Planning for Outcomes

A Framework for the Consideration of Options

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Acknowledgements

Preface

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This is the first of a number of working papers to be generated by the Mining, Minerals and Sustainable Development Project.

The report has been reviewed by the project's Assurance Group and was available for comment as a working draft on the MMSD website.

We view it as appropriate that this report – A Framework for the Consideration of Outcomes – be our first, because it helps us all focus on where this process should be going, not just by the end of 2001 when MMSD's draft report is submitted, but in the longer term, starting with the Rio+10 Earth Summit planned for 2002. Changing course will not be accomplished in a few months, particularly in industries as diverse and complex as those involved in the exploration for and extraction of minerals and the production, processing, fabrication, use, reuse, recycling and disposal of mineral products.

Sustainable development is often thought of as having four "pillars". In short, these can be described as (1) economic development and the reduction of poverty, (2) protection of the environment and ecosystems and their long-term productivity, (3) social development and the opportunity for fulfilling human potential, and (4) development of governance structures appropriate to these ends.

The use of "governance" as opposed to "government" is deliberate. Government is clearly an important actor and must be a part of any process of change. But it is widely perceived that in the new context created by globalisation and the information revolution, government mechanisms are not sufficient unless surrounded by a web of other institutional mechanisms and structures capable of promoting positive change. To fulfil the potential of sustainable development these must be equitable, transparent and participatory.

The purpose of this working paper is to initiate discussion on which of these mechanisms would be most appropriate in the context of the global mining and minerals sector. If MMSD can catalyse discussion on not just **what** must be done, but how those goals can be attained, it will maximise its chance of leading to concrete results.

Across the spectrum of MMSD outcomes it will be important to select a range of mechanisms which results in a reasonable balance of responsibility for action by the full set of key actors and stakeholders. All stakeholder groups have important roles to play and need to share the burden of action associated with commitments they make to MMSD outcomes. Initiating and sustaining progress toward a greater contribution to sustainable development will require clear and strong leadership from the mining and minerals industry, as well as other from stakeholders.

This document builds on much prior experience. But in the context of MMSD it represents a beginning and we hope these ideas will be kept in mind as future reports focus on what the problems are and what needs to be done to solve them.

Executive Summary

Providing A Framework

This report provides a framework for the consideration of possible outcomes of the Mining, Minerals and Sustainable Development (MMSD) Project.

It investigates mechanisms designed to achieve environmental, social, economic and other results in support of sustainable development.

The report does not prejudge the potential outcomes of MMSD but has been prepared to assist all elements of the project in taking implementation into consideration.

The MMSD Process As An Outcome

The MMSD process itself is an outcome, providing the opportunity to

- synthesise the efforts of many other initiatives in the sector
- strengthen relationships among individuals and organisations at the global and regional levels
- share information
- identify key issues and define outcomes to address them.

Society And Change

The mining and minerals sector can contribute to sustainable development through improvements and changes at the individual and organisational levels in the following areas:

- knowledge and understanding
- values
- behaviour and performance
- decision-making
- division of responsibilities
- relationships and trust.

Such changes need to involve different elements of society: *Stakeholders* with a direct interest in the activities of the mining and minerals sector, and the *Public* who have more general concerns and use the products of the industry.

The Drivers of Change

Changes toward sustainable development are driven by a number of factors characteristic of the sector:

access to mineral resources and to markets for metals

- ensuring a continuing "licence to operate"
- changing market conditions for minerals and metals
- public credibility of the industry

and more broadly by the emerging "business case" for sustainable development:

- operational efficiency and cost savings from environment-friendly measures
- shareholder value correlated with environmental and social performance
- access to capital linked with less risky environmental performance

A Spectrum of Possible Implementation Mechanisms

A range of possible mechanisms are available for implementing the outcomes of MMSD.

Some mechanisms will serve alone, but many will be best applied as packages of measures.

Certain mechanisms may apply specifically to the international, regional, national, community or company levels, while others may be used at more than one level.

Implementation mechanisms can be categorised as follows:

Norms and Instruments	Processes	Institutional Responses
- Legal and Policy Measures	- Stakeholder Processes	- Institutions
- Market-Based Mechanisms	- Capacity Development	- Knowledge Management
- Voluntary Initiatives	- Technological Improvement	- Financial Mechanisms

Norms and Instruments

- **Legal and policy measures** provide the enabling context by setting or clarifying societal objectives and specifying standards and conditions to be met. *Mechanisms include international agreements, national laws and regulations, professional accreditation and NGO policies.*

- **Market-based mechanisms** correct market imperfections by putting a price on externalities or by making information available to consumers and producers. *Mechanisms include sustainability criteria for investment, tax incentives and product certification.*

- **Voluntary initiatives** involve organisations acting to set their own standards of performance or behaviour. *Mechanisms include industry best practice guidelines, company codes of conduct, government challenge programmes and negotiated company-community agreements*

Processes

- **Stakeholder processes** can be used for information sharing, initiating dialogue between different interested parties, reaching consensus on issues or negotiating solutions. *Mechanisms include international or regional stakeholder processes and national reconciliation processes.*

- **Capacity development** is an essential part of effecting change: raising awareness, developing the scientific, technical and management skills of individuals, and strengthening the ability of governments, industry, communities, labour and other groups to address and resolve issues. *Mechanisms include company sustainable development learning initiatives, and national capacity development programmes.*

- **Technological improvement** involves the adaptation of existing technologies or the introduction of new ones so as to meet environmental, health and safety or broader social objectives such as maintaining jobs. *Mechanisms include industry-led technology substitution and government-supported technology innovation programmes.*

Institutional Response

- **Institutions** may follow up specific processes through a network of organisations sharing responsibilities for action, changing the mandate and governance structure of an existing organisation, or creating a purpose-specific institution to foster, support and ensure the implementation of process outcomes. *Mechanisms include international councils, association networks, and recourse mechanisms such as inspection panels.*

- **Knowledge management** allows the knowledge base accumulated by an initiative such as MMSD to be made accessible. *Mechanisms include a centralised knowledge database or decentralized knowledge network, and web-based platforms for further discussion.*

- **Financial mechanisms** are among the approaches that can be used to marshal and target financial support for the implementation of key outcomes. *Mechanisms include a collective industry fund to address legacy problems and a technology phase-out fund.*

Selecting Outcomes – Criteria and Considerations

The design of appropriate outcomes to bring about lasting change can be based on various criteria including:

- feasibility

- effectiveness

- efficiency

- measurability

- acceptability to key stakeholders

- public legitimacy.

A number of factors can be used to guide the selection of specific mechanisms to implement outcomes, including the following:

- identifying linkages to other initiatives

- direct application or adaptation to the mining and minerals sector

- employing packages of mechanisms

- establishing stakeholder participation and roles

- ensuring balance of responsibilities for implementation.

Next Steps

MMSD's work on Planning for Outcomes will continue through three additional phases:

1. A **review** of different implementation mechanisms in other sectors which may be applicable to the mining and minerals sector, as well as new initiatives within the sector itself.

2. A **series of workshops and meetings to gather stakeholder and expert responses** to potential outcomes and mechanisms for MMSD follow-up, using the project's regional processes and research activities, as well as parallel stakeholder initiatives.

3. The **identification of concrete MMSD outcomes** and the presentation of options for the design of practical mechanisms and approaches for their implementation to be presented as recommendations in the final MMSD report.

1. Purpose and MMSD Context

1.1 Purpose

This paper provides an initial framework and a foundation for discussion among interested organisations and individuals on options for the implementation of MMSD outcomes – a process of planning for outcomes. It is in no way intended to prejudge the direct outcomes of the MMSD Project. Rather, MMSD has always realised that it must focus on outcomes throughout the duration of the Project if it is to ensure that the identification and analysis of issues and areas for change or improvement it develops are linked to practical actions for their implementation.

The Planning for Outcomes process complements MMSD's other activities and aims to identify options for the design of practical, effective and efficient mechanisms for change toward sustainable development that stakeholders in the mining and minerals sector can adopt, both individually and in collaboration with each other. The paper focuses largely on the resource end of the sector – mining and minerals processing, rather than on the life cycle of metals as commodities and products. Nonetheless, the framework of approaches and mechanisms for implementing outcomes may also be applicable to the metals sector.

Specifically, this paper will help to provide:

- an outcomes orientation for all elements of MMSD work

- a spectrum of options and initial guidance on the types of mechanism available for the implementation of MMSD's final conclusions and recommendations, based on experience from other isectors and similar initiatives at the national and international levels.

1.2 MMSD – Challenges and Approaches

MMSD's approach is based on the belief that effective change requires the simultaneous convergence of several elements; if any of these are not present, MMSD as a process will not fulfil its potential. At a minimum, these elements are as follows:

- *Analysis*: a clear concept of what the problems are and what the desired outcomes may be – at both the regional and global levels

- *Stakeholder engagement*: the engagement of people and organisations at the local, national, regional and international levels who accept the need for change and whose involvement is necessary to effect change through individual and collaborative programmes

- *Regional initiatives*: to engage stakeholders in defining key problems faced by the mining and minerals sector in each region and to identify and instigate more long-term initiatives to resolve agreed issues

- *Mechanisms for implementation*: the first three elements alone are insufficient: there must also be understanding and adoption of specific mechanisms which will effect the change.

All of MMSD's activities incorporate these four elements. This report is an initial exploration of options for this fourth element and is intended to inform the continuing work of the other elements of the MMSD project.

2. A Framework for Improvement and Change

2.1 Drivers of Change toward Sustainable Development

The mining and minerals industry is recognising the need to make progress toward sustainable development. While this recognition is mixed across different segments of the industry there is growing evidence of change driven by a number of factors characteristic of the mining and minerals sector:

- *Access to mineral resources and land* on/under which they are found is becoming increasingly difficult due to competing values over the "best" use of land, and is subject to increasingly stringent demands by stakeholders and conditions by governments

- *Access to markets for metals* can no longer be assured given regulatory pressures at the national and international levels and consumer concerns related to environment and health issues

- *Ensuring a continuing social and political "licence to operate"* or the continuing acceptance of companies and their individual operations by communities, other stakeholders and governments, is becoming an important factor in business decisions on new operations and licence renewals for existing facilities

- *Changing market conditions*, involving the globalization of markets and shifting consumer demand as alternative materials become available and accepted, require the sector to look more broadly at its long-term viability

- *Public reputation of the industry* with individual corporations and the industry at large being viewed often negatively by the public for a range of ills they are expected to address, including contributions to global issues such as climate change, and social and ethical responsibilities such as human rights

More broadly, what is becoming increasingly understood as the "business case" for sustainable development is being supported by operational and market evidence:[1]

- *Operational efficiency*: more efficient industrial processes and environmentally friendly use of inputs have been shown to minimize capital and operating costs and maximize resource productivity

- *Increased shareholder value*, as measured by stock price over time, has been shown to be correlated with environmental and, to a lesser yet detectable degree, with socially responsible corporate performance[2]

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[1] SustainAbility and the United Nations Environment Programme, *Buried Treasure – Uncovering the business case for corporate sustainability.* London, 2001.

[2] Innovest Strategic Value Advisors, *Environment, Eco-Efficiency and Corporate Out-performance.*, Toronto, 2000.

- Access to capital is linked with a company's environmental performance most directly through terms of capital where poor performers are seen as more risky by financial analysts and investors.

2.2 Types of Change

The contribution of the mining and minerals sector to sustainable development can involve improvements and/or change in the following areas:

- *Knowledge and understanding*: developing a common understanding within industry and government and, more broadly, across a range of different stakeholders, of the nature of issues to be addressed, and creating a shared basis of knowledge on which to build solutions.

- *Values*: for example, the values of mining companies underlying their approach to corporate responsibility, or of communities and NGOs playing a role in helping set societal expectations for mining operations.

- *Behaviour and performance*: for example, of international organisations which may set norms for ethical behaviour or criteria for investment, or of companies which demonstrate their adherence to public accountability through public reporting on sustainable development performance.

- *Decision-making*: by the mining industry with respect to environmental protection and labour measures, for example, or by governments with regard to determining the distribution of royalty and tax revenues from minerals operations within their borders.

- *Division of responsibilities for boundary issues*: for example, community development responsibilities beyond the mine site being defined and divided amongst the company, the community and higher-level government, or clear definition of the role of voluntary organisations in addressing development impacts where government capacities are inadequate.

- *Relationships and trust*: new forms of partnership, such as industry-community agreements to monitor and resolve issues arising from minerals operations, or agreements between the mining and metals sectors to address life-cycle management of mineral products.

These are the types of changes toward increasing the contribution of the mining and minerals sector to sustainable development that the MMSD project is designed to help initiate.

2.3 Who Needs To Be Involved?

Specific issues and outcomes may require the involvement of different stakeholders, including individual companies and industry associations, labour, professional associations, communities, indigenous peoples, NGOs, the research and academic community, governments, international organisations, and the investment and financial services sector. However, initiating and sustaining overall improvements and change toward sustainability will ultimately require the involvement of the full range of interests working in or affected

by the mining and minerals sector, as well as the wider community of consumers using products from minerals. This full set of interests can be broadly grouped into:

- *Stakeholders* – individuals and organisations directly involved in and having clear responsibilities for implementing necessary changes, and those directly affected by mining and minerals activities

- *Public* – the remaining members of societies who indirectly benefit from or are affected by the activities and products of the mining and minerals sector.

A wide range of stakeholders have a role in effecting the necessary changes to support sustainable development, both through the actions they take to improve the workings of their own organisations and through the promotion and support of change in other organisations. Two of these – the mining and minerals industry and governments – have particularly important roles in effecting this change, and will need to exercise leadership at the international and national levels:

- *The mining and minerals industry* – from small- to large-scale, local, national and transnational – can make an important contribution to sustainable development through its decisions on where to invest and through its operational practices

- *Governments* – both finance and planning agencies and the ministries responsible for mining promotion and regulation – set the enabling, as well as the control frameworks for progress toward sustainability through the policies and regulations they put in place and through decisions regarding trade-offs involving individual mining projects and broader minerals and metals supply chain activities.

2.4 Principles Underlying Change Processes

Creating and sustaining this wide level of involvement needed to initiate the types of changes described will require a *clear agenda for change*. This agenda must be:

- transparent

- rooted in clearly understood values

- based on rigorous research and analysis

- able to induce greater certainty and agreement on issues where change is needed

- able to build on existing initiatives and adapt these where necessary

- broadly known and accepted by the public at large

- understood and accepted by key stakeholders

- able to build the commitment of key actors to improve performance and accept accountability for achieving agreed goals and targets

- encouraged by demonstrated leadership

- adequately supported by financial and human resources.

2.5 The MMSD Process as an Outcome

The MMSD Project provides an opportunity to build a solid base of knowledge and a shared understanding among individuals and institutions committed to helping the mining and minerals sector make a significant contribution to sustainable development.

Initial discussions with, and inputs from stakeholders indicate that the improvements and changes MMSD can contribute towards sustainability will take the form of a wide range of different outcomes. Some emphasize the importance of maintaining the process of dialogue and problem identification initiated by MMSD. Others envisage institutions or structures being created or concrete measures being put in place to address specific issues. Annex 4 summarises the inputs received from these preliminary discussions.

This early engagement with, and contribution from, individuals and organisations around the world – ranging from the mining and the metals industries to governments through to research groups, labour and NGOs – demonstrates that elements of the MMSD project can be outcomes in themselves, through the sharing of information, the strengthening and building of relationships, the identification and characterisation of key issues and the definition of specific outcomes to address these issues. It also indicates that some stakeholders are prepared to begin considering possible outcomes and opportunities for action at the same time as they are identifying and assessing issues.

The following section provides a framework of approaches and specific *mechanisms* in active use around the world that can be used to instigate the types of changes outlined above. These mechanisms are designed to make progress towards sustainable development both in integrated ways, as reflected in the emerging concept of the "triple bottom line", and also on particular fronts such as environmental performance, labour practice, community involvement and broader social responsibility, ethical behaviour, financial performance, corporate and public agency governance, and wealth distribution.

3. A Spectrum of Outcomes – Possible Mechanisms for Implementing MMSD Results

3.1 Possible Mechanisms

In order to facilitate the identification and selection of appropriate outcomes, a range of specific *mechanisms* available for their implementation is listed in Table 1. These mechanisms are grouped into three categories:

- Norms and Instruments

- Processes

- Institutional Responses

These categories are based on the research work of Doern and Phidd[3] and have been adapted on the basis of a wide range of experiences at the national and international levels including the results of other international initiatives addressing sustainable development. Making progress towards sustainable development by effecting the types of changes outlined in Section 2 will generally involve the following:

- establishing processes for identifying issues and developing support for change

- using institutions to initiate, lead and act on identified actions

- setting norms and applying specific instruments to codify, plan and provide explicit objectives and targets for change.

A number of these different mechanisms are closely interrelated and will be best applied as packages of measures designed either to achieve environmental, social or other specific results or, more broadly, to make progress on sustainable development in the mining and minerals sector. These packages of measures may be both horizontal – involving complementary norms and instruments, processes and institutional responses – and vertical – involving norms and instruments, or processes, or institutional responses linked at the international, regional and national levels.

The specific mechanisms presented here have been chosen to illustrate the wide range of different options, rather than to suggest a fixed set or structure for use in the mining and minerals sector.

Sections 3.2, 3.3 and 3.4 which follow provide more detailed summary descriptions of these mechanisms. The tables in the accompanying annexes provide descriptions of specific mechanisms. Their content is not intended to be comprehensive but to provide a basis for the discussion and development of mechanisms applicable to addressing certain issues in the mining and minerals sector.

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[3] G.B. Doern & R.W. Phidd, *Canadian Public Policy: Ideas, Structure and Process* (Toronto: Methuen, 1983)

TABLE 1
POSSIBLE MECHANISMS FOR IMPLEMENTING OUTCOMES

Norms and Instruments	Processes	Institutional Responses
Legal and Policy Measures • International/regional agreements • International NGO policies/ statements of principles • National policies • National laws and regulations • Litigation • Professional licensing/accreditation *Market-Based Mechanisms* • Sustainability criteria for investment • Sustainability criteria for lending • Sustainability criteria for commodity trading • Tax incentives/disincentives • Product standards/labelling programmes • Certification programmes *Voluntary Initiatives* • Best practice guidelines or standards • Sector/industry-wide codes of conduct and related programmes • Company-specific codes and policies • Sustainable development reporting norms • Management system/process standards • Supplier challenges/procurement requirements • Government challenges • Government-industry agreements • Company-community agreements • Company-NGO agreements	*Stakeholder Processes* • International stakeholder processes • Regional initiatives and programmes • National sustainable development initiatives • National reconciliation processes *Capacity Development* • Company sustainable development strategy and learning initiatives • National capacity development initiatives *Technological Improvement* • Industry-led technology adaptation/substitution • Technology innovation programmes • Technical assistance programmes	*Institutions* • International commission or council • CEOs forum • Ministers forum • International associations or networks • International inspection panel • International ombudsman *Knowledge Management* • Knowledge database/network • Web-based discussion forum *Financial Mechanisms* • Technology phase-out/substitution fund • Collective industry fund

3.2 Norms and Instruments

Norms and instruments can be divided into three basic categories:

- Legal and policy measures

- Market-based mechanisms

- Voluntary initiatives

Norms and instruments can be conceived, designed and implemented in different ways. Some are voluntary in nature, such as codes of conduct, while others are mandatory, such as national regulations or international agreements. Some require international action while others are strictly within the sovereign rights of a nation or the authority of a private organisation. Some can be imposed or introduced unilaterally; others require negotiation of agreements between two or more parties. Some must be initiated by governments, while others can be initiated by a range of actors, from companies to labour groups, NGOs or international organisations.

3.2.1 Legal and Policy Measures

In general terms, legal and policy measures provide the enabling context and the conditions for activities in one or more economic sectors. They set or clarify societal objectives and specify the desired or required standards, conditions or procedures to be met. Many countries have mineral development policies and often translate both the associated economic development objectives and environmental, health and safety and/or social objectives into law and, in some cases, into specific regulations. For example, such regulations may set effluent or air emission limits, requirements for mine worker health and safety, standards or requirements for professional licensing for tailings dam engineering or information requirements for metals and their products.

At the regional level laws and policies are based on cooperation between nations which agree to put in place common or joint instruments and norms, such as regional standards or, more directly, regional treaties. At the broader international or global levels they involve nations making commitments to meet common objectives, either through legal agreements such as conventions or through softer resolutions and declarations. Both of these vehicles are often established under the auspices of intergovernmental organisations.

While laws are the domain of governments, policies established by civil society organisations may have sufficient moral authority and public support to serve as a standard for the behaviour of other organisations. Examples with relevance to the mining and minerals sector are Transparency International's principles of transparency and accountability, and the position statement on mining and associated activities in relation to protected areas, produced by the IUCN World Commission on Protected Areas.

3.2.2 Market-Based Mechanisms

Market-based mechanisms are used to correct market imperfections and distortions, mainly by putting a price on externalities such as environmental degradation or social dislocation or, alternatively, by making information available to consumers and producers. Market-based mechanisms harness two demands: first, the need for investment capital in companies and governments; and second, consumer pressures for products and practices that conform to societal values, as may be expressed by individual consumer choice or action by advocacy groups. Product certification initiatives, such the Forest Stewardship Council, are examples of incentives based on consumer choice.

Governments can impose taxes or reward investment through depreciation allowances. Banks, insurance companies and stock exchanges can introduce risk policies and information disclosure requirements.

A number of examples exist of market mechanisms designed specifically to meet sustainable development objectives in the mining and minerals sector, such as financial guarantees for reclamation. Broader mechanisms such as tax incentives for technology substitution, sustainability criteria for investment and lending, and certification programmes could be adapted for use in the mining sector. A recent example is the initiative by companies in the diamond-producing and trading industry to establish a verifiable code against the trade in diamonds produced in zones of conflict.

3.2.3 Voluntary Initiatives

Voluntary initiatives usually involve companies or other actors taking the step of setting their own standards for environmental, social, ethical or labour performance. They can be taken within or outside of a policy framework established by government. They may be driven by internal demands to reduce operating costs, increase competitiveness or improve company image, or by external pressures such as the threat of regulation.

There are three broad types of voluntary initiatives. The first entails agreed standards of behaviour and practice which can be adopted voluntarily by an individual company or an industry as a whole, at any given level from local to national to international. An example is the Responsible Care Programme adopted by the chemicals industry in a number of countries.

In the second type of voluntary initiative, challenges are issued by one party, such as government, consumers' group or industry, to which another party then chooses or feels compelled to respond. For example, a number of European and North American companies are imposing environmental, ethical or quality requirements on their suppliers.

The third type of voluntary initiative involves negotiated agreements, for example between a community and a company at one of its operations, which may set conditions for disclosure of information, environmental performance or social benefits such as jobs.

A substantial number of voluntary initiatives specific to or adopted by the mining and minerals sector have been used to date. The recent draft *Sustainable Development Charter*

prepared by the International Council on Metals and the Environment is an example from the international level. Another example is countries and mining industry associations producing best practice guides for tailings and large-volume waste management.

3.3 Processes

Processes can be divided into three basic categories:

- Stakeholder processes

- Capacity development

- Technological improvement

Processes involve either an open-ended or a time- and outcome-specific series of steps and events focused on one or a set of issues. Stakeholder involvement processes are designed to bring people together to discuss or resolve issues. Capacity development initiatives are designed to ensure that key actors will be in a position to take up their responsibilities in a particular sector or to address a particular issue. Technological improvement processes are intended to use technological adaptation or substitution to achieve one or more sustainable development objective.

3.3.1 Stakeholder Processes

Stakeholder processes can be put in place for such basic purposes as information sharing, establishing the legitimacy of an issue and initiating dialogue among different interested parties. They can be more ambitious, aiming to elaborate and reach consensus on issues to be resolved or to negotiate solutions and take joint decisions for action.

They can be used at the international, regional, national or site-specific levels when there are sufficiently compelling reasons for stakeholders with differing and sometimes competing views and interests to come together. They can be applied to broad topics such as corporate responsibility, as in the case of the United Nations Global Compact which involves the corporate sector, NGOs and labour. They can be applied to an economic sector such as the International Development Research Centre's Mining Policy Research Initiative for Latin America and the Caribbean. And they can also be applied to a specific issue as in the current international cyanide initiative.

In certain cases at the national or local levels, before taking specific decisions to resolve issues it may be necessary to use reconciliation or mediation processes where there has been a breakdown in trust and willingness to work together. More proactively, a few large mining companies with international holdings have initiated stakeholder processes at the community level to design mine development plans which help identify and respect the sustainable development objectives of a range of stakeholders, most particularly those at the local and national levels.

3.3.2 Capacity Development

Capacity development is an essential part of any effort to effect change. It may be needed because individual skills and experience or institutional structures, are lacking. Alternatively, it may be needed to introduce new ideas and approaches so as to promote and ultimately to bring about changes in organisational culture and practice, and to reflect the values and integrated thinking required to contribute to sustainable development.

Capacity development can be used to raise awareness and levels of knowledge in specific stakeholder groups, to develop scientific, technical, and management skills and expertise in individuals, and to strengthen the ability of government, industry and civil society organisations to address and resolve specific issues. One particular need in the mining and minerals sector is to develop the capacity of developing countries' governments to play an appropriate role in promoting and managing mineral development – from regulating waste disposal to ensuring the conditions for an appropriate distribution of mineral wealth.

The education system also plays an important role, in training young professionals and technical workers in the mining and minerals sector to have the knowledge and learn the skills necessary to act on sustainability issues in their future work.

Examples of capacity development for sustainable development in the mining and minerals sector include the Global Mining Initiative, which is building awareness in companies of sustainable development issues and reviewing the institutional capacities of mining industry associations to respond to the outcomes of the MMSD project, and sustainable development demands more broadly. Similar efforts are underway in a number of individual companies, led by their senior management.

3.3.3 Technological Improvement

Technological improvement involves the adaptation of existing technologies or the introduction of new ones. It can be used to meet environmental or health and safety objectives and to address economic and social objectives, as in the case of a new technology extending the life of a facility, thereby maintaining jobs and community viability.

In the mining sector technological improvement and innovation can be used to address specific issues such as local and trans-boundary air pollution. Substantial reductions can be achieved through more fundamental shifts away from control technologies to pollution prevention measures; and through changes in process technology, as is manifest in the efforts of smelting operations in Canada to make major reductions in sulphur dioxide emissions. In this case industry produced the requisite innovations in response to government regulatory limits on air pollutants. Governments can play a further role by promoting technological innovation through programmes which provide financial incentives to industry and researchers to undertake the necessary research and development, and by disseminating the results of such innovation.

3.4 Institutional Responses

Institutional responses can be divided into three basic categories:

- *Institutions*

- *Knowledge management*

- *Financial mechanisms*

Experience with national and international initiatives – be they expert- or stakeholder-based – demonstrates that some form of organised institutional follow-up is needed to ensure that agreed recommendations are implemented. Further, it is essential to integrate recommended practices into the behaviour of individuals and into the culture and practice of existing organisations

3.4.1 Institutions

Institutions can initiate work on a set of issues of international, regional, national or local importance, or they can serve as one vehicle for fostering, supporting and ensuring implementation of the conclusions of an initiative. This may involve a network of existing institutions which take on various mandates to implement specific outcomes, adapting the mandates and governance structures of existing institutions to address the new challenge, or the creation of one or more purpose-built institution.

At the global level an important role could be played by international mining and metals associations as well as existing networks such as the Mining and Environment Research Network (MERN). Another vehicle for carrying forward outcomes is provided by regional economic cooperation organisations in various regions, such as the Southern African Development Community (SADC), which has a minerals sector programme. New networks could also emerge to carry forward action on MMSD results.

At the national level, mining associations and individual companies are important organisations for follow-up and may need strengthened capacities to contribute more effectively to sustainable development. In some countries, mining associations have already launched their own sustainable development initiatives, which could serve as important vehicles to help implement MMSD results.

3.4.2 Knowledge Management

Major international processes collate, synthesise and analyse a vast array of research and practical information in a range of electronic and hard-copy forms. It is therefore essential to ensure that the knowledge base of the MMSD Project is captured, put into an orderly format and, most importantly, made accessible in the longer term to the wide range of stakeholders who have an interest in acting well beyond the life of the Project.

Institutional approaches to knowledge management can include the creation of a resources centre and database, hosted by an existing organisation. Alternatively, they can involve a distributed data and knowledge network with nodes in a range of organisations. These organisations both contribute to and draw on a collective knowledge base, using mutually agreed data management protocols and analytical tools designed to meet the needs of users in the mining and minerals sector. Web-based discussion forums are an example of a complementary knowledge-management tool which can be used for on-going information sharing and dialogue at the global, national and local levels.

3.4.3 Financial Mechanisms

Another set of mechanisms for follow up to any major international initiative relates to the marshalling and targeting of financial support for the implementation of key outcomes. This can be done through budgetary commitments made by individual companies and governments and through purpose-designed funding mechanisms. For the mining and minerals sector such mechanisms can be used, for example, to foster changes in technology to address environmental and worker safety issues, or to increase the efficiency of energy and material use.

Funding mechanisms can be established to aid the resolution of outstanding problems, including mine legacy issues, where an accountable or financially viable entity may no longer exist. They can be used to provide redress for environmental liabilities, including restoration costs, or to aid mine community transition to a broader economic base.

4. Selecting Appropriate Outcomes – Criteria and Considerations

Outcomes must be both effective and trusted if they are to bring about lasting changes in understanding, values, behaviour, decision-making, responsibilities and relationships as outlined in Section 2. Ensuring effectiveness and trust will require, in all cases, a rigorous review of potential outcomes and careful selection and design of the mechanisms available to implement them, based on a number of criteria, including the following:

- *Feasibility* – Do experience and assessment demonstrate that the mechanisms will work?

- *Effectiveness for the purpose* – Will the mechanisms bring about the desired changes?

- *Efficiency* – Can they be implemented with reasonable cost and effort?

- *Measurability* – Can progress in implementation be measured?

- *Unintended effects* – Making provision to respond to unexpected consequences in the application of specific mechanisms.

- *Acceptability to key stakeholders* – Will key actors and stakeholders make a commitment to support and carry out their responsibilities in using the agreed mechanisms?

- *Public legitimacy* – Will the public trust or accept the results?

Broader considerations that affect the selection and application of specific mechanisms are:

Linkage to other initiatives: For each MMSD outcome it will be necessary to consider appropriate linkages to relevant existing and emerging initiatives at the international, national, local and company-specific levels so as to avoid duplication and to build a critical mass of organisations and individuals that is sufficient to serve as an effective platform for the implementation of MMSD's conclusions.

Sector application or adaptation: The application of mechanisms to implement outcomes will be context-specific. In some cases it will be necessary to develop new mechanisms tailored to the specific issues and circumstances faced by the mining and minerals sector. In other cases, however, it may be possible to adopt existing cross-sectoral initiatives (for example, company use of the Global Reporting Initiative norms for sustainability reporting). In other cases still, it may be appropriate to adapt sector-specific variants of existing mechanisms (for example, a mining and minerals sector version of the environmental management system standard ISO 14001).

Packages of mechanisms: While individual mechanisms can be used to address specific issues – particularly at the local or company levels – certain outcomes will require more integrated approaches which link measures both horizontally into a package of measures, and vertically to action at different levels. For example, addressing the issue of large-volume mine wastes may require consideration of a suite of actions which could include

- an internationally accepted best practice standard

- a set of national certification processes which adhere to an international norm

- national or subnational regulations which set technical and environmental requirements to encourage or enforce adherence to international best practice.

Stakeholder participation and roles: In some cases, outcomes will be appropriate for adoption by a broad range of stakeholders across the sector. In others, they will be undertaken by individual or common-interest stakeholders (for example, common standards adopted by mines ministers or an industry association code of conduct). In others yet, outcomes will be developed through collaborative partnerships such as government-industry environmental performance agreements or industry-NGO dialogues and action plans.

Balance of responsibilities: Across the spectrum of MMSD outcomes it will be important to select a range of mechanisms which results in a reasonable balance of responsibility for action from the full set of key actors and stakeholders. All stakeholder groups have important roles to play and need to share the burden of action associated with commitments they make to MMSD outcomes. Within this framework of balanced responsibilities it is clear that the mining and minerals industry, as well as governments, will have major roles to play in implementing MMSD outcomes.

Level of application: Different types of implementation mechanisms will be applicable at one or more levels of action: international, regional, national, local/community and

company/organisation. For example, company-community agreements are appropriate at the local and company level; legislation and regulation, as well as a range of voluntary initiatives, apply to the national level; best practice guidelines may be implemented at the international, regional and/or national levels.

In several regions of the world MMSD is forming partnerships to undertake region-specific research and analysis, and to engage stakeholders at the regional and national levels. These partnerships are intended to ensure that MMSD benefits from the experience and work being carried out by individuals and organisations in different regions of the world, and has the regional networks in place that will carry forward the implementation of MMSD outcomes.

5. Planning for Outcomes – Next Steps

Phase I

The July 2000 MMSD preliminary workshop on Preparing for Implementation, and the preparation of this paper, complete the first phase of MMSD work on Planning for Outcomes. This paper has been distributed in draft form to stakeholders involved in the various streams of MMSD work at the global and regional levels.

Phase II

Following publication of this working paper, a more in-depth review of different potential outcomes directly applicable to the mining and minerals sector, and related mechanisms which could be designed, adopted or adapted to implement MMSD conclusions and recommendations, will be prepared, building on the framework presented in the sections above. This review, which will be widely distributed for comment in draft form, will include the following elements:

- A survey of existing implementation mechanisms at global, regional and national levels in the mining and minerals sector, including for example, best practices such as the ICME guidelines on large-volume wastes, World Bank and other existing international guidelines, industry and other codes of conduct.

- A comparative assessment of specific mechanisms, including voluntary initiatives, multistakeholder and industry-led policies and codes of practice, management systems and certification schemes applied to the mining and minerals sector

- An assessment of key institutional challenges in fostering active follow-up to the MMSD final report, including corporate responsibility, financial drivers, the role of government, and stakeholder participation; and an outline of a "platform" for follow-up based on norms, incentives and institutions

This work will take into account the following:

- the results that are emerging from the research, stakeholder engagement and regional processes of MMSD, including their relation to existing initiatives

- timing for outcomes – what can be reasonably pursued or adopted, by whom and over what timeframe?

- a preliminary assessment of resource requirements.

This will also involve workshops and meetings with different stakeholder groups to gauge their reactions to the ideas outlined in this document. Where possible, this phase will build on the existing or planned efforts made by MMSD's regional partners and by key stakeholder groups, to engage their constituents in the MMSD Project. The MMSD Regional Processes will be an important vehicle for the identification and assessment of possible outcomes.

Phase III

The substantive products of the work of Phases I and II on Planning for MMSD Outcomes will provide valuable input for discussion and analysis in the different MMSD research and engagement activities at global and regional level. They will lead to the identification of concrete MMSD outcomes and the design of options for practical mechanisms and approaches for their implementation. They will also help build a critical mass of stakeholder groups focused on achievable results as a platform for the implementation of MMSD outcomes.

The results of this work on Planning for Outcomes will be included in the Final MMSD Report, to be produced in draft by the end of 2001, in the form of recommendations for different stakeholder groups to adopt, individually and in partnership, when acting on the outcomes and implementing the conclusions of the MMSD Project.

Annex 1: Norms And Instruments

A: Legal and Policy Measures

International/ Regional Agreements	*Overview:* International agreements in the form of new conventions or protocols to existing conventions have been adopted over many years in areas related to sustainable development. Most of these address specific global issues, such as the Framework Convention on Climate Change (FCCC), or regional issues, such as regional Protocols under the Convention to Combat Desertification (CCD). In some cases such international agreements may include actions specific to certain sectors, such as programmes on agricultural biodiversity conservation agreed to by the Parties under the Convention on Biological Diversity (CBD). Other international agreements set out requirements for international ethical behaviour, for example the OECD Convention on Combating Bribery, and the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters.
	Non-legally binding "soft law" declarations set international policy objectives and norms for government action in a range of areas which promote sustainable development. Broader sets of international statements to which governments subscribe, such as the Rio Principles, attempt to codify basic values which should underlie individual and collective action.
	Application: Few international environmental agreements specific to a single industrial sector have been made to date. A recent example is the UN Security Council decision on stopping trade in illicit diamonds from areas of conflict. As an example in progress, international discussions continue on an international convention for forest management or a protocol under the CBD.
	Participation: Governments working through intergovernmental organisations, such as the United Nations, or regional economic cooperation organisations are responsible for drafting international agreements on sustainable development. However, NGOs, the labour movement, indigenous peoples and other social movements are often the instigators and, in some cases, produce both the substantive analysis and initial draft texts, which are then taken up by governments in the negotiating process.

| International NGO Policies/ Statements of Principles | *Overview:* Large international NGOs – some with broad-based memberships of governments and/or other NGOs – are preparing international policies or principles and, in some cases, monitoring and assessing the performance of governments and/or companies on this basis. Some of these policies and principles apply to many industry sectors; for example, Transparency International which promotes transparency and accountability in the implementation of anti-corruption agreements by signatory countries and individual companies. Others are specifically directed to the mining and minerals sector, for example, the IUCN "World Commission on Protected Areas Position Statement on Mining and Associated Activities in Relation to Protected Areas" sets out proposed levels of activity under internationally accepted (U.N.) classifications of protected areas. This latter policy was developed in consultation with the mining industry among other stakeholders.

Application: Such policies and sets of principles can be applied to a number of areas of activity by industry related to sustainable development – from nature protection to labour standards to support for human rights and anti-corruption activities.

Participation: Although in the past, governments have tended to set international policies through their commitments made in the United Nations and other bodies, increasingly credible non-governmental organisations are setting benchmarks through their policies on environmental, social and ethical issues. Companies are now being evaluated against these, and have the opportunity to participate more actively in the process. |
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National Policies	*Overview:* Policy provides the parameters within which the government commits to make specified types of decisions or deliver specified programs. A programme organises the way a government delivers one or more related activity or service. Policies and programs can be developed for any activity within the jurisdiction of a government, and can therefore vary widely and have significant influence. *Application:* Policies are essential instruments for articulating overall objectives for sustainable development and for setting societal objectives and conditions for activity in a particular sector such as the mining and minerals sector. They can be stand-alone, addressing a particular aspect of sustainable development such as emission reduction or mineral development objectives, or they may be expressed and implemented as part of broader natural resources strategy. *Participation:* The promulgation or amendment of policies and programmes requires state or sub-national government action. Stakeholder support – particularly from industry – is also often required in order for a government to introduce significant new policies or programs or to make material changes to existing ones. A policy or programme description is only as good as the energy and expertise devoted to implementing it. Stakeholder support and capacity and government will and resources are all required in order for policies and programs to be effective.

National Laws and Regulations	*Overview:* Laws and regulations represent a formal codification of legal requirements. Typically, a regulation falls under a statute and contains more detailed provisions. Both can help promote sustainable development in various ways. For example, laws can highlight and legitimate public norms. The language used in legislation can also help shape public discourse and can thereby have an indirect effect on social values. Laws can prescribe or proscribe certain behaviour ("shall do"; "shall not do") They may authorize the exercise of discretion ("may do"; "may take into account"), or structure decision-making by constraining available options by requiring consideration of certain factors or by requiring public input. Laws can create institutions to promote sustainable development, to generate information, to design new analytical tools, or to ensure accountability. Finally, laws can help overcome jurisdictional fragmentation by consolidating decision making authorities. *Application:* Laws or regulations could address a wide range of issues related to mining and minerals, including, for example: EIA or broader mitigation and environmental management requirements; permit requirements; public participation requirements in permit applications and EIA processes; operating standards; pollution prevention and emergency planning requirements; closure and reclamation issues; financial assurance; reporting requirements and enforcement procedures and authorities. Law reform is most applicable in cases where clear, enforceable standards are required or where legislative authority is required to formalize a process or create an institution (i.e. where policy or a simple agreement to proceed are not sufficient). *Participation:* The promulgation or amendment of laws and regulations requires state or sub-national government action. Stakeholder support – particularly from industry – is often needed in order for a government to introduce significant law reform. In some cases, public pressure can foster law reform. Similarly, in most cases, stakeholder support and capacity along with government will and resources are all required in order for a law to be implemented, enforced and complied with.

| Litigation | *Overview:* Litigation is a method of formal dispute resolution that relies on the judiciary to determine the outcome based on the impartial application of the law to the facts put before it by the parties to the case. Litigation can take many forms, including: private versus private litigation (for example to correct environmental abuses where industrial activity imposes "unreasonable" burdens and costs on neighbouring communities); government versus private litigation as a means of enforcing SD-related statutory obligations; private versus government action where individuals or groups can seek a judicial order to compel a government to act in accordance with its constitutional or statutory duties with respect to sustainable development; In addition, in some countries, governments can ask courts for help in clarifying responsibilities and authorities (e.g. whether a particular level of government has the authority to address a particular issue).

Application: Litigation can provide clarity and an enforceable outcome. However, because it is expensive and time consuming and often tends to exacerbate and formalize conflict among the litigating parties, it is normally only pursued where non-confrontational modes of resolving the dispute are not possible or have failed. The extent to which private parties have access to litigation, including right of standing and intervention, depends in part on national statutory provisions.

Participation: Depending on national laws, litigation is a mechanism which is available to private organisations, individuals acting individually or in class action, and governments. |
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| Professional Licensing/ Accreditation | *Overview:* Licensing is a form of registration which helps ensure that individuals are qualified to provide professional services in a given field of activity. Requirements often include a standard level of minimum education, a certain number of years of professional experience, and the passing of an examination. Companies of professionals can also be accredited to work with a "seal of approval" of a licence-granting body on the basis of their experience and employment of individuals with the required professional credentials. The licence which is granted may carry with it the right to use the term professional "architect or engineer".

Application: Licensing is usually applied to a relatively specific domain of expertise and professional competence which can be applied to one or more aspect of sustainable development, such as mine safety, or environmental management. While licensing is normally a function undertaken by national or sub-national bodies, it is possible that a system for international licensing of professionals could be put in place.

Participation: Licensing of professionals is normally undertaken by professional associations which operate on a self-regulation basis. Governments may have a role to play in setting minimum standards, and stakeholder groups, including the industries for which professionals work, may be consulted in the development or revision of licensing requirements. If applied at the international level, responsibility could lie with a federation of professional associations, an intergovernmental organisation, or an international industry or labour body. |
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B: Market-Based Mechanisms

Sustainability Criteria for investment	*Overview:* Sustainability criteria or principles for investment can be used to set out the conditions for the investment of funds by institutional investors in equity or debt market instruments. There are many examples of investment organisations developing and applying "sustainability"-like criteria (e.g. green funds, socially responsible or ethical funds, etc.). The most prominent recent example is the Dow Jones Sustainability Group Index, which ranks publicly traded companies against a set of sustainability criteria. *Application:* Includes requirements for a commitment to environmental awareness and accountability, an ongoing process of continuous improvement and dialogue, and comprehensive systematic public reporting. A good example is the case of the Coalition for Environmentally Responsible Economies (CERES), which brings major environmental groups together with an array of investors and public pension funds. CERES coalition members use shareholder resolutions to initiate discussions of environmental and social responsibility at the highest corporate levels and to encourage the targeted company to endorse their responsible investment principles. Experience to date indicates that both pressure from shareholder coalitions, and investment opportunities associated with good corporate performance on sustainability criteria can encourage publicly traded companies to change their behaviour. *Participants:* The financial services and investment sectors are initiators, along with coalitions of social or environmental interest groups with investors. Companies have the potential to benefit in terms of investments linked to improved sustainability practice.

Sustainability Criteria for Lending	*Overview:* Criteria for lending can prescribe sustainable development-related conditions for the provision of funds by public or private lending agencies to companies for their on-going operations as well as the development of new projects. These types of criteria would either have to be adopted by the lending agency itself or imposed on it by legislation at the national level. Public pressure could help lead such a change. For public institutions, broad stakeholder support would probably be required if the criteria were to significantly alter or constrain the lending institution's activities.

Application: Criteria for lending can apply to both private and public lending agencies. Many private lenders (e.g. chartered banks) already account for environmental and social factors in assessing the risk related to a potential loan. Some have gone further and are starting to explore the utility of more comprehensive sustainable development-related risk factors. This trend could be extended to account more explicitly for sustainability factors in a particular sector such as mining and minerals. Public lending agencies such as multilateral national development banks and, to a lesser extent, export-credit agencies already account for a range of public policy related considerations that are not directly related to their own expected rate-of-return when determining how to dispense funds (e.g. meeting environmental or job creation objectives).

Participants:
While shareholders, NGOs, academics, governments and others can draw private banks' attention to the utility of accounting for SD considerations, risk management is a matter almost entirely within the purview of bank management. Government funded lending institutions, by contrast, are much more open to external influence. |

Sustainability Criteria for commodity trading	*Overview:* It is conceivable, though not yet a known practice, that a commodity exchange could establish sustainability criteria as a precondition for allowing a company to sell its commodities on the exchange. One related current example is the decision by certain diamond exchanges to put in place a system to accept only diamonds from sources certified to be conflict-free zones. *Application:* Depending on the criteria adopted, this instrument can be very powerful in influencing high level policy/strategic changes, but would require significant market support. In most cases, an amendment to the statutes of the exchange organisation would be required if the commodity exchange intended to enact rules to restrict access to the exchange on the basis of criteria that differ significantly from existing criteria. *Participation:* The initiator will need to be the exchange governing body, since commodity exchanges are usually self-governing bodies operating within a statutory framework.
Tax incentives/ Disincentives	*Overview:* Governments have long used tax incentives as a tool of public policy. Such incentives can take a wide variety of forms depending on the national tax code and the objectives being sought. For example, tax incentives can be used to reduce the cost of an environmentally-related expenditure or to encourage reductions of emissions or waste generation. Because tax incentives can be costly and may distort investment decisions, many governments have recently reduced rather than increased the tax incentives they offer. Instead of reducing costs to business, some governments have begun to increase costs by taxing environmentally undesirable activities. The Scandinavian countries in particular have introduced several taxes, primarily related to the use of energy. Over the long term, such "green" taxes may be offset by cuts in traditional taxes, such as income or payroll taxes as part of an effort to shift the tax burden from "goods" to "bads". *Application:* Such economic instruments can be used at the national level to reduce the overall cost of doing business or reduce the cost of specific activities. Taxes can also be used to discourage emissions or waste generation. In the mining sector they can also play a role in encouraging technological adaptation towards more efficient and and sustainable processes. *Participants:* Governments design and implement tax measures. All tax-paying companies that meet the criteria set out in the incentive instrument can participate. Other stakeholders such as NGOs and academic institutions may play a role in instrument design.

Product Standards/ Labeling Programmes	*Overview:* Product Standards and Labeling Programmes take the form of either voluntary or mandatory requirements schemes which require the marking or labelling of some consumer products on the basis of specific environmental attributes. These programmes harness market forces for improved practices in support of sustainable development by stimulating consumer demand for "green" or "ethical" products. They have the potential to create strong consumer demands (expressed positively through decisions to purchase, or negatively through individual or organized boycott) which can force companies to change both their source of materials or their resource extraction/harvesting and processing practices in respect to environmental, social and/or ethical norms. High public awareness is essential to the success of any eco-or ethical- labelling program.

Application: Programmes can be government run (e.g. Canadian EnerGuide), and some are privatized (e.g. Canadian Environmental Choice), or operated by international NGOs (e.g. the Forest Stewardship Council, which has created an international labelling scheme for forest products designed to provide a credible guarantee that the product comes from a well-managed forest). Some companies have their own eco-labels to differentiate themselves from their competitors. There are also examples of industries take collective action to demonstrate corporate responsibility and avoid negative consumer reaction (e.g., diamonds from non-conflict areas). Many countries have established standards for various consumer products (e.g. through national environmental labelling programs) that specify performance-related criteria for the manufacture and/or use of the products.

Participants: Consumers create the demand for improved environmental or ethical performance. Producers respond through developing or participating in labelling programmes to demonstrate appropriate commitment and actions. Certification Agencies verify and confirm the established level of performance and governments which can provide support or design and manage such programmes, or set regulatory requirements for labelling. |

| Certification Programmes | Overview: Organisations seek certification to demonstrate to interested stakeholders that their activities, products and/or services meet the requirements of a particular recognized standard. Some certification schemes are product-related (e.g. eco-label certification programs, as discussed above), others are process-related (e.g. management system certification schemes such as EMAS and ISO 14001), and others are project-related (e.g. certification of greenhouse gas emission reductions associated with a particular project). While some standards allow companies to self-certify their conformity with the requirements (e.g. companies can self-declare if they meet the requirements of ISO 14001), many management system and product standards require independent verification or certification of a company's adherence to the standard, thus providing a level of assurance to interested stakeholders.

Application: Certification by an independent third party is usually perceived to be most credible, although this can entail significant costs to the company seeking certification. This is the model used by the Forest Stewardship Council, which accredits certification bodies to conduct certification audits of company sustainable forest management practices. Companies will usually pursue third party certification to a given standard only if there is an adequate business case supporting the decision, that is, if third party certification will provide them with such benefits as access to new markets, maintenance of existing markets (where certification becomes a requirement for doing business with customer organisations), enhanced reputation, or improved employee motivation and morale. A high level of consumer awareness and understanding of what certification to a particular standard means is essential for the broad success of such programmes.

Participants: A company must decide to seek certification in order to initiate the process. Usually the standard-setting body will establish the certification requirements and infrastructure. Certification bodies either accredit or directly conduct certification audits. Certifiers and auditors of adherence to certified conditions need to be trained specifically for the purpose and to be subject to some form of oversight. For example, the Chemical Industry's Responsible Care Programme sets out the frequency of verification audits and dictates the composition of the verification team. Interestingly, the Responsible Care programme requires that the verification team include a community representative as a full team member. This is one method of including community and/or NGO participation in the certification process, another method would be to ensure they are interviewed as part of the certification process. |
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C: Voluntary Initiatives

Type	Description
Best Practice Guidelines or Standards	*Overview*: Guidelines or standards for technical and operating performance or for corporate behaviour are usually established on the basis of surveys of practice which are then assessed against criteria established by experts and professionals in a given domain (e.g. one aspect of pollution control) or a selected sector. They may specify one or more technology to address a specific concern (e.g. control of a specific air pollutant); management processes (e.g. measures to ensure worker health and safety); or desired results (e.g. for sharing of benefits with a community). They may be determined directly on the basis of desired environmental objectives and technical viability of a technology e.g. Best Available Technology (BAT); or may also factor in economic or financial feasibility e.g. Best Practicable Technology (BPT). *Application*: Best practice guidelines may be applied to any element of sustainable development, but have traditionally been most widely used for technical standards of environmental protection and worker health and safety. They may be established internationally (e.g. internationally accepted guidelines or criteria for best practice in large dams construction) or at the regional or national levels. Best practices established at these lower levels can be more extensive and in-depth, with international guidelines representing those criteria or elements that have broader but more general application under a wider range of environmental, societal and cultural conditions. Variations on best practice are minimum practice (to avoid serious impacts); good practice (to conform to commonly prevailing practices and legal requirements); or prohibited practices. *Participants*: Professional associations (e.g. mines engineers), governments or intergovernmental organisations typically initiate the process for and ultimately establish best practice guidelines. Involvement of key stakeholders is essential to provide broad acceptance and application of the resulting guidelines, including the industry or industries which will apply the guidelines, designers/suppliers of necessary technologies or management systems, and NGOs or others bringing a broader societal view.

Type	Description
Industry-Wide/Sector Codes of Conduct and Related Programmes	*Overview:* Industry codes of conduct or charters are publicly stated principles and objectives designed to influence, shape, control or set benchmarks for corporate behaviour. They are a); commitments, b); agreed to by one or more parties, c); designed to influence, shape or benchmark behaviour, and d); intended to be applied in a consistent manner or to reach a consistent outcome. Codes encourage companies to operate in ways that benefit both themselves and the community. They can also serve as a sign to consumers that the organisation's product, service or activity meets certain standards. *Application*: Codes can apply to the range of issues around corporate responsibility and sustainability-related behaviour. Codes are flexible and can be refined over time. They may consist of a statement of principles and obligations, as well as agreements about operational aspects such as reporting and dispute resolution. They can apply nationally or internationally, typically being adopted by a series of national associations. Codes which apply to industry overall tend to be generic statements of principles (e.g. The International Chamber of Commerce Business Charter for Sustainable Development). Codes which apply to a specific sector are more detailed statements of principles (e.g. the International Council on Metals and the Environment Environmental Charter, and its recent draft Sustainable Development Charter). Alternatively, they may go as far as to specify measures to be taken, forms of behaviour, and performance targets. They may be voluntary or a condition for membership in an industry association, (*viz.*, the chemical industry's Responsible Care Programme). If codes are completely voluntary, they may not enable an industry to achieve real change, since poor performers are unlikely to participate or take the necessary actions to improve their performance without specific incentives. *Participants:* Industry associations normally take the lead in establishing such codes, often on the basis of public pressure or from a realization of the need to act collectively with regard to corporate responsibility, to establish leadership and competitiveness, or to ensure a continuing licence to operate. Industry may involve other stakeholders such as communities and outside experts in the development or monitoring and auditing of company performance against the code.

Type	Description
Company-Specific Codes and Policies	*Overview:* Individual firms may articulate their own codes of practice or policies on environmental sustainability or corporate responsibility. Such codes and policies extend beyond standard legal requirements for environment and health and safety practices, often making a corporate commitment to environmental protection, or broader corporate social responsibility, an integral part of a firm's business strategy.

Application: Company-specific environmental policies are usually management-driven and integrated into a firm's business strategy. They can be driven by financial considerations (e.g. cost-savings from efficiency improvements or enhanced market access through product or brand differentiation) and/or by environmental or social concerns. Examples include commitments to increased energy efficiency; procurement policies (e.g. to purchase only wood products from sustainable forests or to purchase only from suppliers with environmental management systems); commitments to reduce or phase out the use of certain inputs (e.g. toxic chemicals); public consultation practices, etc. Such codes may vary widely in design but all must be both effective (i.e., yield measurable environmental, social and financial benefits) and credible (e.g., sufficiently transparent) to meet their objectives.

Participants: Large firms are in a better position than small ones to undertake such initiatives because of the planning and management resources required. The stakeholders involved will typically include some of the firm's suppliers, but may also include employees, the community and environmental and social advocacy groups. |

Type	Description
Sustainable Development Reporting Norms	*Overview:* Publicly disclosed corporate environmental reports (CERs), or broader corporate sustainability reports (CSRs), are a mechanism for enhancing corporate transparency and stakeholder dialogue and trust. They can provide an important driver for improved corporate performance. They can also be used to report on environmental activities including the implementation of environmental management systems and corporate progress in terms of company-set (or government regulated) targets for environmental, social, economic and ethical performance. Increasingly, such corporate reporting is being used by the financial sector and investment community as one means for assessing corporate performance. *Application:* Norms or guidelines for sustainability reporting can be used to enhance the consistency and quality of reporting efforts within or across sectors. For example, the Global Reporting Initiative (GRI) is an international, multi-stakeholder effort to create a common framework for voluntary reporting on the economic, environmental, and social aspects of corporate-level activity. The GRI is currently initiating development of sector-specific sustainability reporting guidelines for four sectors, including mining. Alternatively, the mining sector could establish its own adapted reporting norm, consistent with an international norm such as the GRI. *Participants:* Corporate environmental or sustainability reporting is initiated at the company level by senior management or a company's board. Increasingly, companies are seeking stakeholder views and input on these reports – from shareholders through to community groups, labour and NGOs. Multi stakeholder processes can be used to identify information needs and stakeholder expectations.

Type	Description
Management System/Process Standards	*Overview:* Management system standards are site-based standards for management procedures often pertaining to quality assurance and environmental management. Examples of international environmental management standards include ISO 14001 and EMAS (European Eco Management & Audit Scheme). While such process standards have often been criticized for not directly addressing performance, they have the potential to improve environmental practices through the increased rigour that procedures and internal incentives may create for employee and management performance. They can be strengthened by including requirements for public disclosure of key performance indicators. They can also be modified to require participating organisations to adhere to specific performance standards (e.g. international guidelines for best practice or sustainable forestry standards such as those developed by the Forest Stewardship Council – the FSC).

Application: Management system standards have been most widely applied in the areas of financial, quality, and environmental management, and have proved most effective when established as international standards. Both ISO 14001 and EMAS are generic environmental management system standards. Although not yet done to date, a variation would be a sector-specific EMS standard. Such standards can also address other aspects of sustainability, as seen in the Accountability AA 1000 standard for social and ethical accounting and reporting.

Many management system and product standards require independent verification or certification of a company's adherence to the standard, thus providing a level of assurance to interested stakeholders. (Note: Certification is discussed in more detail under the Market Mechanisms section on Certification).

Participants: Management System Standards are usually developed following recognised processes by formal Standards Development Organisations (SDOs), which include government and industry representation. This process is strengthened by facilitating the participation of NGOs, labour and other social groups in the formulation of such standards. |

Type	Description
Supplier Challenges/ Procurement Requirements	*Overview:* Supplier challenges are requirements by governments or large corporate buyers of goods and services that suppliers and their products meet specified environmental or social attributes. To help foster the use of this mechanism, governments can: stimulate market demand (e.g. by raising public awareness of particular environmental issues); help develop methodological tools (e.g. life cycle analysis to identify the significance of the supplier's contribution to the overall environmental impact of a product); reward leaders; and, provide guidance with respect to environmental priorities.
	Application: Supplier challenges are most commonly implemented by individual companies. They generally require markets with a few large purchasers to be effective. The automobile parts and supply industry is a good example of such a market. American car manufacturers have issued a challenge to their suppliers to become ISO 14001 certified. Some chemical companies are asking their suppliers to meet the standards set out in Responsible Care. Being at the bottom of many supply chains, mining companies may be more likely to be the subject of a supplier challenge than the initiator.
	Participants: Large companies and large government agencies (or a government if it works in a coordinated fashion across its agencies) are initiators and implementers of such schemes. Governments can also play a facilitating role.

Type	Description
Government Challenges	*Overview:* Government challenges have been used extensively both to encourage reductions in emissions of toxic chemicals and greenhouse gases and to improve energy efficiency (e.g. Accelerated Reduction and Elimination of Toxics in Canada which applies to all industrial sectors - and the US Motor Challenge and Energy Star programs, each of which focus on different energy using devices). Generally, a narrow range of government policy instruments such as information, and promotional and technical assistance support these approaches. Industry associations often play important recruitment and performance support roles. *Application:* Typically, these mechanisms use "soft" forms of commitments such as pledges, letters of intent, unilateral declarations, or agreements to adopt guidelines or achieve preset targets on a "best-efforts" basis. Performance is not verified. The consequences of failure vary from none to adverse publicity to being forced out of the programme. The effectiveness of these programmes varies a great deal. Some have been very effective in reducing energy consumption. Others have primarily raised awareness of an environmental issue but achieved few tangible results other than leadership by example. *Participants:* All types of companies can and do participate but large ones may be able to reap greater benefits in terms of enhanced reputation. NGO's have traditionally played a minor or no role in many such programmes. Their absence has tended to reduce the programmes' credibility.

Type	Description
Government - Industry Agreements	*Overview:* Government Industry Agreements typically involve commitments by companies or an industrial sector to reduce emissions and/or enhance efficiency to specific levels. In order to be effective and credible, they need to be applied in appropriate circumstances and be designed for performance. Firms are motivated to enter these agreements in large part by the threat of regulation. In some cases, however, governments also provide positive incentives to encourage participation and performance (e.g. fiscal incentive, recognition, regulatory flexibility). While participation in such programmes is almost always voluntary (like government challenges above), performance standards are mandatory (unlike government challenges). For industry, the advantages of such agreements may include greater regulatory certainty and flexibility, and lower operating costs. Such agreements are used primarily in Europe where they have been applied to a wide range of environmental issues. The best known examples are the target group agreements ("covenants") used in the Netherlands. *Application:* Appropriate circumstances for these programmes will vary, but include factors such as industry concentration (it is easier to negotiate with a small number of large firms), the openness of markets (high import penetration will hamper effectiveness) and the participants' environmental record (a record of non-compliance will discourage success). In order to achieve performance improvements, agreements must set measurable objectives, have prescribed monitoring and reporting requirements, include mechanisms for verification and allow for public consultation. *Participants:* Individual firms or governments normally initiate dialogue on such schemes, and both must be involved in their negotiation. NGOs or communities can play a role in setting out expected improvements and performance targets.

Type	Description
Company Community Agreements -	*Overview:* Local communities may enter into formal agreements with local industries with the intention of gaining commitments from companies to improved environmental or social measures, or to achieve a variety of other objectives, most of which lie outside of the community's direct scope of jurisdiction. For example, The Rotterdam Port Authority was instrumental in creating the credible threat of civil liability that induced industrial polluters along the Rhine River to agree to abate their emissions. Local authorities in Japan use the threat of "collateral enforcement" (the threat of higher local taxes or more stringent licensing or zoning requirements) to elicit formal agreements regarding pollution prevention. *Application:* As in the case of industry–government agreements, the appropriate circumstances for use of these community-based schemes will vary. These include factors such as industry concentration or company size, the participants' environmental record, and the desire of the company to be a good corporate citizen. In order to achieve credible performance improvements, such agreements must set measurable objectives, have prescribed monitoring reporting and verification requirements, and allow for public consultation. *Participants:* Community representatives, including both elected bodies and NGOs/community movements, often initiate such schemes or create the pressure for companies to initiate them. One or more company, sometimes grouped in one industrial sector or an industrial park, are the necessary counterpart for the negotiation of such agreements.

Type	Description
Company - NGO Agreements	*Overview:* Industry may enter into an agreement with NGO's that commits it to specified environmental or social and ethical performance targets in return either for an NGO endorsement, or for an NGO agreement not to publicly criticize the participating companies. For example, several large environmental groups (Greenpeace, Environmental Defence, Friends of the Earth in various countries) have negotiated agreements with individual firms to promote the development of technologies with reduced environmental impacts. In Western Canada, NGO's and the forest industry have agreed on an outline for wilderness areas to be protected from logging. *Application:* Use of such schemes depends crucially on company and NGO succeeding in finding common benefits from a strategic alliance. *Stakeholders/Participants:* One or more NGO's plus one or more individual companies or industrial sector are the necessary parties in such negotiations. Governments may have a role in putting in place the necessary enabling policies and/or legislation for such agreements to be implemented.

Annex 2: Processes

A: Stakeholder Processes

Type	Description
International Stakeholder Processes	*Overview:* Fixed-life processes, (typically of 1- 2-year duration), are designed to scope out a problem of global dimension and to use a combination of research and analysis, dialogue, and stakeholder engagement to reach consensus on priority issues for action. In some cases, the process may lead to agreement on specific actions to be taken, while in others it may limit itself to the elaboration of the perspectives of different stakeholders on the agreed priority issues. Such process are supported and managed by existing organisations, or temporary secretariats, and do not necessarily imply the creation of new ones. *Application:* Such processes can be applied to a broad topic, such as the UN Global Compact, which aims to establish broadly agreed principles for corporate responsibility encompassing environment, labour and human rights practices. They can address a specific issue as the IDRC Crucible Project on Intellectual Property Rights for Plant Genetic Resources. Or, they can address a specific economic sector (such as large dams) or more specifically a major issue in a sector, as in the case of the current UNEP-coordinated cyanide initiative with the mining sector. *Participants:* International stakeholder processes are usually initiated by an industry group (the WBCSD in the case of MMSD); or more commonly an international organisation alone or in collaboration with other organisations. They involve a wide range of interested stakeholders with a direct interest in the topic at hand. In the case of MMSD this includes industry, labour, communities, NGO's, scientific and research communities, governments and international organisations.

Type	Description
Regional Initiatives and Programmes	*Overview:* Regional cooperation among governments, within an industry or involving a broader range of stakeholders, is designed to address specific issues or the broader sustainable development of a economic sector, either through individual initiatives or long-term programmes. Such approaches may involve Heads of State or Ministers focused on environment and cross-sectoral sustainable development policies within a region, such as the Central American Sustainable Development Alliance, or programmes under which governments commit to a common programme of action, such as the Mining Sector programme under the Southern African Development Cooperation (SADC) Programme of Action, in which the responsible Ministry in Zambia hosts a regional secretariat to support the programme.
	Application: The Regional MMSD processes which have been initiated in several regions and sub-regions of the world are examples of a multi-stakeholder application of regional initiatives. These are designed to identify key issues common across a region of priority to a range of stakeholders, and to design outcomes which will lead to actions to address the agreed issues. Another example has been the Central American Biological Corridors initiative, which involves the interaction of governments, NGO's and international organisations in creating and maintaining a contiguous corridor or habitat throughout Central America to conserve the region's biological diversity. A furhter example is the Mining Policy Research Initiative of the International Development Research Centre (IDRC), which is focused on sustainability, equity and minerals development in Latin America and the Caribbean.
	Participants: Regional initiatives are often developed by governments through existing economic cooperation institutions – either of the countries themselves, or supported by the United Nations. They can also be initiated by industry, working in collaboration with other sectors of society, including NGO's, governments and research and development institutions.

Type	Description
National Sustainable Development Initiatives	*Overview:* National stakeholder processes can be used to address national sustainable development issues through clarifying expectations of various interests, establishing priorities for action, and in some cases reaching agreement on specific outcomes. They may be broad in scope, designed to initiate dialogue among stakeholders and the broader population on principles for sustainable development, and set to identify priority issues. They also may be more focused on a particular issue (e.g. water management or management of toxic substances) or how an economic or industrial sector can contribute to sustainable development (e.g. financial services or forestry). Such initiatives typically have open-ended mandates, but experience has shown in many countries that the commitment to follow up has often been lacking among a range of stakeholders. *Application:* Examples in the mining sector include the recent initiative by the Government of the Philippines to introduce a national mining and minerals law through a multi-stakeholder process; national consultations in South Africa for development of a national mining and minerals policy; a current sustainable development project being undertaken by the Mining Association of Canada; and an earlier Canadian industry-NGO effort called the Whitehorse Mining Initiative which established a common basis for dialogue on sustainable development issues in the mining sector. These initiatives have led to useful longer-term outcomes, such as a Canadian coalition involving environmental NGO's and the Mining Association of Canada in support of species protection legislation. *Participants:* Industry associations in collaboration with other sectors such as NGO's and government agencies can prompt these initiatives. They can also be led by National Sustainable Development Commissions which are multi-stakeholder in composition. They may involve mainly the member companies of an association or can be extended to broader stakeholder involvement. Government-led initiatives more commonly involve a range of interests.

Type	Description
National Reconciliation Processes	*Overview:* National reconciliation processes are mediated processes for conflict resolution among stakeholders with widely differing experience, perspectives and expectations. They are usually invoked when an impasse has been reached which has far-ranging economic or societal consequences, and in situations where it is in the interest of the various stakeholders to seek a way forward from an impasse, including delays or inability of industry to access new resources and the loss of influence of a community group within government decision making. *Application:* These processes can be applied at a national or sub-national level when there is a breakdown in dialogue, and all other means for seeking resolution have been exhausted. They can be applied to resolving a particular issue, or more broadly the activities of an industry or economic sector which has become controversial. *Participants:* Governments are normally the initiators of such processes. When they do so, they must ensure fair and open access to the process by the range of differing interests involved in the dispute.

B: Capacity Development

Company SD Strategy/Learning Initiatives	*Overview:* Company SD strategy and learning initiatives involve a proactive initiative by a company to understand what sustainable development means to its business and the development of specific policies or strategies and actions to enhance its contribution to sustainability. It can provide on-going learning opportunities for all levels in the company, from senior management to all employees, usually front-end loaded over a 1-2 year period to develop commitment and a common base of understanding. Different approaches are used but they commonly share a number of characteristics including: use of facilitated management-for-change processes, an analytical framework for sustainable development, an on-going learning means such as training workshops, and the identification and development of specific sustainable development initiatives.
	Application: These strategies and initiatives may apply to any business sector. In the mining and minerals sector, a number of large companies have initiated these processes, and the Global Mining Initiative includes an industry engagement process that is introducing sustainable development concepts to companies around the world.
	Companies are at different stages of evolution toward sustainability, typically fitting across a spectrum ranging from meeting basic requirements, to improving performance, adding value through actions that promote sustainability and a redefined business strategy that integrates environmental, social and economic sustainability into all levels of decision-making and activities. These learning initiatives accelerate the process of moving up an evolutionary curve.
	Participants: Typically, such initiatives are internal to companies, often initiated by CEO's or the board of directors, and working down to various business units and operations. In other cases, often with smaller companies, the initiative may come from a particular unit that has faced a crisis. These initiatives may involve a limited number of outside stakeholders to help the company in its learning processes and to position it's initiative within broader societal expectations for sustainable development. In other cases, companies may be supported by external mentors or by peer groups seeking to "level the playing field".

National capacity development initiatives	*Overview:* Capacity development is the process of strengthening and/or developing human resources, improving the functioning and performance of organisations, and ensuring an overall country context which permits the effective, efficient and sustainable functioning of activities in a given sector of economic activity or to address a particular national objective. It normally involves the capacity to set national policies and to design and implement legal and regulatory measures and administrative procedures; the scientific and technical capacity to effectively assess the costs and benefits of development options including in a particular sector; and the capacity to put in place the necessary economic measures and governance structures to ensure an adequate flow and distribution of benefits. *Application:* Capacity development is particularly important to developing countries in a range of sectors where they lack sufficient human resources and institutional capacities to effectively promote, facilitate and control industrial activity. In the mining sector, it is particularly needed in countries with an existing or emerging domestic mining and minerals industry and where there is substantial foreign investment in the sector. *Participants:* Capacity development is typically supported by international development organisations of the UN and international financial institutions, by bilateral development cooperation agencies, and by trans-national companies themselves. Capacity development can be targeted to government officials and their institutions, to small and national companies operating in a sector, and to other segments of society which may be affected by activities in the sector including communities and voluntary organisations.

C: Technological Improvement

Industry-led Technology Adaptation/ Substitution	*Overview:* Technological innovation involves adaptation of existing technologies and the introduction of new equipment or the substitution of major industrial processes with more efficient and effective ones. They are typically market–driven, responding to opportunities for reducing costs or increasing market share by introducing new or higher-quality products. Technology substitution may also occur in response to national law or regulations, for example with respect to more stringent occupational health requirements or pollutant emission limits. Given the large costs associated with wholesale substitution of new process technologies, or substitution of new materials product lifecycles, there needs to be a convergence of proven technical feasibility, financial viability and environmental and societal benefits for such changes to be adopted. *Application:* These mechanisms for change particularly apply to the environmental and health and safety aspects of sustainable development. Social objectives, particularly related to community involvement, could also be addressed through the adoption of new technologies extending the operational tenure in certain regions and sites. *Participants:* Technological innovation normally industry led. However, its efforts may be based on government-supported or conducted research, or the research and development efforts of universities and other research or academic centres. Community involvement is usually not large, but is important in determination of public acceptability of new technologies.

Technology Innovation Programmes	*Overview:* Governments can use technical means and market-pull incentives to induce manufacturers or research institutions to make incremental innovations to existing designs of process as well as control technologies, for example to bring them up to accepted best practice. Alternatively, governments may aim to accelerate traditional R&D output by providing financial incentives for industry to develop and commercialise advanced (i.e., breakthrough) technologies sooner than they would have done otherwise. The American Industries of the Future (IOF) and the Partnership for a New Generation of Vehicles (PNGV) programs are examples that match technology development priorities (both incremental and breakthrough) to the needs of U.S. industries through a government-industry dialogue and partnership process. Other programmes use market-pull schemes to facilitate a commercial relationship between large-volume purchasers and product manufacturers. *Application:* Typically, such schemes have been applied to the energy sector and more recently to communications and informatics. However, where there is a substantial societal benefit to be gained (for example through improvements to air quality and community health), they could be applied to other sectors including mining and minerals. A number of countries do have in place smaller schemes for technological innovation in the mining sector. *Participants:* Governments are typically the initiators of such technology innovation programmes, using a combination of research funding and market incentives to encourage academia and other research institutions and companies to participate. Governments may also undertake proactive efforts to encourage the building of relationships and to foster cost-sharing among private sector technical experts, governments and academia to spur technology innovation.

Technical Assistance Programmes	*Overview:* Technical assistance programmes aim to accelerate the use of "best-practice" technologies and operational management practices. They have the broad overall goal of market transformation to achieve higher levels of efficiency in the marketplace. A variant can include retrofit programs, such as those offered on a commercial basis by energy service companies. Government can participate in these programs as a broker/facilitator for parties interested in fostering change in market structure or behaviour. Market transformation strategies are pursued that bring together all of the principal players involved, for example, in producing marketing, specifying, and purchasing climate-friendly technologies. Industry associations can support such programs by creating networks of users, suppliers, consultants, and industry and trade associations to forge strategic market alliances in support of market transformation objectives *Application:* These programmes can be used to overcome market barriers and enhance existing market infrastructure to support improved environmental practices. Participants make a specified efficiency or other beneficial change over an agreed period, the commitment often involving the purchase or upgrade of a preferred technology. No regulatory threat is implied. Instead, market instruments extend information and build public and stakeholder understanding, and technical assistance is used to encourage participation. *Participants:* Typically initiated by governments or by international organisations providing support to developing countries, these programmes focus on industries and small to medium-sized enterprises. There is an increasing NGO involvement in such programmes, where arms-length non-governmental bodies provide advice and/or administer the programme. Technical assistance programmes may also focus on communities to help them address a particular environmental issue or to broaden their economic base, for example, in response to the winding down of an industry.

Annex 3: Institutional Responses

A: *Institutions*

Type	Description
International Commission or Council	*Overview:* Institutional structures are often used to either initiate work on an issue or a set of issues of international importance. Alternatively they may serve as one vehicle for ensuring or supporting implementation of the outcomes of an international process. Thus they may have a fixed-term mandate or an on-going one. This may involve the establishment of a new international institution - either stand-alone or under the auspices of an umbrella organisation, or it may involve a change in mandate or adaptation of an existing institution to carry out the internationally agreed mandate. Functions may range from fostering information sharing and on-going dialogue, through to monitoring or verifying progress against agreed commitments, to implementing programmes to resolve particular sustainable development issues, either directly or through facilitating the work of other organisations. *Application:* Such institutions can be designed to address sustainable development broadly, for example the UN Commission for Sustainable Development (UNCSD), established to provide an international body to track and elaborate implementation of the Rio Earth Summit agreements. Alternatively, they can be used as a vehicle to follow up in a particular sector (e.g. through a modified mandate for an industry association). It can also involve the sharing of responsibilities across a network of existing organisations which share a common purpose and pool at least a portion of their resources, usually with one of the network members taking on Secretariat or coordination functions (e.g. the Consultative Group on International Agricultural Research, where the World Bank serves as the Secretariat). *Participants:* Such institutional responses can be initiated by a group of eminent individuals, (as in the World Commission on Forests), by the member countries of the United Nations, (as in the case of the Commission on Sustainable Development), through the collaboration of two or more international organisations, (as in the case of the World Commission on Dams which was launched World Bank and the IUCN), or by a group of companies, (such as the World Business Council for Sustainable Development).

Type	Description
CEOs Forum	*Overview:* A CEO's forum consists of a variety of industry leaders meeting on a periodic basis to promote dialogue on issues of sustainable development. This forum may involve only CEOs from participating companies, as in the case of annual meetings of industry associations, or it can include broader participation, including the heads of major NGOs and international organisations. While not intended to take decisions, such forums can develop work programmes that produce recommendations pertaining to various aspects of sustainable development. Such forums often remain ad hoc, being dissolved when they no longer form an effective vehicle for constructive dialogue or issue resolution. *Application:* CEO forums can be organised at the international level, often with the assistance of an intergovernmental organisation. This is the case for the World Bank-initiated Ad Hoc CEO Forum on Forests. At the national level, forums can be initiated by agreement of business leaders and NGO's who jointly identify a need for a vehicle of constructive dialogue on a particularly pressing issue or a longer-term agenda. For example, the New Directions Group in Canada helped forge a basis for government enabling action on toxic substances control and on voluntary industry initiatives for pollution prevention. *Participants:* These can be industry led, initiated by an international organisation, or jointly by two or more stakeholder groups at the national level. Involvement may be restricted or involve more than one stakeholder group, but usually participation is limited to allow for frank and constructive dialogue.

Type	Description
Ministers Forum	*Overview:* A Ministers Forum consists of a meeting of ministers responsible for a particular economic sector, natural resource, or broad jurisdiction to address issues of common concern. Such meetings may be mainly informative – usually the case at the international level – or they may be used to set national policy and reach inter-jurisdictional agreements when at the national level. *Application:* These meetings provide a useful vehicle for sharing state-of-the-art thinking and practice. They also may provide a platform for awareness building and setting a common basis for addressing broader issues of sustainable development in a sector, including preparing the groundwork for implementation of the results of an international initiative such as MMSD. Such fora may also provide the opportunity for government dialogue with other stakeholders including industry, the research community, professional associations and community interests. *Participants:* Key participants are Ministers responsible for mining, minerals and metals and senior policy and regulatory officials. They may link to professional associations to assist with technical inputs for their meetings.
International Associations or Networks	*Overview:* International industry associations or international networks of national-level industrial associations provide a mechanism for the exchange of information, pooling of research and other study results, building a common basis for response to new initiatives on sustainable development. Likewise, international federations of national employee unions or of professional associations may serve a similar role in building stakeholder support. *Application:* Existing associations can provide a vehicle for acting on elements of international commitments to sustainable development, either directly within their mandates, or through the revision of their mandates and adaptation of their structures. Alternatively, networks of national industry sector associations – e.g. national mining associations – may help address issues that cut across boundaries, and provide a mechanism for world-wide adoption of improved practices that support sustainable development. *Participants:* The use of international associations to advance sustainable development objectives must be initiated by the member organisations themselves – be they national level industry, professional or trade union associations.

Type	Description
International Inspection Panel	*Overview:* An International Inspection Panel is an independent body established by an organisation or industry to provide individuals, communities and other stakeholders with a vehicle for recourse against the disadvantage they believe themselves to suffer as a result of the operations of that organisation or industry. In other words, a place where their complaints and concerns can be heard and, when necessary, investigated. Such panels usually comprise a small number of individual experts working on a part-time or full-time basis, who review and investigate complaints about performance in relation to the stated policies and procedures established by an organisation or industry. The panel normally undertakes independent assessment and formulates findings and recommendations for remedial action, compensation or other measures as appropriate. It usually reports directly to the Board of the organisation or industry to ensure independence from the management line. *Application:* Such panels can be established at the international or national levels. They normally address environmental or social concerns associated with large operations – be they physical or financial in nature. As such, they investigate the compliance of the organisation with its own policies and objectives and procedures in support of one or more aspect of sustainable development. Governments in the case could also establish such panels where it considers necessary an independent review of the implementation of its policies and laws by officials. The scope of work of such panels do not extend beyond review and comment on the performance of the organisation which has formed it – in other words, a company-established panel would not comment on the performance of a host government. *Participants:* While staffed by independent experts, and reporting to the board of the organisation that established it, a panel may seek input from any individual or organisation directly affected by the operation in question. As such, it normally will seek evidence from communities, indigenous peoples, labour and/or environmental organisations, with an emphasis on communities.

Type	Description
International Ombudsman	*Overview:* An International Ombudsman is an independent person of high moral authority who helps individuals (or organisations) with a grievance. Through impartial investigation and by acting as a neutral mediator, he addresses problems and resolves disputes with other individuals or organisations. Like an International Inspection Panel, the ombudsman is a vehicle for recourse, but one that goes beyond investigation and recommendation to provide dispute resolution through mediation or other non-judicial means. The scope of an Ombudsman function can range from addressing narrow problems of inadequate service or unmet commitments, to broad issues of social justice. *Application:* An Ombudsman function can be designed to address only one aspect of sustainable development such as environmental conflict, or a broader spectrum of issues falling within the scope of sustainable development. These range from environment, to social equity, to human rights. An Ombudsman can be established at the international, regional or national levels, depending on the willingness and agreement of governments, industry and other stakeholders to put in place a potentially important mechanism for mediation. An Ombudsman could also be established by a company or government to focus specifically on a large and potentially complex project. *Participants:* An Ombudsman can be directed to report to the highest governance body of an organisation, for example, a national legislature or the Board of Directors of a company. Alternatively, the Ombudsman function can be determined with a multi-stakeholder oversight.

B: Knowledge Management

Knowledge database/network	*Overview:* In any major domain, there is a wealth of research results and practical studies in formal publication and grey-literature form (both in hard-copy and electronic form) that emanate from a range of international, national and local organisations. In addition, major international review processes addressing sustainable development issues, such as MMSD and the World Commission on Dams, collate and synthesize existing research and produce their own analytical studies on key issues. A decentralized set of linked databases and digitised publications and reports provides a system for accessing and analysing such a wide array of information. Data and information are contributed but held in local databases by a wide range of participating institutions, to which all participants have access. Data entry and management protocols, as well as analytical tools are established collectively, with a central secretariat providing a facilitation and quality assurance role. *Application:* A decentralized or distributed knowledge management system could be established at the national or international level to deal with sustainable mining practice. These databases networks can be designed to address research and the technical and practical information related to all aspects of sustainable development. *Participants:* Normally, a relatively small set of lead organisations play a role in the design and oversight of such a knowledge management system. These include research institutions, industry associations, and international organisations (or government agencies at the national level). Access, however, could be provided to a much wider range of organisations who could potentially add valuable input to the database and benefit directly from the data.

Web-based discussion forum	*Overview:* Electronic discussion provides a mechanism for on-going information sharing and dialogue on one or more related topics. Any topic can be accommodated, but a well-functioning web-based dialogue will either address a small number of topics, or be structured to allow for differentiated discussion on a wider range of topics, which can be linked as appropriate. *Application:* In the case of follow-up to an international initiative such as MMSD, such web-based dialogue could provide a channel for continuing interaction among engaged stakeholders. It could be divided into a series of issue-specific web pages, with discussion moderated by one organisation in each case, through which progress made in acting on the issue could be tracked. Such dialogue for a also provide a means for wider consultation and input from a range of stakeholders at the national, regional or international levels. *Participants:* Public access can be maintained to selected portions of the website, with more restricted access being provided to specific participants from a range of interested stakeholder groups working actively to address a particular issue.

C: Financial Mechanisms

Technology Phase out/ Substitution Fund	*Overview:* A fund specifically targeted to support technological transition to safer technologies can be used to aid and accelerate phase-out of older technologies. Such funds have been established at the international level, usually under an international agreement or convention, or through a programme established by an international organisation. Such funds for technology phase-out or substitution can be developed at the national as well as international levels. They are usually financed through voluntary contributions from governments to support technology innovation programmes as outlined in the previous table on processes. Such funds can be used to help smaller or national companies to upgrade their environmental and health and safety technologies, and ultimately to replace inefficient and less safe technologies that pose environmental and social risks.
	Application: Both the Multilateral Fund for Implementation of the Montreal Protocol, designed to assist developing countries to phase out the production and use of ozone-depleting substances, and the World Bank Energy Sector Management Assistance Programme (ESMAP), which provides technical assistance to developing countries and economies in transition on sustainable energy development and transfer of technology and knowledge in energy sector management, are examples of international funds.
	Participants: Governments or government agency representatives usually govern such funds. Increasingly, however, at the national level targeted industries, private experts and other interests are represented to help assure the acceptability of new technologies.

Collective Industry Fund	*Overview:* A collective industry fund is established through industry contributions - either completely or with government contribution – for use to resolve outstanding problems where there is no longer an accountable or financially viable entity. Such a fund could be established at the international level or national level.
	Application: These funds can be used to provide a pool of capital to redress environmental liabilities for cleanup and restoration. Examples include, abandoned industrial sites to provide financial support for community transition at the end of an industrial operation's life, either for "retooling" of a local economy or in extreme circumstances, for relocation, or for contingency purposes in cases of future environmental damage where the company involved may not be sufficiently viable to bear the cost of repairing damages.
	Participants: Normally, the contributors to such a fund maintain responsibility for its management and decisions on its use. In the case of an international fund, there may be a role for an international organisation to help guarantee that priority cases are addressed. Similarly, at the national level, a government ministry or independent panel can play the oversight role.

Annex 4: Summary of Initial Stakeholder Feedback on Possible Outcomes

This appendix summarises the responses to a short e-mail questionnaire sent to, and phone interviews held with different stakeholders concerning their expectations for possible outcomes of MMSD and the mechanisms they deemed necessary to implement its conclusions. In total, 22 individuals responded from various groups including mining industry, governments' regulatory and research agencies, universities, NGOs and consulting firms.

This range of views on outcomes represents only an initial input from the stakeholders. MMSD believes that there is a need to have a widespread dialogue at the global, regional and national levels between stakeholders to take account of their expectations and experience.

The outcomes suggested by those who provided input to this Appendix have been arranged in two sections. The first summarises responses on the basic premises required for a process of dialogue under MMSD. The second categorises the summary of responses into three groups of mechanisms as used in the main part of this paper.

This synthesis of responses is not intended to assert their appropriateness to addressing any particular sustainable development issue in the mining and minerals sector, nor does it imply the existence of a mutual understanding or consensus amongst stakeholders at this time on the desired outcomes of the MMSD project.

Basic Premises

The participants partaking in this questionnaire and interview process generally suggested that there is a need to determine the baseline of current practice; that is, how the mining and minerals sector currently undertakes its activities in terms of the common elements of sustainable development – environmental, social/health and safety, ethical and financial performance. This will serve as a common basis of understanding to facilitate communication with stakeholders and to help dialogue among different stakeholders. Further, this is required to help stakeholders develop a clearer definition of what is acceptable and what is not in terms of mining and minerals practice, and which sanctions or other actions might be applied when practices are outside this set of common approaches.

Participants also pointed out that it would be desirable to set out the mutual expectations of the main stakeholders in terms of key global issues and regional concerns. These stakeholders include industry, government, NGOs, local communities, intergovernmental organisations and academic institutions.

Participants advised MMSD to identify the top 5 to 10 issues that should be addressed at the international level, and 5 to 10 issues in each region, at the regional level, with the idea that the project concentrate on and set in motion a process to develop an agenda, with appropriate stakeholders' participation, in a defined period of time. These issues should be few and built around consensus.

One possible approach would be to focus specifically on mining activity, reducing emphasis on broader issues. Clearer definition of boundary issues – especially those relating to the secondary development impacts of mining – would more accurately determine the legitimate role of mining companies in sustainable development.

Stakeholders could expect a more structured agenda for sustained dialogue to be based on this focused set of issues. In addition, there could be a technical agenda for action on research priorities, directed toward the outcomes of the engagement and analytical processes, which would form the basis of jointly funded research work.

Participants' Ideas on Possible Mechanisms for Implementing MMSD's Conclusions

Norms and Instruments

Several participants suggested that the development and application of international standards could be expressed either as (1) an international baseline that represents the minimum standards for mining, or (2), international standards of good practice. Either of these approaches should also include specific identification of banned practices (for example, use of mercury in mineral beneficiation, riverine disposal of tailings and failure to provide safety equipment such as hard hats and respirators).

There was a broad range of views on best practice. Some suggested the use of a Best Operating Practice, agreed by all parties, in any given set of circumstances. Others suggested that MMSD could develop practice norms or guidelines beyond the minimum but not as far as Best Practice, for example, "promising practice". This could avoid a debate over what is Best Practice.

It was noted that the implementation discussion should include the determination of how standards can and should be added or modified over time, and what sorts of bodies could be established for these purposes.

Some participants suggested development of an international code of practice. This could include clear and comprehensive guidelines with a number of elements. For community consultation this could include the assessment of impacts (social, environmental) and benefits (economic, infrastructure, educational), and the conclusion of agreements with communities. There could be a worldwide commitment on the part of mining companies to develop such agreements everywhere they mine and where they affect communities.

In moving towards this goal, MMSD's Regional Processes could produce a set of recommendations to be consolidated at the international level into this internationally agreed Code of Practice. Alternately, an international charter could be developed, based around agreed principles and criteria for sustainable development performance, to which mining/minerals companies would commit themselves. This could comprise a core group that includes companies from both developed and developing countries, and both big corporations and small enterprises. Supplementing this would be an action programme and a monitoring programme.

Processes

Here too there was a diversity of views. Some participants proposed the establishment of an implementation plan to provide guidelines that would be addressed by the industry through a self-regulation approach. Others suggested more complex processes be put in place for the development of actual standards and other instruments, such as global certification of mines, criteria for use by financial institutions (development banks, export credit agencies, commercial lenders, equity and debt markets), voluntary industry codes of conduct backed up by auditing and auditing bodies, or legislation (at national and sub national levels). Each of these mechanisms would also raise issues about how compliance is verified, inspected, audited or certified.

Another participant saw the need in due course for the establishment of a negotiating group involving all relevant interest groups to resolve major outstanding issues following the MMSD project.

Some international processes were suggested as models for consideration, including the Ethical Trading Initiative and application of the Social Accountability 8000 framework. A national process which was noted as a possible example was the multistakeholder approach used by the government agency Natural Resources Canada to develop a national framework of goals and objectives for sustainable development of minerals and metals at the national level.

Some participants commented that, in the longer term, the industry could be asked publicly to endorse the agreed outcomes of MMSD and to monitor its own operations and developments against these. Companies adopting the MMSD outcomes could undertake to report once a year in their annual reports to shareholders on their progress in addressing them. This would carry the advantage for these companies of potentially reducing opposition to their activities from elements of civil society, and might result in more favourable treatment from governments when companies generally seek access to new exploration areas or seek investment for new ventures.

There was a common view among participants on the need for improved communication. A medium of communication is required to facilitate interaction and sharing of information between regions. One tool that was proposed was the creation of a website that could serve as a virtual platform to promote dialogue and the flow of information.

Institutional Responses

An assortment of possible institutional approaches to follow up the MMSD project were suggested by participants. These included the following:

the continued use of industry associations – including metals commodity associations and national, regional and global mining associations – as vehicles for promoting action on sustainable development

the establishment of an on-going global advisory council, linked to new regional councils, to follow up on MMSD results

the establishment of a mining and minerals stewardship council

Elements of the first approach are currently being pursued through the Global Mining Initiative and by the work of the International Council on Metals and the Environment, among others.

Ideas for the roles played by a global council included the following:

- to be responsible for communication of good practice and results by mining companies

- to serve as an international mining forum where issues could be debated and resolved as they arise, such as mining-related catastrophes,

- to reward companies meeting global norms by providing good publicity

- possibly to serve as some form of tribunal that could pass judgement on mining infractions and problems

The idea of a mining and/or minerals stewardship council, mirroring to some extent that established in the forestry sector, could administer a set of standards for mining sector management systems and/or performance, and could accredit certifiers. Further consideration of such an idea would raise a number of initial questions: What would be the demand for certification? Would it be feasible to apply such an approach to the chain of custody of materials – from mineral to metal to products?

A number of participants highlighted the need to address the lack of institutional capacity among government agencies in developing countries, particularly in the regulation of mining activities. Other participants addressed financial requirements including suggestions that mechanisms be developed to provide funding for research priorities identified by the MMSD project; financial assurance for mine closings; or financing the establishment of an international pool of expertise and funding available to address mine environmental crises as they arise.