Finance, Mining and Sustainability

…exploring sound investment decision processes...

United Nations Environment Programme
Mining Department • World Bank Group
Mining Minerals and Sustainable Development Project

2001 - 2002

REPORT

This report, drafted by UNEP, provides an overview of the UNEP, World Bank, and Mining Minerals & Sustainable Development (MMSD) initiative investigating the role of financial institutions in improving the environment and social performance of the mining sector.

This Report and all the papers presented during the Workshop are available, in whole or in part on the following websites:

- Mineral Resources Forum (www.mineralresourcesforum.org)
- The World Bank (www.worldbank.org/mining) and the IFC (www.ifc.org/mining)
- MMSD (www.iied.org/mmsd)

MMSD officials have provided detailed minutes of both the 2001 and 2002 Workshops on their website.

For more information please contact:

United Nations Environment Programme
Division of Technology, Industry and Economics
Tour Mirabeau,
39-43 quai André Citroën,
75739 Paris cedex 15,
France
Tel: +33 1 44 37 14 50

The World Bank
1818 M Street NW
Washington, DC 20433
USA
Tel: +1 202 477 1234

The International Finance Corporation (IFC)
2121 Pennsylvania Avenue NW
Washington, DC 20433
USA
Tel: +1 202 477 1234

The Mining, Minerals & Sustainable Development Project (2000 – 2002)
London, United Kingdom

PREFACE

Nothing brings change to company behaviour quite as swiftly as financial gain (or loss). The spate of recent mining accidents[1] have started to impact the financial performance of some mining projects. Governments, multilateral agencies, and civil society including labour, indigenous groups, local and international NGO's are demanding higher standards for economic, environmental and social performance of mining projects. These demands mean that some mining companies sometimes experience delays in project implementation resulting in difficulties to recover invested funds. Such complications are noticed by the financial industry as portfolio and reputational risks are assessed, influencing access to capital and shareholder value.[2]

The January 2000 Baia Mare tailings dam accident in Romania caused ripples of activity throughout Europe and around the world. As one of the follow-up initiatives, the United Nations Environment Programme (UNEP), the World Bank Mining Department (WBG), and the Mining, Minerals and Sustainable Development (MMSD) Project initiated discussions on the financial implications of these accidents and whether financial markets could better reflect the range of risks - economic, financial, environmental and social - in the cost of capital.

The dialogue on the inter-relationship of financing, mining and sustainability had four objectives:

1. to support a better understanding amongst the finance community of issues raised by the mining industry's uneven performance with respect to sustainable development as they relate to financial and reputational risk and shareholder value;
2. to examine what role, if any, the financial community could play to enhance the mining industry's performance (e.g. guidelines, standards, or similar criteria);
3. to examine mechanisms (reporting, rating, certification, monitoring) suitable to improve overall industry performance, thereby reducing risk exposure for the financial community at large; and
4. to move toward a broader consensus on the evaluation of sustainability specific risk factors in mining finance, and their application.

Following two scoping meetings held in Washington in early 2001 to refine the questions about the 'role' of financial institutions in sustainable mineral development, a Workshop was held in Washington, in April 2001. The outcome of these discussions led MMSD to contract research projects to: a) evaluate the business case for sustainable mineral development; b) look at experiences and lessons learnt with respect to governance around such issues as product certification; and c) evaluate the role of indicators and management systems for measuring sustainability. The final phase of this partnership was a Workshop, held in Paris, in January 2002, to consider whether financial institutions had access to *all* the critical information necessary for ascertaining the range of

[1] 4 in 1998; 1 in 1999; 12 in 2000 and 29 in 2001 (excluding those in China)

[2] Recent regulatory changes, such as in the UK where pension fund trustees must now state the extent to which environmental, ethical and social matters are considered in their investment decisions (affecting more than £800 billion), underline this trend.

environmental and reputational risks and whether there is a business case for sustainability in mining.

This Report synthesizes this initiative. It is meant to emphasize the linkages between environmental and social liability and credit risk[3] and to inform the on-going thinking as to how minerals development can contribute to sustainable development and what role financial institutions could perhaps play.

[3] Further information on Environment and Credit Risk is available from the UNEP Financial Institutions Initiative (www.unepfi.net)

ACKNOWLEDGEMENTS

Particular thanks is offered to the following persons from the three organizations who provided their support and assistance:

UNEP:	Fritz Balkau, Head, Production and Consumption Branch Wanda Hoskin, Senior Programme Officer, Mining Paul Clements-Hunt, UNEP FI Coordinator Barbara Huber Toshi Ozawa Brigitte Sartre Wesley Massey Elena Ciccozzi
The World Bank:	James Bond, Director, Mining Department Peter van der Veen, Manager, Mining Department Monika Weber-Fahr, Senior Economist, Mining Department Ava Ayrton Arlette Fumiere Amelia Williams Obinna Okoye
MMSD:	Luke Danielson, Project Director Frank McShane, Coordinator of Stakeholder Engagement Andrea Steel
Moderators: April 2001	Ian Johnson, Vice President, Environmental and Social Sustainability, WBG Sue Ellen Lazarus, Director Syndications & International Securities, IFC Nemat Shafik, Vice President, Private Sector Development & Infrastructure, WBG Peter Woicke, Managing Director & Executive Vice President, WBG
January 2002	Aidan Davy, Director, Corporate Services, International Business Leaders Forum/Prince of Wales Foundation
MMSD Researchers	Alyson Warhurst, Professor, Warwick Business School Marianne Grieg Gran, International Institute for Environment & Development Ruth Nussbaum, ProForest

Table of Contents

FINANCE, MINING & SUSTAINABILITY

OVERVIEW OF ISSUES AND DISCUSSIONS

Introduction:
Mining by its very nature is financially expensive,[4] environmentally invasive and socially intrusive, yet many countries have successfully managed to convert their mineral endowment into national wealth providing the country with the economic means to address its environmental problems and social aspirations.

Recently, the mining industry as been experiencing a spate of accidents, intense social conflicts and political debate, in both developed and developing countries which have focussed attention not only on the mining industry but on its financiers, investors, lenders and insurers as the costs of mitigating the environmental and social damage can be enormous.[5]

Financing
The financing of mining and minerals projects[6] is not only important, but is increasingly under scrutiny regardless whether it be debt or equity financing. All financial involvement carries risk and it is the financial institution's skill in identifying and quantifying the different levels of risk that separates good decisions from bad ones. Environmental, social and increasingly reputational risks are just a few of the many risks to be assessed each time a financial institution gets involved in a business. From this point of view, risks can be characterized in three ways:

- Direct Risk
  As countries tighten their environmental regulations and public concern about the mining industry grows, pressures increase on companies to minimize their environmental impacts and pay greater heed to local social issues. This may increase companies' capital and operating costs in order to comply with increased environmental regulations and social expectations. This can have an impact on cash-flow and profitability, a borrower's ability to meet loan repayments and the value of the entire operation. It is therefore, important to thoroughly assess environmental performance as part of the normal credit appraisal process.

- Indirect Risk
  Legislation differs from country to country but many adopt the 'polluter pays' principle to pollution incidents. Financiers are increasingly concerned to avoid being placed in positions where they might be considered directly responsible for the polluting actions of their clients, in this case mining companies. Otherwise, in the case of a pollution incident, financial entities may find that not only have they lost the value of their original involvement in a particular project, but they may find

[4] The Antamina zinc copper mine in Peru has a projected cost of US$2.27billion.
[5] The estimated total of direct and indirect costs to Boliden of the Los Frailes tailings dam accident in Spain in 1998 is US$42.5 million.
[6] *The Role of Financial Institutions in Sustainable Mineral Development*, UNEP/ Standard Bank London, 2002

themselves being forced to meet what may prove to be substantial clean-up costs or even further liabilities.

- Reputational Risk
  Financial institutions are under increasing scrutiny concerning their involvement in a number of sectors, from governments, regulators, NGOs, the public and the media. Failure to give careful consideration to environmental impacts from projects financed, invested in or insured can result in negative publicity for both the respective company and the financial institution.

When investors consider financing a mining project, they analyze the current state of the industry (supply, demand and price factors), the company (cost profile, operating efficiency, technology, labour factors, access to raw materials, reserve replacement strategy, contingency and emergency planning, safety and environmental record, management) and the country where the project will be located (political risk). All these aspects are important as mining projects can experience various difficulties. For example, the US$900 million Gamsberg zinc project in South Africa is on hold due to poor market conditions.[7] The Windy Craggy copper zinc project in Canada was permanently halted in 1993 due to environmental concerns and transboundary pressures.[8]

From an investment perspective,[9] mining companies are relatively small. The Morgan Stanley Capital International World Index shows that mining companies constitute 0.7% of the index's total market capitalization (total of 32 companies only 8 of which are above 0.02%). While traditional investment analysts normally take limited account of environmental, social or political considerations, the trend towards socially responsible investing (SRI) approaches is changing this. One influencing factor is the development of a company's own environmental standard, whether or not there are stringent laws/ regulations or, where they do exist, whether or not they are viably enforced. SRI 'best in class' environmental performance considerations have been far reaching with proactive companies developing policies, programs and environmental management systems. Increased public reporting of quantitative environmental data (energy use, emissions and discharges, etc.) would make it easier to quantify improvements and third party verification would be useful. While environmental and social reporting has gone further in the mining sector compared with many other sectors, given the level of risks involved, there remains considerable room for improvement.

Mining:
The global mining industry is dominated by some 10 large companies whose total market capitalization is US$92billion.[10] And while minerals and metals products are important for a technological society, mining itself has a huge impact on surrounding communities, leaves a large environmental footprint and is controversial largely because of issues related to:

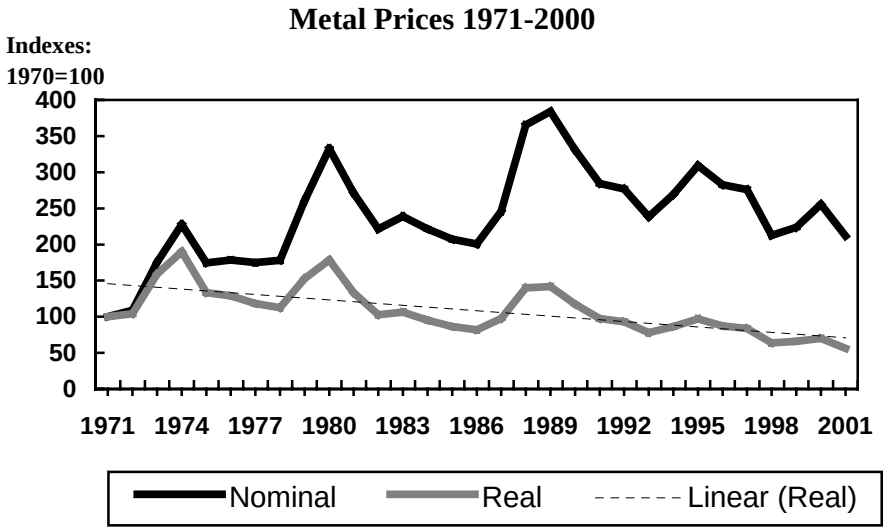
---

[7] See presentation by Simon Thompson (Anglo American), January 2002
[8] 'Windy Craggy Retrospective: Why It Failed', www.sunshine.net/www/0/sn0004/windycraggy.html
[9] See presentation by Aslak Skancke (Storebrand), January 2002
[10] From presentation by James Bond, this compares, in US$ with $241B for Wal-Mart, $262B for Microsoft, $289B for Exxon Mobil and $469B for General Electric. Source: Business Week Global 1000, The MiningWeb.com and Yahoo Finance, April 2001

- Economic rent – conflict over the division of risk and rewards, often leading to/associated with corruption; and to the
- High external costs – negative impact on local communities where the poor usually live.

Mining is extremely risky.[11] Even a proven geological reserve has no guarantee of being successfully developed given the legal and political requirements for environmental and social impact assessments, pre-operating expenditures, borrowing costs and commodity prices (mining companies are essentially price-takers in the marketplace).

The financial realities of mining also show that mining is not very profitable. Reasons include the fact that only a small proportion of exploration activity leads to mine development. Mining is a cyclical activity and metal prices, in real terms have been falling for a number of years in spite of increased demands on mining companies for improved environmental and social safeguards (figure 1).



[11] See presentations by Phillip Crowson (Consultant) and Keith Brewer (Government of Canada), January 2002

Evidence also indicates that the rate of return in base metal mining has fallen far short of the yield on US government bonds over the recent business cycle (figure 2).

However, in spite of these facts, the economic realities of mining are that projects result in creation of employment and economic rent that is paid to governments for them to reinvest in further developing their human and physical capital. This reinvestment creates improvements in living standards today which in turn, provides the means for a better future.

Mining can create genuine wealth from what otherwise is sterile rock. However, for any mining project to be truly economic, including being profitable for the company and its stakeholders, *all costs* including cash costs of operations, mine closure and rehabilitation, taxes and other important but less tangible costs related to the environment and social aspirations of different regions, need to be covered.

The environmental realities of mining mean significant expenditures to mitigate many forms of air and water pollution, significant waste, a large environmental footprint and legacy issues. Mineral development today means not only taking an ecosystem approach where development occurs but realizing that some areas, known as biodiversity hotspots and/or world heritage areas, are off-limits even for exploration.

The social realities of mining mean that mining companies frequently provide the local infrastructure which can include education and health facilities. Companies sometimes take the place of the central government meaning that local communities increasingly look for tangible benefits from the nearby resource development.

Although references to 'the mining industry' imply homogeneity, in fact it is not homogenous. The industry is made up of very large, well capitalized companies as well as medium and small companies; public companies which operate for profit and state-owned companies which are not always profitable. Some companies operate rich ore bodies while others have marginal operations. All need capital. Therefore, one fundamental question is what information do financial institutions and financial markets need to properly assess the risks associated with any project so as to sufficiently incorporate those risks into their financial costs? As there is the perception that environmental issues are immaterial to profitability whatever 'business case' there is will

also reflect the regulatory system, especially those regulations that apply to disclosure of information as these provide the linkage.[12]

Finally, what of the future? Although there is no shortage of minerals, we do not know what the future requirements will be either in terms of the metals we now use or others. Just as today's need for minerals and metals is different from the past, so the future is expected to be different from the present including the technology used. All these components have inherent cost and price implications. In addition, there remains significant technical scope to lower costs and raise the productivity of the minerals we presently use over the coming decades.

Sustainability:
The most commonly accepted definition of sustainable development is 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs.[13] What does this mean and what does this mean for the minerals and metals industry?[14] Development incorporates a nations ability to meet its economic, environmental and social aspirations. It embraces the notion of inter- and intra-generational equity. It recognizes the Agenda 21 principles of pollution prevention, polluter pays and precaution. Sustainable minerals development means a life cycle approach to products starting with exploration to find ore bodies, to materials extraction, through production, fabrication, re-use and recycling. It means development that is economically viable, financially profitable, environmentally sensitive and socially responsible. But more than that, sustainable minerals development is about *development* and mining's contribution to economic development where it occurs. Sustainability issues are local. They involve different issues, in different regions, and in different countries. For example, in South Africa, migrant labour, rural and local economic development, the need for front-loaded mine closure plans, black empowerment, early warning systems on the environment, places to work and live are basic issues[15] and must be factored into project development equations.

SUSTAINABILITY AND RISK MANAGEMENT - WHAT DOES IT MEAN FOR MINING?

The 2001 Workshop discussed whether 'sustainability' is just a different word for risk management - for thoroughly assessing each of the above three components. Discussions concluded that:

- Although mining has big negative impacts where it occurs, it can also have significant positive benefits and, in fact it must make a positive contribution to sustainable development.

[12] 'To be efficient, markets need reliable information. Enron shows the extent to which they are not getting it'. Special report: The Trouble with Accounting, The Economist, February 9, 2002, p 61ff
[13] World Commission on Environment and Development, *Our Common Future*, Oxford University Press, 1987, p.43
[14] One comment made on the evaluation was that there was no attempt to define 'sustainability' for the mining industry.
[15] Comments by South African Minister of Mines and Energy, Phumzile Mlambo Ngcuka, April 2001

- Sustainability is not only about environmental issues but about those in nearby communities.
- Sustainability is a *local* issue.
- The causal link between sustainability and financial performance is tenuous and most likely reflects the quality of a mine's management.
- Understanding risk is key.
- There is an information deficit. In particular, a much better understanding of risk and sustainability is needed at the industry, company and specific investment level.
- There is significant optimism about the financial community's interest and ability to address sustainability in the mining industry.
- The conditions under which the mining industry operates is changing.
- The mineral and financial sectors are realizing that reputational risk carries with it economic risk and on-going mining accidents have both reputational and financial risk elements.
- Environmental screening tools need to be used more in due diligence procedures.
- Financial institutions need to respond and adapt to their customers needs which includes addressing sustainability issues.
- More research is needed to address five questions.

i. *Metrics*: what systems are in place to measure sustainability performance and what evidence is there that they are measuring what we want to know?
ii. *Dividends*: is there evidence that good performance produces real dividends? If so, can this be quantified? What explains it? Is sustainability a surrogate for good management or are their other factors?
iii. *Information*: what information needs to be in the public domain?
iv. *Structuring a process*: who needs to participate in standard setting to ensure that the process is equitable and transparent?
v. What are the *implications for different scales of operation* in addressing sustainability?

MMSD commissioned analysis of the above questions.[16] UNEP commissioned a Report[17] to assist financial institutions and project analysts to better understand the mineral development process from exploration, through development to mine closure and land reclamation, including articulating who is involved in financing each stage. The results of these investigations informed the on-going discussion which involves a range of views.

Some think that sustainability will only happen when the world and the countries where mining takes place can afford it. Others think that mining should always contribute to sustainable development wherever it occurs. Some think that new indicators need to be developed[18] whereas others think that tools available in the rigorous application of welfare economics could be more extensively used as they provide a framework for project analysis and sound decision making.[19]

---

[16] Study results by Bass, Grieg-Gran, ProForest and Warhurst are available on the MMSD website at: www.iied.org/mmsd
[17] The Role of Financial Institutions in Sustainable Mineral Development, UNEP/ Standard Bank London, 2002, ISBN: 92-807-2145-3. It is also available on the MRF at www.mineralresourcesforum.org
[18] See presentation by Alyson Warhurst, January 2002
[19] See presentation by Keith Brewer (Government of Canada), January 2002

There is a case to be made that projects should only be approved if, in both a private and social sense, there are no net losers following a rigourous benefit-cost analysis. Projects must be considered on a region-specific basis, and include all legitimate stakeholders including governments who cannot abdicate their role in protecting private property rights, nor their role in setting emission levels that impact air and water, nor in enforcing regulations and setting compensation. Lenders need to be bold in evaluating the policy and regulatory context of any mining project they are considering. In addition, due diligence is not only undertaken by lenders, but needs to be done by all stakeholders so that only proper projects can go ahead, with all others being shelved.

THE VALUE OF STANDARDS AND AGREEMENTS, AUDITS AND INDEPENDENT VERIFICATION

There are an increasing number of international standards (such as ISO 14000 and 14001 and those of the WBG), voluntary codes (eg the new international Cyanide Management Code for the Gold Mining Industry), guidelines (International Commission on Large Dams Bulletins, Berlin II Guidelines, Mining Association of Canada Guidelines on Tailings Dams and on mine closure), bilateral agreements, stock exchange listing rules in additional to national laws and regulations, regardless of whether these are enforced or not. But, in terms of financing, mining and sustainability, what is the value of these different instruments? How are these instruments used in practical terms? And what confidence, if any, can they provide financial institutions in making their decision vis-à-vis mining projects? There is a variety of viewpoints and opinions and several of these are summarized below.

Standards, codes, and agreements could be useful to the lending community.[20] However, these need to be specific, with measurable performance factors, actionable, responsible and timely. Standards need to be able to allocate risk between stakeholders and the certification must be worth having – that is, to be effective, standards must require demonstratable positive effects and must have teeth to deal with non-compliance. If this could be the case, these instruments would then be seen as important as it is against these that audits are done either as a statutory obligation, for financial institutions to limit risk and liability, for governments to ensure compliance, or for mining companies to obtain permits.

There are lessons that can be learnt from other industry sectors (e.g. the chemical industry's Responsible Care Programme which was developed following the Bhopal accident some 20 years ago enabling the chemical industry to handle high liability; and the forest and marine stewardship councils). Following the 2001 Workshop, one of MMSD's commissioned research was into lessons learnt from forest certification. Research showed that the principle lesson is the importance of defining a *standard* (a performance level) that is acceptable to the target audience (company, industry, financial institutions, government, NGO's or the knowledgeable public) so as to given them confidence that a standard is being achieved. The best way to do this is to involve all key

[20] See presentation by Milo Carver (Barclays Capital), January 2002

stakeholders in the development process. The associated *certification process* verifies that the standard is being met and *accreditation* verifies that those carrying out the certification are competent, thereby providing confidence in the results.[21]

Auditors [22] also believe that guidelines, such as those used by the WBG can be usefully applied in all mining projects. However, if standards become too specific, their usefulness would be limited given the variety of mine site environments that exist. In fact, *global objectives* would be appropriate to ensure that environmental and social impacts would be minimized and liabilities understood. In addition, the competence of auditors, currently self-regulated could become regulated *if* appropriate standards of experience were defined. In addition, the auditing of mines at the preproduction stage to ensure global *objectives* should be statutory as should auditing during operation and post closure periods to ensure compliance with permit conditions.

The importance of credibility in the results cannot be overstated as the marketing of erroneous information has serious financial implications. To address the problems exposed by the 1997 Bre-X fraud, the Canadian regulations (securities commissions and the Government of Canada) were amended to include the requirement that 'all scientific and technical disclosure of mineral projects must be based on information provided by a *Qualified Person.*[23]

Bankers[24] view risk evaluation under two main headings: financial and non-financial. Financial institutions evaluate, measure and price risk. Banks invest in projects and individuals sign off which makes them accountable. Standards would be helpful but they are meaningless unless they are incorporated into an effective governance model. Sanctions are also necessary for non-compliance especially when recent studies[25] show that mine tailings dam failures are predominantly caused by inadequate management, not inadequate engineering.

Insurers have another point of view - 'sustainability' is really a question of the potential for large accidents and loss of profit. As the concept of 'sustainability' is not tangible, you cannot insure it. What is necessary is to *unbundle* sustainability into 'catastrophe' and 'accidents' enabling insurers to focus on the specifics (probability) of events. Some think however, that sustainability should be regarded as a risk management tool. In fact, some companies are looking at how to develop this as part of the underwriting process as it may be that 'sustainability' could be a proxy for management quality.

However, for anything to be useful, it needs to be measurable which leads to questions as to whether there are *indicators* that can be used as one of the range of tools that include impact assessments, sustainability reporting, auditing and verification.[26] While sustainability indicators are relatively new, there is on-going research into mechanisms to

---

[21] See presentation by Ruth Nussbaum, January 2002
[22] See presentation by Mike Cambridge (Knight Piesold), January 2002
[23] See presentation by Keith Brewer (Government of Canada), January 2002
[24] See presentation by Milo Carver, (Barclays Capital), January 2002
[25] *Tailings Dams Risk of Dangerous Occurrences*, Lessons learnt from practical experiences, Bulletin 121, ICOLD/UNEP 2001, ISBN 92-807-2053-8, ISSN 0534-8293
[26] See presentation by Alyson Warhurst, January 2002

integrate sustainable performance into mainstream corporate strategy through coherent management frameworks. Indicators will need to be credible and meaningful and be incorporated into a framework in order to evaluate progress against relevant milestones. The ideal is to develop social accountants who will have parameters to work within and audit against. Some consider that the linkage between sustainability performance management, and sound investment decision-making is the industry's social license to operate. Public policy, national codes and standards provide the framework but reporting alone does not guarantee compliance. Managerial performance indicators may be useful to help financial institutions see that a project will be efficiently and sustainably managed. How this plays out will need to be properly evaluated by a competent third party. In addition, financial institutions and mining companies need to understand and use the new environmental management accounting methods to reveal previously hidden expenses.

DISCUSSION AND CONCLUSIONS

Many participants felt that it is in the interest of all stakeholders to pro-actively assume greater responsibility to enable mining to contribute towards sustainable development. For financial institutions this means: introducing environmental and social impact issues in the analysis of project and company risk, possibility adjusting pricing, engaging more closely, and being prepared to walk away from marginal and negative net benefit projects. Financial institutions would also benefit from clear, effective 'codes' or 'objectives' to integrate sustainable development issues. However, there was consensus that financial institutions should *not* be responsible for developing them. At the same time however, financial institutions need to appreciate sustainable development issues, especially those already contained in environmental management systems.

On the other side, the mining industry needs to go 'back to basics' on benefit-cost analysis to ensure that *all* costs are included and that they have an effective communication and marketing strategy to address public perception

The role of the Compliance Advisor/Ombudsman for the International Finance Corporation (IFC) and the Multilateral Investment Guarantee Agency (MIGA), both part of the WBG, was explained. Reporting directly to the President of WBG, its mandate is twofold: first, to help the IFC and MIGA address – in a manner that is fair, objective and constructive – complaints made by people who have been or may be affected by projects in which the IFC and MIGA play a role; and, secondly, to enhance the social and environmental outcomes of these projects. The example of this office led to a discussion about the extent to which mining companies and financial services institutions working with them, need to explore reputation and trust issues. Perhaps more needs to be done by the mining industry in this area.

Most participants thought that the topic of financing, mining and sustainability was worth further investigation but were puzzled that no-one tried to define 'sustainability'. Also in need of further definition - what are the economic returns that will result from greater inclusion of environmental and social factors in project analysis – that is, what is the business case for sustainable mineral development?

It was also clear from discussions that the finance/sustainability issue is complex, and the finance community is diverse. However, the topic could benefit from continued discussion but with the active involvement of *all* stakeholders including: state-owned and private mining companies (as well as the multinationals who were involved in these discussions); all financial institutions including the mainstream investment community and stock exchanges; export credit agencies and insurers.

A much clearer view is also needed of how sustainability is defined in relation to the mining industry and what it means, in practical terms so as to be able to use a clear definition in separating good and less good performance.

There was also some discussion about the role of governments and the involvements of community interests.[27] Dr. Keith Brewer articulated what the Canadian government saw as the optimal conditions for private sector mineral investment, namely where: the private sector determines the pace of mineral development; governments play a complementary role; rules and regulations are known in advance; and a range of affected stakeholders are consulted on proposed modifications. Government rules (policies and regulations) are important as they provide the framework to ensure the accuracy and integrity of the information disclosed by the mining companies.

Participants discussed whether 'trust' was the essential element defining the relationship between government and local communities[28] - is there a partnership? This may become a greater reality: *'The real economic value of a corporation increasingly comes not from the assets that is owns, or the employees that it supervises, but from the domain of trust it has established".*[29]

Accountability, transparency and education are all needed at both the local and national levels. Governments should have the major responsibility, applied in a practical and realistic way recognizing at the same time that governments also need help as there are no local government institutions in developing countries to assist in bringing sustainable programmes into local communities. It could also be helpful if local people knew what taxes the mining companies were paying and what was going into their community.

FUTURE CHALLENGES

The challenges facing financial institutions, including the WBG was articulated by James Bond who confirmed that they seek to encourage mining activities that are mindful of the environment and the social fabric of societies where they take place, and that contribute to the sustainable development of the areas and countries where they take place, as communities and governments turn tax revenues earned from these projects, as well as downstream economic impacts and investments, into assets viable for the future.

In financing equity and debt for privately run mining operations, the Group's private sector arm, the IFC, is moving beyond a 'minimum standard – hurdle approach' to an

[27] However, some comments received said that presentations on government and community interests confused the discussion and that it was not appropriate to involve them at this stage.
[28] See the presentation by Ligia Noronha, (TATA Energy Research Institute, India), January 2002
[29] The Economist, 'The Future of the Company', December 22, 2001

approach that seeks to encourage companies to play a positive and proactive role in the communities and regions where they invest. Given the dynamics of the mining sector, and in particular the specific risk-return profile associated with the industry's 'footprint' and reputation, this approach is considered to be the only one able to pay-off in the medium and long term.

In the past, financial markets have done a good job in identifying special project or company risks and appropriately pricing those risks so as to match those projects with the very financial institutions willing and interested in taking specific risks. However, this function as an 'information intermediary' has not included the environmental or social risk profiles that are increasingly apparent with mining projects. In fact, financial markets have failed to distinguish between projects which - because of the quality of 'sustainable management' and thus their particular 'sustainability performance' – present better or worse risks, thereby under-pricing bad risks and over-pricing good risks. If financial markets were given the ability to distinguish these risks more realistically, better investment decisions could be taken increasing the availability of financing for the well run projects in the mining sector.

The mining industry could improve the accuracy of its balance sheet and investment project calculations by adopting more rigorous costing (that is environmental management accounting) to keep track of actual costs of their waste management efforts including lost resources, mine closure and site rehabilitation. In addition, the relationship between the mining industry and the community needs significant strengthening.

During the Workshop in 2001, Phumzile Mlambo-Ngcuka, South Africa's Minister of Mines and Energy said that for many African countries, minerals are the only bankable and tradeable resource they have. Given that this is likely also a true statement for many of the other one hundred and fifty plus mineral producing nations, it is important that all directly affected parties from industry, government and communities work in partnership to address the key challenges confronting sustainable mineral development.

Finally, who will take the initiative in carrying discussions forward as MMSD will no longer exist after May 2002? This is an issue that could perhaps be pursued by the WBG and UNEP's financial institutions initiative.

APPENDIX 1
April 9, 2001 Agenda

Finance, Mining and Sustainability Conference
Washington, DC

Welcome

- James Bond, Director, Mining Department, World Bank & IFC
- Jacqueline Aloisi de Larderel, Director, Technology, Industry and Economics, UNEP
- Jay Hair, Chair Assurance Group, MMSD

The Financial Sector, Mining and Sustainability – Outlook & Challenges
Key Notes

- Ross Beaty, Chairman & CEO, Pan American
- Peter Seligmann, CEO, Conservation International
- Phumzile Mlambo Ngcuka, Minister of Minerals and Energy, South Africa
- James D Wolfensohn, President, World Bank Group

Cost and returns of "Sustainability" ?
Panel Discussion

- Ray Evans, Executive Officer, WMC
- Gerard Holden, MD, Barclays Capital
- Shaun Mays, General Manager, WestPac Financial Services
- Julian Morris, Director, IEA
- Ligia Noronha, Fellow, Tata Energy Research Intitute

"Sustainability" – a different word for risk management? *Panel Discussion*

- Bob Elton, CFO, Eldorado Gold
- Utz Groetschel, Deputy Member of Executive Management , Munich Re
- Daniel Hoffmann, Director, Swiss Re
- Nick Dunlop, Property Practice Leader, Willis/NY
- Steve D'Esposito, President, Mineral Policy Center

Better linkages for the financial sector – understanding mining operations' sustainability performance
Panel Discussion

- Claudette Cofta, Senior Director, American Chemical Council
- Martin Whittacker, MD, Innovest
- Clive Wicks, Senior Fellow, WWF
- Mike Hodge, MD, Marsh Canada Ltd.
- **Guy Elliott,** Head of Business Development, Rio Tinto

Conclusion: Where do we go from here?

- James Bond, Director, Mining Department, World Bank & IFC
- Wanda Hoskin, Senior Officer, Technology, Industry and Economics, UNEP
- Luke Danielson, Director, MMSD

APPENDIX 2
January 14-15, 2002 Agenda

Finance, Mining & Sustainability:
Exploring Sound Investment Decision Processes
Paris, France

---

14 January 2002

Moderator: Aidan Davy, Director, Corporate Services
International Business Leaders Forum

09:00 - 09:30 **Welcome & Official Opening**

- Jacqueline Aloisi de Larderel, Assistant Executive Director
  United Nations Environment Programme (UNEP)
- Mr James Bond, Director, Mining Department
  World Bank-International Finance Corporation (WB/IFC)
- Mr Luke Danielson, Director
  Mining, Minerals & Sustainable Development Project (MMSD)

09:30 – 11:00 **Sustainability – What does it Mean for Mining?** *Plenary I*

- ***Sustainability and Economics – what does the future hold?***
  Phillip Crowson
- ***Finance, Mining and Sustainability: an insider's view***
  Simon Thompson, AngloAmerican
- ***Strengths and Weaknesses of the Mining Industry - Information Required by Investors***
  Aslak Skancke, Head Socially Responsible
  Investing Research, Storebrand
- ***Financial Incentives for Improved Sustainability***
  Maryanne Grieg Gran, International Institute for Environment and Development/MMSD

11:00 – 11:30 Coffee

11:30 – 13:00 Break-out groups to discuss Session 1 issues

13:00 – 14:30 Lunch

14:30 – 15:45 **How Standards and Agreements are Used** *Plenary II*

- ***How Standards and Agreements are Used in Audits and Independent Verification***
  Mike Cambridge, Knight Piésold Consulting (UK)
  Lessons Learnt from governance structures of other industrial sectors: options for the mining sector
  Ruth Nussbaum, ProForest
- ***What financial institutions would find useful:***

a Banker's view of Codes, Standards Agreements and independent verification
Milo Carver, Associate Director, Barclays Capital
- Sustainability Indicators and Sustainability Performance Management
Professor Alyson Warhurst, Director, Mining & Energy Research Network, Warwick Business School

16:15 – 17:30	Break-out groups to discuss Session II issues
17:30 – 18:30	Summary of Day 1 – reporting back from break-out groups
19:00	Reception

15 January 2002

09:00 – 10:00	Challenges for Governments and Communities ***Plenary III***

- ***A View of Governments***
  Dr. Keith Brewer, Director General, Economic and Fiscal Analysis Branch: Minerals and Metals, Natural Resources Canada
- ***Meaningful Partnerships with government and local communities***
  Ligia Noronha, Tata Energy Research Institute, India

10:00 – 10:30	Coffee
10:30 – 11:15	Break-out groups to discuss Session III issues
11:15 – 12:30	Plenary discussion
12:30 – 14:00	Lunch
14:00 – 15:30	Summary of Day 2 - report from break-out groups and general discussion on Moving Ahead: What the Finance Sector needs from the mining industry
15:30 – 16:00	Coffee
16:00 – 16:45	Closing Session

Plenary IV
Conclusions, Summary and Recommendations

APPENDIX 3
LIST OF ALL PARTICIPANTS

Name	Title	Organisation
Ahmid Merunisha	Manager, Insurance Unit	The World Bank Group/ IFC
Aloisi de Larderel Jacqueline	Assistant Executive Director	UNEP
Alto James	Vice President, Environment	NorWest Mine Services
Anderson Stephanie	Assistant Treasurer, Corporate Finance	Inco Ltd.
Armstrong Clive	Principal Economist, Oil, Gas & Chemicals	The World Bank Group/ IFC
Arnal Luis	Assistant to the Executive Director	The World Bank Group
Baer Roger	Mining Engineer, Div.of Corp.Fin.	Securities & Exchange Commission, USA
Balkau Fritz	Head, Production & Consumption Branch	UNEP
Baquedano Manuel	President	Institute for Ecological Policy
Bass Susan	Director, Inter American Programs	Environmental Law Institute
Baxter Roger	Chief Economist	Chamber of Mines, South Africa
Beaty Ross	Chairman & CEO	Pan American Silver Corporation
Benavides Roque	CFO	Compania de Minas Buenaventura
Bermeo Antonio	Mining Advisor	Ministry of Energy & Mines, Ecuador
Berney Richard	Consultant, Operations Evaluation Dept.	The World Bank Group
Blanchard John	Vice President, Social Products	Calvert Asset Management Co. Inc.
Bocoum Brigitte	Mining Engineer, Private Sector Dev	African Development Bank
Bond James	Director, Mining Department	The World Bank Group/ IFC
Borkey Peter	Environment Mgt Team Coordinator	OECD
Borlini Sabrina	Investment Officer, Syndications	The World Bank Group/ IFC
Boulanger Aimee	International Program Coordinator	Mineral Policy Center
Boulet Emmanuel	Environmental Expert	COFACE
Brewer Keith	Director General, Economic & Financial Branch	Natural Resources Canada
Brooksbank Simon	Sustainability Advisor	TVI Pacific, Inc.
Bruijn Wilfred Theodor	CFO	Mineracoes Brasilieras Reunidas S.A.
Bruington Thomas	Senior Mining Engineer	The World Bank Group/ IFC
Burke Tom	Environmental Policy Advisor	Rio Tinto plc
Butler Tom	Investment Officer	The World Bank Group/ IFC
Cambridge Mike		Knight Piésold Consulting

Cano Romero Kathia	Responsible de Programma	Programa de Mineria y Comunidades
Carter Assheton	Director, Energy & Mining Industry Initiative	Conservation International
Carver Milo	Associate Director	Barclays Capital
Castro Francisco	Counselor	Embassy of Mexico
Chavout de Beauchene Xavier	International Financial Institutions	Embassy of France
Clamp Tony	Senior Investment Officer, Mining Dept.	The World Bank Group/ IFC
Clements-Hunt Paul	FI Coordinator	UNEP ETU
Cochard Eric	Senior Vice President, Mining	Credit Lyonnais
Cochrane Stanley	Associate Director, Risk Underwriting	Swiss Re New Market Corp.
Cofta Claudette	Senior Director, Sustain. Develop.	American Chemistry Council
Cole-Baker John	Director, UK	CSA Group
Colton David	Senior Vice President & General Counsel	Phelps Dodge
Connelly Richard		SRK Consulting
Crowl William	Principal Mining Geologist	SRK Consulting
Crowson Phillip		
Da Sie Jan	Manager, Credit & Risk Management	Royal Bank of Canada
Dalupan Cecilia	Research Associate	University of Colorado in Boulder
Danielson Luke	Project Director MMSD	Int'l Institute for Environment & Development
Davis Wendell	Specialist	OPIC
Davy Aidan	Director, Corporate Services	Int'l Business Leaders Forum
De Sa Paolo	Lead Industrial Economist, Mining Dept.	The World Bank Group/ IFC
D'Esposito Steve	President	Mineral Policy Center
Diliza Mzolisi	Chief Executive	Chamber of Mines, South Africa
Donovan Laura	Engagement Manager	Storebrand
Drajem Mark	Trade Reporter	Bloomberg
Dryland Hugo	Managing Director	NM Rothschild & Sons
Dunn Wayne	President	Wayne Dunn & Associates Ltd.
Eggleston Peter	Group Coordinator for Sust.Develop.	Rio Tinto plc
Elbrecht Derrick	Treasurer	Nat.Union of Mineworkers
Elliott Guy	Head of Business Affairs	Rio Tinto plc
Elton Bob	CFO	Eldorado Gold
Epps Janet	Senior Specialist, CAO	The World Bank Group/ IFC

Espinoza Cesar	Undersecretary of Mines	Ministry of Energy & Mines, Ecuador
Evans Ray	Executive Officer	WMC
Farrell James	Specialist on Sust. Development	Hatch Associates Ltd.
Ferreira Doneivan	Researcher, Dept. Mineral & Energy Resources	UNICAMP
Fohlen Didier	Senior Environmental Specialist	The World Bank Group/ IFC
Ganesan Arvind	Director, Business & Human Rights	Human Rights Watch
Georgieva Kristalina	Director, Environmental Dept.	The World Bank Group
Gilbert Maureen		ABN AMRO
Glyde Phillip	First Assistant Secretary	Australian Ministry of Environment
Godinot Sebastien	Charge de mission	Les Amis de la Terre
Govender Gino	Mining & Energey Officer	ICEM
Graff Richard	Partner, US Mining Industry Leader	Pricewaterhouse Coopers
Grant-Suttie Francis	Director, Private Sector Initiatives	World Wildlife Fund
Grieg Gran Maryanne		Int'l Institute for Environment & Development
Groetschel Utz	Deputy Member of Exec.Mgt	Munich Reinsurance Company
Hair Jay	Chair, Assurance Group	MMSD
Han Cao Adele	Investment Officer, Mining Dept.	The World Bank Group/ IFC
Hasan Masud	Environmental Engineer	EXIM Bank
Himberg Harvey	Director of Investment Policy	OPIC
Hodge Mike	Managing Director	Marsh Canada Ltd.
Hodgkinson Lee	Global Director, Mining Group	KPMG
Hoffmann Daniel	Director	Swiss Re New Market Corp.
Holden Gerard	Managing Director, Global Head of Mining & Metals	Barclays Capital
Hoskin Wanda	Senior Programme Officer, Mining	UNEP
Huhtala Ari	Senior Programme Officer, CP Financing	UNEP
Husband Charles	Lead Mining Specialist	The World Bank Group
Johnson Ian	Vice President, Head of Network	The World Bank Group
Joseph Ludwina	Press Officer	The World Bank Group/ IFC
Joyce Susan	Senior Social Scientist	Golder Associates Inc.
Kathol Doug	Senior Vice President	NorWest Mine Services Inc.
Kawada Makoto	Investment Officer, Syndications	The World Bank Group/ IFC

Kieser Nigel	Business Development Executive	Rio Tinto
Kikuchi Yo	Representative	Japanese Bank for Int'l Cooperation
Kohl Kaufman Elleen	Executive Director	Social Accountability International
Kunanayagam Ramanie	Senior Mining Specialist, Mining Dept.	The World Bank Group/ IFC
Kuper Kate	Investment Officer, Mining Dept.	The World Bank Group/ IFC
Lallement Dominique	PM, Energy Sector Management	The World Bank Group
Lazarus Suellen	Director, Syndications & Int'l Securities	The World Bank Group/ IFC
Levi Arthur	Representant Special, Europe	Societe Financiere Internationale
Levi Barbara	Senior Vice President, Business Development	Credit Lyonnais, Paris
Lietard Phillippe	Managing Director, Global Mineral Resources	UBS
Lister Douglas	Principle Investment Officer, Mining Dept.	The World Bank Group/ IFC
Lombe Wilfred	Director	Minerals & Energy Policy Centre
Lowe Letitia	Manager, Financial Markets Unit	The World Bank Group/ IFC
Lucas Frank	Managing Director	Loeb Aron & Company
Maechler Andreas	Risk Engineering Services	Swiss Re
Mans Darius	Country Director, Africa Region	The World Bank Group
Maraboli Leo	Senior Mining Engineer	The World Bank Group
Martin Paul	CFO	Gabriel Resources Ltd.
Mays Shaun	Joint Managing Director	Westpac Financial Services
Mboniso Welcome	Production: Pillar Head	Nat. Union of Mineworkers
McCurdy Karr	Managing Director, Global Mining & Metals	Citibank, N.A.
McLennan Rex	Executive Vice President & CFO	Placer Dome Inc.
McPhail Kathryn	Senior Social Scientist	The World Bank Group
McShane Frank	Coordinator of Stakeholder Engagement	Int’l Institute for Environmt & Developmt
Middleton John	Senior Environmental Specialist	The World Bank Group/ IFC
Miller Shawn	Program Officer, Corporate Relations Dept.	The World Bank Group/ IFC
Mirabal Carlos	Vice President, Operations	Compania Minera del Sur S.A.

Mlambo Ngcuka Phumzile	Minister of Minerals & Energy	Department of Minerals & Energy, South Africa
Morris Julian	Director, IEA Environment & Tech.Programme	Institute of Economic Affairs
Mourer Crecencia	Associate	World Resources Institute
Mulligan William	Political Risk, AIU Insurance	AIG
Murray Gavin	Director, Environmental Division	The World Bank Group/ IFC
Nash Gary	Secretary General	ICME
Nazari Mehrdad	Principal Environmental Specialist	EBRD
Nicholls Graham	Vice President, External Affairs	BHP Diamonds
Nitschke Jork	AVP, Technical Risk Operation	American Re-Insurance Company
Noronha Ligia	Senior Fellow	TATA Energy Research Institute, India
Nussbaum Ruth		ProForest
O'Keefe Joseph	Manager, Corporate Relations	The World Bank Group/ IFC
Peachey Mike	Managing Director	Indecs Ltd.
Pearce David	Senior Mining Engineer	SRK Consulting
Peeling Gordon	President & CEO	Mining Association of Canada
Percival Robert	Environmental Law Program	University of Maryland
Pincheira Pablo	Head of Planning	Ministry of Mines, Chile
Prickett Glenn	Vice President, Environmental Leadership	Conservation International
Rechatin Cecile		COFACE
Remy Felix	Principal Mining Specialist	The World Bank Group
Rhodes Theresa	Senior Director	CARE
Ricks Geoff	Director, SRK (U.K.)	SRK Consulting
Rivas Jorge	Guarantee Officer	MIGA
Rodier David	Senior Vice President, Environment, Safety,Health	Noranda
Roland Damian	Mines Officer	ICEM
Rondon Glevis	Project Director	Latin American Mining Monitoring Programme
Ryan Heather	Program Manager, Domestic Programs	Carr Center for Human Rights Policy
Saha Anita	Director	FITCH
Sandbrook Richard	Project Coordinator	MMSD
Schoenfeld Joachim	Head, Global Project Finance, South America	HypoVereinsbank
Schori Anton	Sen. Environm. Specialist	NorWest Mine Services
Seligmann Peter	CEO	Conservation International
Shafik Nemat	Vice President, Private Sector Dev.&Infrastructure	The World Bank Group
Sheahan Bernard	Senior Manager, Operational Strategy	The World Bank Group/ IFC
Sheldon Christopher	Mining Specialist	The World Bank Group

Simon Alain		Federation Nationale Mines Energie
Skancke Aslak	Sen. Environm. Analyst	Storebrand
Slack Keith	Policy Advisor	Oxfam America
Srinivasan Subbiah	Vice President, Internat.	Met-Chem
Stevens Natalie Anne	Mining Tax Lawyer	The World Bank Group
Strongman John	Mining Adviser	The World Bank Group
Stufsky Jeff	Managing Director, Project Finance, Mining	Deutsche Bank
Taufique Azmat	Manager, Mining Dept.	The World Bank Group/ IFC
Taylor Matthew	Manager, Sust. Develop. Europe	BHP Billiton
Taylor Meg	Compliance Advisor/ Ombudsman	The World Bank Group/ IFC
Thompson Richard	Director	MJRS Ltd.
Thompson Simon	Chief Executive	Anglo Base Metals
Thomson Ian	Member, Board of Directors	Prospectors & Developers Assoc.of Canada
Toledo Fernando	Studies Unit	CODELCO
Tourreilles Francisco	Director, Power Dept.	The World Bank Group/ IFC
Tshabalala Nobahle	Deputy Director	Department of Minerals & Energy, South Africa
Ushijima Yoshiaki	Senior Representative	Japan Bank for Int'l Corporation
Valencia Alfredo	Minister Counselor (Economic)	Embassy of Peru
Van der Veen Peter	Manager, Mining Dept.	The World Bank Group
Van Veldhuizen Harvey	Lead Environmental Specialist	MIGA
Velasquez Juan	Research Fellow	MMSD
Walser Gotthard	Senior Mining Specialist	The World Bank Group
Ward Robert		ABN AMRO
Warhurst Alyson	Professor	Warwick Business School
Weber-Fahr Monika	Sen. Economist, Mining Dept.	Int'l Finance Corporation
Whittaker Martin	Managing Director	Innovest
Wicks Clive	Senior Fellow	World Wildlife Fund
Wilson John	Principal Investment Officer, Mining Dept.	The World Bank Group/ IFC
Wiss Marcia	Partner	Hogan & Hartson LLP
Woicke Peter	Managing Director, WBG & Executive VP	The World Bank Group
Wolfensohn James	President	The World Bank Group
Zemek Andrew	Consultant	Zemek
Zisch Bill	Director, Business Planning	Newmont Mining Corporation

United Nations Environment Programme
Division of Technology, Industry and Economics, UNEP DTIE

About UNEP
UNEP's mission is to provide leadership and encourage partnership in caring for the environment by inspiring, informing, and enabling nations and peoples to improve their quality of life without compromising that of future generations. UNEP works closely with stakeholders to provide a common information
and knowledge base which assists government and industry in making environmentally sound decisions.

About UNEP Finance Initiatives**:**
UNEP's mission, in the field of finance and the environment, is to enhance the capacities of banks, insurers and re-insurers, pension funds and investment firms, intermediaries, and the financial services sector as a whole, in integrating environmental and sustainability considerations into all their policies and business operations.

Mining, Minerals and Sustainable Development Project

About Mining, Minerals and Sustainable Development (MMSD) Project**:**
The Mining, Minerals and Sustainable Development (MMSD) Project is an independent two-year participatory process with the objective of "identifying how mining and minerals can best contribute to the global transition to sustainable development". The Project is designed to produce a Project Report due in March 2002 which will be available in draft form in mid-Dec 2001 for stakeholder consultation and input.

The World Bank

About The World Bank
The World Bank Group's Mining Department is committed to work with its clients to promote a vibrant mining sector in developing countries, based on a vision of a mining sector that, by attracting private investments, creates a foundation for economic and social well-being. To improve the effectiveness and reach of its activities in the mining sector, the World Bank Group has combined IBRD/ IDA and IFC operations in the sector into a single global Mining Department, whose objective is to support governments in the responsible development of their countries' mineral resources. The Mining Department also works with private sector investors to promote minerals investments that are socially and environmentally sound, and that support lasting economic impact in the region or country concerned.