefits from minerals development are sustained beyond the life span of the projects for the communities. Support for local businesses, preferential procurement policies towards local suppliers and distributors, employment of locals, and skills training are important means of benefiting local communities and building human and financial resources. There are also initiatives that are geared towards the concerns of workers who lose their jobs. Such efforts will be of limited success if initiated only when retrenchment is a reality.

Health services provided by companies to employees and communities have generally reflected an inadequate understanding of local needs, as well as a lack of consideration for the inability to sustain such services after the operation closes. Beyond work-related diseases, few endeavours attempt to prevent diseases that affect the wider community or to consider the community's broader well-being. Some companies are now taking on a broader role in community health programmes by working in partnership with other stakeholders.

Multistakeholder forums run by independent parties can provide an effective means of facilitating community awareness, capacity-building, and involvement, as well as reducing the power differential between the community and company.

Mining, Minerals, and the Environment

The best modern mining operations represent a great improvement over past practice, and most major mining companies are committed to continuous progress on environmental performance. But past practice was sometimes quite bad, and in some cases this continues. Even the best modern operations may have some undesirable environmental impacts, and good practice has far to go before it spreads to all parts of the industry. The objective of improved performance is to ensure that critical natural capital is maintained, that ecosystems are enhanced where possible, and that minerals wealth contributes to net environmental continuity. The challenge is to define where, in the short and medium term, resources can be targeted to ensure the best chance of meeting these objectives in the future.

Large-Volume Waste

Mining produces very large volumes of waste, so decisions about where and how to dispose of it are often virtually irreversible. Facilities designed to contain this waste are among the largest structures ever built. The long-term impacts of the options for waste disposal are among the most important in the minerals cycle.

Mine Closure Planning

Because decisions about waste handling and other aspects of operations are often so difficult and expensive to reverse, they need to be made right in the first place. The best way to do that is through

development of a closure plan at the outset of operations. This can guide individual decisions taken during the mine life to ensure they are oriented towards this objective. Most mine closure planning now focuses only on environmental aspects of closure. Integrating social and economic aspects is a necessary step to transform mining investment into sustainable development.

Environmental Legacy

The environmental issues of current and prospective mining operations are daunting enough. But in many ways far more troubling are some of the continuing effects of past mining and smelting. These sites have proved that some impacts can be long-term and that society is still paying the price for natural capital stocks that have been drawn down by past generations.

Environmental Management Systems

Environmental impact assessment (EIA) is perhaps the most widely used tool of environmental management in the minerals sector and elsewhere. EIAs are now mandatory for most large-scale development projects. However, their implementation is often abysmal. Recently, social and economic factors have tended to creep into this environmental exercise; this should be deliberately promoted as part of a move towards integrated impact assessments.

EIA, as part of an environmental management system (EMS), should integrate environmental responsibilities into everyday management practices through changes to organizational structure, responsibilities, procedures, processes, and resources. An EMS provides a structured method for company management and the regulating authority to have awareness and control of the performance of a project that can be applied at all stages of the life cycle.

Biodiversity

A loss of biodiversity is a loss of natural capital. It is irreversible. Some companies have formulated biodiversity policies and introduced innovative design and operating management. Such remedial actions are encouraging, but still largely restricted to the major players. Governments have found it difficult to create the incentives to encourage conservation. The Convention on Biological Diversity provides the minerals sector with a politically sound basis for engaging in constructive dialogue and

partnerships with the biodiversity community. It is a key instrument of the global programme for sustainable development.

An Integrated Approach to Using Minerals

The use and downstream supply of mineral products has implications for sustainable development and must be considered along with mining and processing of minerals. Current patterns of minerals use raise concerns about efficiency and the need for more equitable access to resources world-wide. Much of the concern, policy, and regulation regarding the use of minerals has focused on environmental issues, health risks associated with use, and the long-run availability of these resources. A number of conceptual tools aimed at increasing efficiency and calculating optimal levels for recycling have been developed to this end. The social and economic dimensions of use and of potential future changes are generally not given equal consideration.

Environmentalists and others have called for a reduction in the material throughputs that support many national economies, particularly in industrial countries. Such calls challenge those who directly influence the ways in which minerals are used in products and challenge users to reduce their levels and patterns of use and disposal. Resource efficiency can be increased in numerous ways, including recycling, product re-manufacture and re-use, substitution, and in some cases avoidance of use.

The environmental and health impacts of different mineral products in use need to be carefully managed. Where the risks associated with use are deemed unacceptable or are not known, the costs associated with using certain minerals may outweigh the benefits. It is primarily a government responsibility to balance these uncertainties using the precautionary approach. Industry can generate much of the information required to ensure that such judgements are science-based.

Recycling is associated with many of the same trade-offs between environmental and social factors as the extraction of minerals and ores. If recycling is to be encouraged, broader integration and consistency in environmental policy-making, including difficult trade-offs between different environmental goals, are needed. Technological advances are also key, as is information on the material available for recycling.

Access to Information

Sustainable development requires increased openness and greater transparency in information production and dissemination throughout the minerals life cycle. Access to information is also linked to the ability of individuals to obtain and defend fundamental rights to resources. The processes by which information is generated and communicated play a key role in improving all participants' ability to negotiate effectively and with legitimacy. Information should be a 'leveling tool' so that all stakeholders might participate in decision-making on equal ground.

Authoritative, independent sources are critical for ensuring that information is regarded as legitimate and respecting the right of stakeholders to have access to accurate and relevant data. Systems of accountability and verification are essential to monitoring the performance of companies, governments, and civil society. The digital divide also presents imbalance. International and multilateral bodies, governments, NGOs, and industry all have an important role in making new information resources available. The processes for establishing the norms and standards of information generation and transfer, the regulatory system to ensure conformity to these standards, the opportunities for reaction in the public domain, and the freedom to participate without fear of reprisal are largely the responsibility of state governments, with the cooperation of other actors.

Open information regimes are critical to more efficient economic decisions by all and effective public participation in decision-making. They will not work without access to justice.

Artisanal and Small-Scale Mining

In many parts of the world minerals are extracted by artisanal and small-scale miners – people working with simple tools and equipment, usually in the informal sector, outside the legal and regulatory framework. There are also many artisanal mineral processors, such as diamond polishers. The vast majority are very poor, exploiting marginal deposits in harsh and often dangerous conditions – and with considerable impact on the environment. Small-scale mining is thought to involve 13 million people directly and affect the livelihoods of a further 80–100 million. A broad range of minerals is extracted by artisanal and small-scale miners, including gold, gems, precious stones, and metals.

ASM is an important aspect of rural livelihoods.

It often represents the most promising, if not the only, income opportunity available. But it can also be very disruptive – particularly when it takes the form of a sudden 'rush' causing local people to desert their farms or resulting in in-migration. When the rush is over, most of the profits are likely to have disappeared – while the social and environmental damages persist.

The environmental impacts of ASM are of greatest concern to many observers: mercury pollution, direct dumping of tailings and effluents into rivers, threats from improperly constructed tailings dams, river damage in alluvial areas, river siltation, erosion damage and deforestation, and landscape destruction. A lack of awareness combined with a lack of information about affordable methods to reduce impacts and a lack of obvious incentives to change all contribute to these problems. To many people these are unacceptable and a sufficient reason to ban many forms of ASM.

Sector Governance: Roles, Responsibilities, and Instruments for Change

Achieving effective governance is a major challenge facing the sector and is a key to dealing with many of the issues discussed in *Breaking New Ground*. Many of these relate to poor governance, which results from numerous factors, including a lack of resources and capacity, power imbalances, a lack of political will, a lack of coordination and integration, or a lack of representation of stakeholders in decision-making. In some cases, existing governance structures fail to resolve issues and enforce legislation due to bureaucracy, authoritarian systems, lack of accountability and transparency, or corruption. At the extreme, poor governance can go hand in hand with abuses of human rights and conflict between different actors. Prevailing governance structures continue to reflect imbalances in power among different actors and in the priorities given to their interests at the national and international level. Minerals development has in the past decades been the province of the investor, who was often foreign.

Sustainable development requires understanding and defining the roles, rights, and responsibilities of all actors – and introducing new instruments for change. It is important to focus on capacity building throughout the sector. Government has a central and unavoidable role to play in improving governance for

sustainable development through a national policy framework, regulation, and enforcement. But not all governments have the capacity to make the changes. Therefore it is especially important to focus on strengthening the capacity of national and local governments to design and enforce regulations.

Capacity can also be strengthened through voluntary collaboration among different actors. Agreed standards and benchmarks will need to be established, together with agreed mechanisms to deal with the legacy of past mining operations and any future effects of today's activities. Efforts are needed to avoid the proliferation of competing schemes – norms, standards, guidelines, and criteria for the minerals sectors. To achieve this, effective and trusted systems of stakeholder engagement are required. These need to ensure that those with most at stake, especially the most vulnerable groups, are able to participate in appropriate and effective ways.

An Agenda for Change

Given the heterogeneous nature of the minerals sector, few generalizations can or should be made. With that disclaimer in mind, here are some general conclusions of the MMSD Project:

Need – Society's need for mineral commodities is clear, as they provide the substrate for numerous products upon which modern society depends. Even in the case of non-recyclable mineral commodities such as coal, it will take years to phase out use, given current dependencies. It is not currently possible to meet the world's legitimate basic needs without more of at least some kinds of mineral commodities in circulation.

Structure of the Sector – Though there is a great deal of interdependence among companies along the value chain, the lack of vertical integration in some of the minerals industry can be an obstacle to effective product stewardship. Improving this situation will require much more collaboration in the industry than has occurred in the past. If the industry is to move towards providing mineral 'services' as opposed to material supply, restructuring and alliances will need to be established.

Stakeholders – The sector includes stakeholders from

the local to the global – with a wide variety of interests. There is a difference between those with a direct and often involuntary interest and those who are concerned indirectly because they choose to be. The term 'stakeholder' therefore requires further clarification. Talking of multistakeholder processes without some clarity around the different kinds of 'stakes' is too simplistic.

Subsidiarity – Local issues should be solved locally, as local endowments and priorities differ from place to place. While international action and solidarity remain crucial, decentralizing decision-making to the point as close to the impact as possible should be the norm. Local actors often resent interventions from national or international quarters 'on their behalf', particularly if this involves the assumption of a mandate.

Best Practice – Similarly, the concept of 'best practice' requires local solutions. A frequent response to questions about what constitutes 'best practice' is that 'it all depends'. Best practice should be defined by decentralized and iterative processes, not by a fixed set of parameters that can be read out of a manual.

Incentives – Win-win solutions are not always possible; voluntary approaches alone are insufficient where there is a compelling priority but little or no business case to justify the additional expenditures needed to meet it. There are then two options: collective action on a voluntary basis that is enforced internally by a group, or governmental intervention or regulation to achieve the same result. Unless the law is clear and enforced, some enterprises will resist change. In addition, if civil society groups put pressure only on a large few companies and fail to recognize progress, the rest will ride free. Market-based incentives on sustainable development criteria are difficult, though probably not impossible, to design. At present, the discussion is couched in terms of the management of risk, increasing shareholder value, and the occasional marketing advantage. Devising a system of customer-driven certification is also problematic due to the heterogeneity of the industry.

Capacities – There is a critical need to build the capacity of all the actors. Sustainable development for the sector calls for a new and different mix of skills.

Managing Mineral Wealth – The potential contribution of minerals to national economies is

mostly far from realized. In all too many instances, incentives for foreign investment reduce the wealth available to the host nation. The ability of mineral-rich countries to add value to their wealth by way of beneficiation and processing is often denied by lack of capacity, tariffs, and other trade barriers. In some cases, subsidies make the position worse for others. The mismanagement of wealth through inefficiency and corruption does not help. Those who have mineral wealth now should be determined to use it to produce diverse and stable economies for tomorrow – and they need help to do so.

Legacies – The negative social and environmental legacy of the sector is a major obstacle to building trust and moving forward. Abandoned sites and communities, persistent waste and pollution issues, aggrieved peoples: the list is long. Historically, consumers – mostly in the industrial world – have not paid the full costs of using mineral commodities; the failure to internalize many of these costs has only been recognized recently. The obstacles to progress in dealing with legacies include establishing priorities on the worst sites, identifying who will pay, and deciding on the source of the funding.

Collective Efforts – Corporate performance in the minerals sector, measured against any indicator, is variable. Some good companies are improving, but the bad are inexcusable, and the past record is even worse. Action by companies, individually and collectively, is clearly required. In an open trading and competitive world, a ‘rush to the bottom’ caused by ‘free riders’ is a real danger. In many areas, small companies are crucial to the standards of large ones. If, for example, projects near closure are simply sold by multinationals to private, less visible entities, other routes are opened to avoid obligations. Collective action must include companies of all sizes in order to produce positive results.

Use of Existing Institutions – Existing organizations should be encouraged to continue facilitating collective action. Institutions such as national and international chambers of mining and regional governmental organizations currently offer the best opportunity for collective action to move forward. Mutual recognition of their respective roles and collaboration is needed. All need to engage more openly with other constituencies.

Dilemmas remain on a range of issues, including how to:

- raise the capacity of all to act to the best of standards,
- define the boundaries of responsibility among different actors when governance is weak,
- balance the role of regulation with that of voluntary initiatives,
- apply the precautionary principle so as to have a proportional response,
- remove subsidies and trade barriers that favour the better-off,
- achieve better balances between risks and opportunities,
- act when there is a democratic and governance deficit,
- stop the free riders yet maintain competition in an open trading world, and
- ensure that the price of a product reflects its total costs.

A Vision of the Minerals Sector

The MMSD process sought to create a picture of what the minerals sector would look like if it were to maximize its contribution to sustainable development. In this vision of the future, the minerals industry is integrated throughout the value chain and providing mineral services rather than primary products. To raise the performance of all, a leading group of companies – both large and small – provides a model and supports the efforts of others.

Legal and regulatory frameworks will be complemented by voluntary initiatives, such as mine-site or company-wide verification. These measures will be developed through transparent and inclusive processes, defining concrete performance standards at the global, national, and local levels. Governments will have sufficient capability and willingness to impose sanctions on those who will not meet these standards. There will be fair and accepted mechanisms to facilitate access to information, public participation in decision-making processes, and access to justice to resolve disputes.

All actors will have sufficient capacity to meet higher standards, to define and enforce constructive interventions, and to monitor performance and facilitate sustainable development objectives. Costs will be much better internalized, and there will

be a concerted effort to address the legacies of abandoned mines.

There will be clear incentives for all actors. Companies that perform well will retain their social licence to operate – including lower operating costs, favourable borrowing terms, and lower insurance rates.

Governments will benefit from harmonious social, economic, and political relations. Labour will enjoy better working conditions and better health. NGOs will play a positive role in meeting society's needs.

Consumers will be assured that their use of mineral products is supporting sustainable livelihoods.

And communities overall will have better standards of living and greater involvement in decision-making processes.

Supporting Sustainable Development in the Minerals Sector

Broad steps that can be taken to integrate many of the individual suggestions in *Breaking New Ground* can be grouped into four major categories of actions to support sustainable development in the minerals sector:

- Increase understanding of sustainable development.
- Create organizational-level policies and management systems for implementing the principles of sustainable development.
- Collaborate with others with common interests to take joint steps towards sustainable development.
- Increase our ability to work towards sustainable development at the local, national, and global levels.

The proposals are directed principally to those with a high level of interest and involvement in the sector. Many of the proposals are more applicable to some actors than to others.

Step One – Understanding Sustainable Development

A commitment to education and research is required, including a focus on the development of practical tools for making decisions and taking actions. This should include incorporating sustainable development into the curricula for mineral professionals, and increasing understanding among employees of minerals companies, relevant government agencies, labour and civil society organizations, and others with important roles in the sector.

Research will face increasing demands to ensure relevance to the concerns of stakeholders in the sector, and there is a need to find mechanisms to ensure this broadening of focus occurs. Any organization funding significant research in this area should have clearly stated policies ensuring the rigour of the research it is supporting, including publication of data, citation to publicly available sources, and peer review. More funding could be committed to research that aims to integrate disparate sets of knowledge or expertise within a sustainable development framework.

Specialists of different disciplines and technical fields at all stages of the minerals cycle – from geology to accounting – will need to evaluate how to apply the principles of sustainable development to their current activities. This task may be aided by collaboration with others in the same fields, through, for example, the work of professional associations.

Step Two – Creating Organizational Policies and Management Systems

Most organizations do not have sustainable development policies and should consider developing them. This is important for all actors, including large consumers of mineral products, lenders, and institutional investors. As a first step in developing such a policy, an organization should review its overall objectives and functions from a sustainable development perspective. Those that already have sustainable development policies should review the extent to which these have penetrated the organization and its decision-making processes, and should consider more effective ways of integrating them into practices and deriving organizational value from them.

Companies should develop a sustainable development policy, which incorporates other relevant company policies such as those on environmental issues, worker health and safety, employee integrity, community relations, human rights, reporting, and so on. This should enable the integration of these policies within a coherent, more efficient and effective, and less costly management system. The whole company should be engaged.

Companies can develop management systems for key issues, even where such policies have not been established. For minerals companies, an example of this is establishing a management system to review end-of-

life plans at existing operations, to take necessary action to strengthen them, and to continue to monitor them throughout the project life. The review should focus on whether existing plans fully address the end-of-life environmental, social, and economic conditions for affected communities; care and opportunities for displaced workers; and the implications for government and other actors at all levels. This process can be useful in surfacing potential future liabilities and allowing them to be managed.

Labour organizations could develop sustainable development policies as a way of bringing members together in a shared understanding of priorities and objectives for themselves and for the organization as a whole.

Government sustainable development policy for the minerals sector would provide a useful tool to integrate, coordinate, and harmonize the missions of different departments in pursuit of common objectives. The departments involved in developing and adopting the policy should at a minimum include those dealing with minerals exploration and development, the environment, trade and industry, labour, and economic development. A country with significant mineral endowments should consider undertaking a comprehensive review of the impact of its legal and policy framework for the minerals sector.

NGOs could develop policies to clarify the link between organizational purposes and broader sustainable development goals, to provide guidance to employees in making decisions, and to make the organization's position clear to other actors. NGOs can also enhance their effectiveness and credibility, and reduce risks by developing clear and public policies and management systems of investigation and assurance that they apply to data they use.

Step Three – Achieving Cooperation Among Those With Similar Interests

Groups of actors with common roles, responsibilities, and interests can benefit from collaboration in a number of ways. For example, they can form associations or networks to share understanding and lessons of good practice, and to enable more effective communication with other groups to pool resources, and to minimize transaction costs. Collaboration may occur from the local to international level and may

take a number of different forms – everything from informal information-sharing networks to formal associations requiring membership and adherence to a set of structures and certain norms.

Existing Associations and Networks

These should review current practices with a view to developing sustainable development policies, where they do not already exist. Networks such as the World Mines Ministries Forum, regional associations such as the Mines Ministries of the Americas (CAMMA) and ministries in Asia Pacific Economic Cooperation (APEC), and NGO initiatives such as the Global Mining Campaign should consider adopting sustainable development policies.

Forming Associations or Networks

Where appropriate, stakeholder groups in the minerals sector should be encouraged to form associations. The impetus must come from within the groups themselves, but others can help create opportunities for engagement.

A key goal is to develop the ability of small-scale and artisanal miners to articulate their views, through their own associations, in policy and other processes that affect their interests. The Communities and Small-Scale Mining initiative is critical in providing a forum to facilitate communication and coordination between miners, donors, and other stakeholders.

Communities affected by mineral activities could benefit from the development of stronger networks for sharing experience and bringing their views to attention at the national and global level. Conferences of local governments and other community organizations, supported by donors and organized on an inclusive basis, might be a first step towards building these stronger networks.

An international indigenous peoples organization could be established to share experience and strategically advise, direct, and monitor industry performance in the arena of indigenous relations.

Protocols and Statements of Principle

Within associations of actors, standards can be improved collectively through the development of and agreement on norms and principles.

- *A Global Declaration and Establishment of a Protocol*
The minerals industry should consider adopting a Declaration on Sustainable Development and establishing a Protocol to support its commitment. This would simplify the current multiple codes of conduct and sources of guidance by providing a way to bring these together over time into one management system. It would start by building on the recently adopted Sustainable Development Charter of ICMM.

Phase I – ICMM and other appropriate organizations could develop the Declaration unilaterally in consultation with stakeholders. (See Box ES–5 for suggested basic elements.) Companies would be encouraged to adopt and sign on to it. The Declaration might be most effective if it includes a commitment to develop specific, measurable criteria as a set of protocols, along with a system of verification of performance. It suggests how that system of protocols could be extended more broadly to all parts of the industry.

Phase II – The goal of Phase II would be to create the basis for an accepted Protocol for individual minerals

Box ES–5. Basic Elements of the Declaration on Mining, Minerals, and Sustainable Development

Companies could agree to:

- Participate in review of their association charters and policies in light of the conclusions of this report.
- Work with other companies, within a defined time, to establish a Protocol dealing with key issues of sustainable development and corporate performance, in a process acceptable to key external stakeholders.
- Work with other companies to develop an accepted system of verification to accompany the Protocol.
- Devise a set of immediate commitments embodied in the Declaration; one approach would be the adoption of the basic principles outlined in a manageable number of existing agreements and guidelines.
- Develop internal management procedures to familiarize employees with the meaning of these commitments, their importance as company policy, and their alignment with business success.
- Develop reporting procedures that address the principles in the Declaration.
- Conduct, over a defined period, an independent audit by a reputable outside organization of the state of company compliance with the requirements of the Declaration.

facilities or projects. Protocols for individual sets of issues could be adopted as they were agreed. The Protocol should be accompanied by a clear system of rigorous third-party verification. Representatives of key stakeholder groups should be involved in development of the Protocol and the verification process.

Phase III – This phase is envisioned to be an expanded Protocol for company-wide application. Participation by external stakeholders in management of the process would be deepened. It may lead to a system of company-wide certification or verification. Phase III could ultimately consider product certification for certain mineral commodities.

While ICMM must have the key role in reviewing its own Charter, and should take leadership in developing the language of the Declaration and the subsequent adoption of the Protocol, companies choosing not to join ICMM should be able to participate in this system. It should be open to all levels of the industry, and therefore should be a subject of early discussion with national associations and such bodies as the Prospectors and Developers Association of Canada (PDAC) or Eurométaux. Any or all of these bodies could eventually – as the Australian Minerals Council has – decide that adhering to the Protocol is a requirement of membership. But the Protocol should not require membership in ICMM.

The Declaration could call for an immediate set of commitments that could be adopted by individual companies, together with a commitment to a longer-term process of multistakeholder engagement to develop the more comprehensive and specific protocols for the industry. It should also provide for a company commitment to adopt and comply with national or regional industry codes of conduct where they exist. For example, companies operating in Australia should initially comply with the Australian Minerals Industry Code for Environmental Management, and those in Canada should adhere to the Mining Association of Canada's environmental policy and sustainable development principles as they are developed.

- *National and Regional Industry Codes of Conduct*
Many issues can be dealt with more effectively at the national or regional level. A number of national industry associations have adopted sustainable development policies. There may be benefits in developing these further into codes of conduct, on the

model of the environmental codes already in place in some associations.

- *Regional Statements of Principle by Governments*

Regional government organizations such as SADC, APEC, or CAMMA may want to consider adopting sustainable development policies for the minerals sector that can help governments seek greater convergence and harmonization.

- *Statements of Principles by Nongovernmental Organizations*

A collective statement of principles by NGOs that focuses on mineral-related issues might strengthen their influence and increase the contribution they are able to make.

Developing the Capacity to Prevent and Respond to Emergencies

Preventing accidents is a high priority. An international facility, supported principally by industry and with appropriate involvement of other stakeholders, could play an important role. It could mobilize world-class experts to supplement government capacity to assess, respond, and control accidents and emergencies, or to reduce the chance of them happening. This approach could assure the public that the best possible advice is available to responsible officials. This facility would rely on experts from consulting firms, universities, governments, companies, NGOs, or other institutions on an ‘as needed’ basis.

Step Four – Building Capacity for Effective Actions at All Levels

Community Level

Where a local community is affected by minerals development, a shared vision of the development path for the community is required.

- *Community Engagement*

For most mining operations, engagement with local communities must begin at the exploration stage. Companies should develop plans for continuous engagement during the operation’s life – from exploration through to closure. This plan should be discussed with the community to ensure that the mechanisms proposed are considered appropriate. Companies must ensure that those in charge have the right skills and proper authority and that there is continuity of involvement. They must also be willing

to invest time in the community.

- *Integrated Impact Assessment*

Environmental and social assessment tools should be combined to enable a transition to integrated impact assessment. This should be universal for new projects and include an early phase of consultation with the community to identify local concerns, and to ensure those are addressed. It could become the basis for the development of a Community Sustainable Development Plan (CSDP).

- *Community Sustainable Development Plans*

The CSDP should be based on the community’s concept of how the mine can best contribute to achieving its social, environmental, and economic goals. The plan should provide the fundamental framework for relationships among the company, the community, and the government (and any other parties) through the project life and into post-closure. It should identify the specific actions needed and the respective roles and responsibilities to achieve the agreed-upon vision. It could also create some obligations, on all sides, for taking those steps. Independent mechanisms for monitoring and evaluation, including clear and agreed indicators of performance, need to be included. The plan will need to evolve and be amended over the life of the project to reflect changing priorities and capacities.

While a company may facilitate and promote the process, the leadership role belongs to local government to the extent it has the capacity and willingness. Otherwise an NGO or development organization could step into this role. The World Bank could evaluate the usefulness of requiring or encouraging contractual CSDPs, where they will be useful, in projects funded by the International Finance Corporation (IFC) or insured by the Multilateral Investment Guarantee Agency. Commercial banks could review whether adopting a parallel requirement would be a way to reduce their exposure to the results of proceeding without such plans.

- *Integrated Planning for Closure*

Since many mineral projects depend on specific deposits that have a finite life span, there is a need to focus on where the community wants to be when the project closes. This requires defining desired end-of-life environmental, social, and economic conditions; identifying the resources required to achieve them; and

Key Actions at the Community Level	
Actions	Responsibilities
<ul style="list-style-type: none"> • Community Engagement • Integrated Impact Assessment • Community Sustainable Development Plans Integrated Planning for Closure • Labour-management agreement for sustainable development • Disputes and conflict resolution mechanisms • Cooperation between large companies and artisanal and small-scale miners 	<ul style="list-style-type: none"> • Companies, communities, local institutions • Companies, communities, local government, consultants • Companies, labour unions, local government, communities, civil society organizations • Companies, labour unions, local government, communities, civil society organizations • Labour organizations, companies • Companies, communities, labour unions, local government, civil society organizations

clearly allocating roles and responsibilities of each of the actors. There needs to be a focus on sustaining benefits in areas such as housing, community health, and education.

- *Dispute Resolution Mechanisms*

Where there is restricted access to justice, especially at the community level, or when existing mechanisms are inadequate or not trusted, it may be necessary to design dispute resolution mechanisms at the community level.

- *Large Companies and Artisanal and Small-Scale Mining*

Large companies could engage directly with small-scale miners and their communities, helping them to work in a more sustainable fashion and where necessary to find alternative economic activities.

National Level

Effective policy, coordination, and action at the national level will help to maximize the benefits of minerals activities and minimize the negative impacts. Governments with mineral activities may consider comprehensive reviews of their legal and policy frameworks for the minerals sector to ensure that they are consistent with the vision of sustainable development.

- *Access to Information*

All levels of governments should have legal and regulatory provisions for citizens to access information in government possession for which there is not a valid and publicly stated reason for non-disclosure. Mechanisms to support this may include contact points for regular exchange of information with civil society. Governments and civil society organizations should also establish clear and agreed procedures for

requesting, receiving, and disseminating information.

- *Public Participation*

Governments should continue the process of regulatory reform to facilitate public participation. Access to information and public participation cannot be established and maintained unless there is a right to access to the legal means to enforce them.

- *Clarifying Land Regimes*

National frameworks should provide clear rules for access to and use of land, including elements such as extensive consultation with local communities; clearly defined rights for those with established occupancy and use of land or communal land holdings, even where they hold no legal title; compensation for loss of rights; and effective access to systems of justice. Governments should also ensure that when bilateral negotiations do take place around land issues, the rules are understood and followed by all actors.

- *Traditional Indigenous Territories*

Governments and companies could make considerable progress by maintaining respect for the principle of prior informed consent freely given. The extent of indigenous territories needs to be clearly defined for the security of traditional peoples, and open dialogue needs to be maintained on this issues. Other actors such as the NGO community can assist.

- *Frameworks to Maximize and Sustain the Benefits of Minerals Development*

Governments should consider developing long-term strategic plans for the creation and management of mineral wealth that include appropriate methods of capturing the rent from minerals and distributing the revenues; the creation of human, physical, and other forms

of capital; and planning for the effects of mine closure at both the local and the national level. In addition, governments could develop measures, such as commodity loans and fiscal restraint, to prevent undue stress on public financing resulting from minerals price volatility.

- *Frameworks for Artisanal and Small-Scale Mining*
Governments need to develop a policy and regulatory framework that focuses on both the facilitation and management of artisanal and small-scale mining, and creates sufficient financial and regulatory incentives for small-scale miners to formalize their activities.
- *Frameworks for Community Development*
Governments should consider incorporating integrated impact assessment, CSDPs, and integrated closure planning and its existing frameworks and assigning responsibilities among agencies – in consultation with relevant stakeholder groups.
- *Mining-Induced Displacement and Resettlement*
Governments must put in place regulations that ensure free and willing negotiation on any resettlement proposal; mechanisms for monitoring and arbitration are a natural accompaniment to such regulations. Although it is premature to institute insurance on involuntary displacement and resettlement, a contingency clause could be proposed as an interim solution.

- *Anti-Corruption Initiatives*
Concerted effort is needed to combat corruption – governments should adopt national legislation to put the anti-corruption convention of the Organisation for Economic Co-operation and Development into effect. Companies could work with organizations such as Transparency International at the national level to establish industry-wide guidance. Industry organizations should consider taking the initiative, possibly in partnership with an international organization such as the World Bank, to establish an international and public register of all payments by mining companies to governments at all levels.

- *Audits, Guidelines, and Standards for Environment Management*
Governments and funding agencies should require regular independent audits of all tailings storage facilities and find ways to act on the results. Equally, governments should set up clear guidelines for evaluating different disposal methods for mining waste on a case-by-case basis, with a clear value in the short term of the need to avoid riverine disposal.

Government agencies charged with managing impact assessment processes should develop standards for baseline data and analysis for special issues, such as acid drainage assessment, closure planning, and water

Key Actions at the National Level	
Actions	Responsibilities
<p>Review and Development of Legal and Policy Frameworks</p> <ul style="list-style-type: none"> • Access to information • Public participation • Land rights regimes and compensation systems • Traditional indigenous territories • Maximizing the benefits of mineral development • Artisanal and small-scale mining • Community development • Mining-induced displacement and resettlement <p>Other Actions</p> <ul style="list-style-type: none"> • An international register of payments to combat corruption • Audits, guidelines, and standards for environmental management • Capacity building • Labour-company agreements • National multistakeholder processes 	<ul style="list-style-type: none"> • Governments and relevant stakeholders • Companies, industry associations, NGOs, governments, international organizations • Government, affected communities, companies • Governments, international organizations such as the World Bank, the UN, NGOs, donors • National unions, companies • All relevant actors

quality. A high priority in many countries should be communicating the results of these assessments more effectively to interested parties, and integrating these concerns into decision-making from the permitting stage through closure.

- *Capacity Building*

The World Bank and the United Nations, working with member governments, could develop a clearer picture of the kind of capacities needed and those that are already in place at the national level.

- *National Multistakeholder Processes*

Governments could be an effective convenor of multistakeholder processes at the national level for policy discussions and change.

Global Level

There are a number of initiatives that are best taken at the global level by different groups of actors working together. Some are already under way in some form and need to be supported. Others have yet to be initiated. It should be noted that calling for action at the international level does not preclude these initiatives being undertaken at other levels.

- *A Complaints and Dispute Resolution Mechanism*

All parties in the sector should be committed to establishing fair, reasonable ways to resolve grievances and disputes. A dispute resolution mechanism should bring parties together, in a neutral forum, to work out a mutually acceptable facilitated settlement. The elements of the mechanism are envisioned as similar to the methods and procedures of an ombudsman, such as the IFC's Advisor/Ombudsman or the Mining Ombudsman Project operated by Community Aid Abroad in Australia. Clearly, where possible, complaints would be better handled by an independent organization operating at a regional or national level.

The overall programme could be overseen by a balanced multistakeholder Board. Commercial lenders could support this proposal by requiring a demonstration that an effective dispute resolution mechanism is available as a condition of loans.

- *A Product Stewardship Initiative*

A Product Stewardship Initiative could promote greater exchange of information and integration of views with the industry's principal customers and intermediary processors, recyclers, and others. This

initiative could build on the work already undertaken by the Non-Ferrous Metals Consultative Forum on Sustainable Development.

As part of this process, national governments need to continue to identify incentives and disincentives for recycling, extended product life, and innovative design in metals use and to develop policies on them. These should include measurable targets, collection networks, infrastructure, and investment in recycling technologies.

A Product Stewardship Initiative would lead to improved understanding of: energy, water, land use, recycling, and re-use issues; life-cycle analysis as a management tool for sustainable development; appropriate recycling technology transfers to developing countries; and possible product certification schemes.

- *A Sustainable Development Support Facility*

A Sustainable Development Support Facility could be developed to serve as a central clearinghouse for information on who is doing what in the sector and to suggest ways to coordinate and target the efforts of donors and others. It could serve:

- as an independent source of capacity building or advice to government on issues such as emergency planning or implementation of local emergency preparedness plans;
- as a supplement to government departments charged with technical tasks such as safety inspection of tailings dams;
- to help develop the technical standards necessary for effective impact assessment in the minerals sector;
- to assess potential for acid rock drainage and strategies for dealing with it; and
- to assist in the development of CSDPs and to strengthen the capacity needed for effective planning for closure.

The Facility could be supported by donor agencies, and could be administered by the World Bank Group as a trust fund. An important role in its management could also be played by the World Conservation Union–IUCN.

Applications for assistance could be made by any government, NGO, UN body, trade union, or other appropriate organization that was committed to cooperative approaches to sustainable development challenges in the minerals sector.

- *Reporting Guidelines*

A harmonized system of reporting guidelines is needed to ensure that key aspects of company practice are publicly reported to a standard that informs internal and external stakeholders about the sustainable development performance of corporations and major projects.

A multilateral organization such as the World Bank could convene an experts group to draft a broad set of principles and operational guidelines for reporting. In defining guidelines, the sector should work with organizations such as the Global Reporting Initiative and the International Standards Organization to achieve comparability between sectors and to ensure the transfer of existing knowledge.

Research into the identification and development of key indicators for public reporting needs to continue. Through organizations such as the Minerals and Energy Research Network (MERN), the eventual aim is to construct a set of 'must have' generic, yet sector-specific indicators at the project and corporate level, supported by a secondary set of indicators that could be applicable at particular sites.

- *Protected Areas and Mining Initiative*

Increased collaboration is required at the international level among key actors including IUCN and other conservation organizations, governments, and NGOs to resolve issues related to protected areas management. Possible actions could include:

- Establish a multistakeholder forum that aims to achieve consensus on 'no-go' zones for mining, on a case-by-case basis, with a priority for World Heritage Sites.
- Develop a package of published 'better-practice' guidance on mining and protected areas.
- Establish clear criteria that can be used to decide if mining is possible near protected areas, which should then be applied to its control and to the assessment of existing mines in protected areas.
- Work towards improving the transparency of decision-making around the assignment of protected areas categories.
- Undertake 'high resolution' mapping through key institutions that will identify the scale and extent of threats to and opportunities for protected areas posed by mining and other sectoral activities.

- *Mineral Legacies Initiative*

Improving conditions at abandoned sites can yield

immense social and environmental benefits for a relatively small investment. The focus at least initially should be on true 'orphan' sites, where no former owner or operator can be identified. Priority should be given to sites where remedial action will offer a clear payoff in improved public health and safety, more usable water supplies, or other demonstrable benefits, such as protection of biodiversity. Another priority is sites in low-income countries with significant abandoned mine legacy problems and those with particularly pressing social legacies of mining communities.

Governments with many abandoned mines but few resources could be given grants to determine priorities for the cases most urgently needing attention and to develop project proposals that could then be funded.

Most observers agree on the need for such action, but not on its financing or administration. Yet there are good if not perfect models for the administration – the Global Environment Facility is one; a trust fund established by donors and administered by the World Bank or regional development banks would be another. The World Bank has financed work at abandoned mines or other mineral facilities in the past. At a minimum it could coordinate its future support for such activities with a trust or other entity managing this work. One possibility would be for a group of companies to take the initiative by pledging an initial contribution to the trust fund on the condition that it be matched by government and other donors.

At the World Summit on Sustainable Development in August–September 2002, world leaders could use the opportunity of meeting in one of the world's most important mining centres – and one that shares with others a legacy of problems from that activity – to call for a full-scale feasibility study of a Mineral Legacies Initiative. Establishing this fund would require a number of nations to commit together to a programme to make it viable for at least several years. Protection of public goods such as water supply and public health and safety would have to be the primary goals, but the programme could also be useful in building skills and generating employment.

- *Financial Surety*

Governments recognize that some industries (such as power plants, chemical facilities, and mines) have the

potential to leave behind large social costs. To make sure they do not inherit these costs, some insist that companies provide a bond or financial guarantee to ensure that they will comply with closure plans and not leave behind such costs. Developing countries have often not adopted financial surety. Some way must be found to capture its benefits. Progress on this issue is important. The World Bank recognizes this as a priority concern.

The best way forward seems to be for the World Bank and the world’s mines ministers together to convene a dialogue, starting with a high-level conference, to find ways of reconciling the clear benefits to be achieved by appropriate guarantee systems, national policies for minerals investment, and the growing desire of many commercial and non-commercial lenders to ensure that the projects they finance do not wind up adding to the world’s inventory of sites abandoned without proper precaution.

• *A Global Labour-Management Agreement*

There could be a global-level agreement between labour federations representing workers in the minerals sector, such as the International Federation of Chemical, Energy, Mine and General Workers’ Unions (ICEM), and international organizations representing companies for broad cooperation in support of sustainable development. Organized labour could take the lead to suggest elements of the agreement. These may include traditional areas of interest such as the training, health, and safety of workers, but could also

include broader community concerns. The agreement could be linked to counterpart agreements at the national and local levels.

• *Forum on Mining, Minerals, and Sustainable Development*
A Forum on Mining, Minerals, and Sustainable Development could be established as a process, or processes, that can stay in effective communication with all principal stakeholders, and is not controlled by any of them individually but ‘belongs’ to all of them as a group. In the forest products industry, a similar need led to the creation of a Forest Stewardship Council. In the dam building sector, it led to the World Commission on Dams. The Responsible Care initiative in the chemicals industry has a multistakeholder stewardship council. In the minerals sector, this model has been pursued, with variations, for things such as the recent cyanide code, the White Horse Mining Initiative, and the MMSD Project itself. Processes of this type can create results that cannot be created in any other way.

The Forum would not have to be a permanent bureaucracy. It could, for example, resemble the Global Mining Industry Conference in May 2002, but in a more advanced version at some determined intervals in the future. The Forum could perhaps achieve these goals:

- Establishing priorities for a wide range of actors in the sector, so that each could focus on a manageable number of tasks in the near term.
- Setting guidelines for processes directed at individual

Key Actions at the Global Level	
Actions	Responsibilities
<ul style="list-style-type: none"> • Complaints and Dispute Resolution Mechanism • Product Stewardship Initiative • Sustainable Development Support Facility • Reporting Guidelines • Protected Areas and Mining • Dialogue on mineral legacies • Dialogue on Financial Surety • Global Labour-Management Agreement • Forum on Mining, Minerals, and Sustainable Development 	<ul style="list-style-type: none"> • Companies, representatives of affected stakeholder groups, commercial lenders • Non-Ferrous Metals Consultative Forum on Sustainable Development, industry associations, NGOs, governments, labour • Governments, international organizations, NGO such as IUCN, stakeholders • ICMM—industry associations, NGOs and stakeholders, Global Reporting Initiative, companies, international organizations • Conservation NGOs such as IUCN, governments, companies, associations such as ICMM, communities • Mining industry, world leaders • World Bank, mine ministers • International labour unions such as ICEM and international industry associations such as ICMM • All actors

issues, to give all concerned a greater confidence in their legitimacy and reduce the transaction costs in setting them up.

- Endorsing processes if they met those guidelines, adding to their legitimacy and increasing peoples' confidence in participating in them.
- Endorsing the results of these processes, giving them broader acceptance and ensuring that their principles are more quickly incorporated into company policy, industry Protocols, best practice guidelines, lending policies of banks, and laws and regulations.

The MMSD project has identified a number of issues ripe for progress in a Forum – management of tailings and other large-volume wastes, action against corruption, integrated planning for closure, community health and mining, and biodiversity and protected areas, to name just a few. But progress on any of them will require engagement of a variety of stakeholders. Effective engagement that produces results will require attention to process, which requires investment. There is no effective alternative. A way to proceed, and one that could yield better long-term results, would be to make the investment once, instead of every time an issue came up.

There is an informal proposal for such a forum from the UN family. Others suggest that the Forum could develop out of existing mechanisms such as the International Study Group's Non-Ferrous Metals Consultative Forum on Sustainable Development.

Whatever the future of the Forum proposal, at a minimum there should be a recognition that establishing communication and discussion among interested parties on a national, regional, or global basis requires a committed effort and a significant investment of time and money. Processes are expensive at least in part because of the investment needed to establish these links. Finding a home in an institution capable of maintaining the databases that projects – including MMSD – have established and of circulating periodic bulletins, perhaps containing a registry of current research activities, is an important investment in the future of dialogue. MERN, the UNCTAD/UNEP Mineral Resources Forum, or a new Union for Minerals and Sustainable Development are all possible homes for such a body.

A Final Thought...

The MMSD Project did not try to resolve the many economic, environmental, social, and governance issues facing the mining and minerals sector – no single effort could. But the project did try to turn a spotlight on the range of challenges raised by society's need for and production of minerals. Judging by the input and reactions during the two years of the Project, that goal was achieved. The many people who made contributions to the process – through papers, workshop participation, comments on successive drafts, emails with news from all corners of the world – confirmed that the minerals sector involves much more than digging ore out of the ground.

Although *Breaking New Ground* is the final report of the MMSD Project, it is not, of course, the final word on this complex subject. But we hope that for the minerals sector it is a helpful step along a road towards sustainable development that includes all those affected: policymakers, business leaders, public interest campaigners, people working in mines, local communities, and – very important – consumers. All these people must join the discussion and take action if the world is to find a better way to meet society's needs.