EMERGING ECONOMIES TRANSITION

OECD Global Forum on International Investment

# Foreign Direct Investment and the Environment

## LESSONS FROM THE MINING SECTOR

OECD

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ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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## FOREWORD

Foreign direct investment (FDI) is one of the forces fostering closer economic interdependence among countries and a major catalyst for development. Over the last decade, FDI flows have grown rapidly, propelled by the progressive liberalisation of investment regimes. This rapid growth has generated a debate on maximising the net environmental and social benefits of FDI. More specifically, public interest has focussed on the mining sector, where the environmental and social impacts of FDI are perceived to be particularly significant.

While metals and minerals are vital for the economic development of developing countries, mining operations have sometimes resulted in severe social and environmental disruption, particularly in the adjoining communities. However, important lessons have been learned about the measures that can help to prevent or minimise these impacts. The challenge is to find ways of disseminating these lessons, of ensuring that they are applied to all mining operations, and of building the capacities in host countries, mining operators and civil society organisations to do so.

As a follow-up to an earlier conference held in The Hague in 1999, the OECD organised a conference on "Foreign Direct Investment and Environment – Learning Lessons from the Mining Sector" in Paris on 6-7 February 2002. A major objective of this event was to examine the empirical evidence, and to deepen the understanding among stakeholders in OECD and non-OECD countries and economies, of the main challenges in ensuring that environmental and investment policy goals in a specific sector be mutually supportive. The conference papers and discussions helped to clarify the key environmental challenges in the mining sector, and identified some of the policies, voluntary corporate initiatives and other measures that can be used to mitigate them, taking account of economic and social considerations. There was recognition that good public governance and capacity building at all levels are essential for balancing economic, social and environmental interests. Participants also identified issues which merit further analysis and which will guide the OECD's future work in this area.

As part of the OECD Global Forum on International Investment (GFII), the event was jointly organised by the OECD's Environment Directorate and the Directorate for Financial, Fiscal and Enterprise Affairs, under the auspices of the Organisation's Centre for Co-operation with non-Members (CCNM). It brought together government officials from OECD Members and non-Members, as well as from other multilateral organisations, business executives and NGO representatives. The GFII is one of eight "Global Forums" managed by the CCNM. Their aim is to deepen and extend relations with a larger number of non-OECD economies in fields where the OECD has particular expertise and global dialogue is important.

This volume presents some of the edited conference papers. The views expressed are those of the individual authors and do not necessarily reflect those of the OECD, its Members, or other participants in the meeting. It is published on the responsibility of the OECD Secretary-General.

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**Lessons from the Mining Sector**

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Mining is an important sector for the economy, particularly in many developing countries, and one where environmental concerns have frequently been voiced. A key challenge is to develop policy options for making foreign direct investment (FDI) and environment objectives mutually supportive in the mining sector.

In this context, four major issues can be identified. The first is whether FDI in the mining sector contributes to sustainable development. We have come to recognise in recent years that the flows of capital, technology and information associated with globalisation promise to spread wealth and well-being to a greater number of people around the world. Yet the levels of poverty in the world are unacceptable and represent a real threat to our security and prosperity.

FDI is widely recognised as a driving force of globalisation, a major catalyst for achieving development and global integration. Despite the relatively small share of mining in world investment flows, FDI within this sector represents a substantial part of capital formation and GDP in many developing and emerging economies. FDI can therefore have significant impacts, positive, as well as negative. This is particularly true for the environment. Preliminary evidence suggests that under appropriate framework conditions, foreign investments in mining frequently have higher environmental performance compared to domestic operations, due to new technologies and practices they bring with them. On the other hand, when these framework conditions, such as effective environmental regulation and transparent public governance, are not in place, there is a risk that serious environmental and social damage can occur.

A second key issue concerns the role of governments in maximising the benefits of FDI in mining. The challenge of "getting policies right" will require efforts on many fronts. In the OECD, we have been examining the range of policies and instruments that can help to integrate economic and environmental policies for more than thirty years. Last May, Environment Ministers from OECD countries adopted an *Environmental Strategy for the First Decade of the 21st Century.* At about the same time, a major three-year study of Sustainable Development, involving virtually all parts of the Organisation, was concluded.

Policy options for minimising environmental impacts in the mining sector include assessing potential environmental impacts before operations begin, designing integrated packages of measures to mitigate potential impacts, monitoring the effectiveness of control measures and adapting them as needed, requiring adequate provisions for mine closure, reclamation and clean-up, taking local populations' concerns into account and ensuring that environmental requirements are applied fairly, without discrimination, to all investors.

While environmental policies and institutions are important, the broader enabling economic and institutional environment for investment, whether foreign or domestic, is equally crucial. OECD experience shows that areas deserving special attention include public administration, police and judicial systems and other channels of influence on private behaviour. All these policy options have benefits but also entail costs, as governments have to build capacities to design and implement them.

Cost-benefit evaluation, designing cost effective policies and capacity building are central issues on which this conference should shed further light.

A third key issue relates to the contributions of multinational enterprises. While governments have primary responsibility for providing the right policy framework for business operations, mining companies, for their part, can be expected to engage as reliable and consistent partners in the development process. Indeed, the mining industry has addressed concerns about its on-ground performance by implementing a range of voluntary measures to better manage environmental and social issues arising from its operations and by communicating these to the public. These measures include codes of conduct, environmental management systems and environmental reporting. In fact, the mining industry is currently conducting a major review of experience in this and related areas and we look forward to learning more about this initiative during the conference.

With its multi-stakeholder consultation and consensus-building procedures, the OECD Guidelines for Multinational Enterprises can usefully reinforce and complement private business initiatives undertaken by the mining industry, The OECD Guidelines are recommendations addressed by governments to companies operating in or from 36 adhering countries. They provide voluntary principles and standards for responsible business conduct in a variety of areas, including environment.

A final point is that donors and international organisations also have a key role to play. Clearly, there is an acute need to work together in an effective and coherent way towards FDI capacity-building in host countries. Donors, international financial institutions and other international organisations can help strengthen capacity in those developing countries that lack regulatory capacity or even basic governance systems. International financial institutions and donors can play a catalytic, demonstration role in financing mining investments, even though they finance only a small share of the total. Beyond this, international organisations can assist developing countries through policy dialogue, sharing experience and identifying best practices.

Our shared aim is to advance the discussion and partnerships on how to better integrate investment and environmental policy in the mining sector and more generally. The OECD for its part is prepared to assist in these efforts, in order to ensure that FDI in the mining sector is supportive of poverty reduction, environmental protection and sustainable development.

**Rapporteurs' Report**

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## Background

At the end of the 1990s, the debate on foreign direct investment (FDI) and the environment was polarised and polemical. Some commentators were concerned that competition for FDI between countries would lead to a "race to the bottom" in environmental standards (the pollution haven hypothesis). Others thought that FDI would promote the establishment of higher environmental standards through the transfer of technology and management expertise (the pollution halos hypothesis). An OECD conference on FDI and the environment held in The Hague, January 1999[1] reviewed the evidence available at the time and recommended:

- A broader analytical focus beyond the issues of pollution "havens" and pollution "halos". More emphasis should be given to monitoring the net environmental performance of investments, including their cumulative and scale effects;
- A better understanding of sectoral differences. The resource-using sectors (e.g. mining, forestry) merit priority attention in view of their environmental, economic and social importance in many FDI-host countries; and
- A need to strengthen policy and institutional frameworks for integrating investment and environmental policy goals. The development and promotion of appropriate environmental standards/policies for FDI is particularly necessary in those FDI-host countries where existing environmental policies and standards are either low or poorly enforced.

In light of these recommendations, the OECD organised a follow-up conference on 7th and 8th February 2002 in Paris. The focus of the meeting was the mining sector. Key aspects of the mining sector that motivated this choice were:

- *The important role that mining FDI plays in many developing country economies*. Global FDI flows, totalling US$1.3 trillion in 2000, overwhelmingly (80%) occur between OECD Member countries. This situation is also reflected in the mining sector. While overall FDI flows into the mining sector of developing countries are small, however, representing no more than 4-5% of total FDI flows to these countries, they can represent a significant share of overall FDI in some regions and for individual countries. For example, in the Southern

[1] See OECD (1999): *Foreign Direct Investment and the Environment*, Paris.

African Development Community (SADC) 23% of FDI flows into the mining sector[2]. In Ghana, FDI into gold mining represents 55% of total FDI and the share of exports attributed to mining is 45%. In Indonesia, state revenues from mining account for more than US$800 million per year[3]. In many countries, a large share of state revenue depends on the mining sector. Generally, FDI into the mining sector represents only a small share of GDP and employment. In Ghana for instance, mining represents only 1.5% of GDP[4]. In Indonesia, it represents about 0.1% of total employment[5]. Thus, even in countries where mining represents a significant share of FDI inflows, its overall contribution to the domestic economy remains relatively limited.

- *The potential environmental costs and benefits that mining FDI can generate*. Empirical evidence suggests that the environmental effects of FDI in the mining sector can reduce or increase pressures on the environment, as compared with domestic investment, depending on the geographical location and whether regulatory, technology or scale effects are considered. In Chile, for example, foreign investment into copper mining has facilitated a significant inflow of environmentally sound technologies, such that foreign investors' environmental performance is often better than that required by local regulations and standards. In that country, foreign investors have outperformed domestic operators for the last two decades[6]. However, there are also cases where foreign mining investors have exerted downward pressure on environmental requirements. For example, foreign investors in Ghana are pressuring the government to allow exploration and mining in forest reserves, despite a 1996 national moratorium on such activity in these areas[7]. In Zambia, foreign investors are exempt from environmental liabilities for past activities and can defer compliance with environmental standards[8].

- *The potentially important environmental and social impacts generated by the mining sector, and its relatively poor past record on these issues.* Historically the most important environmental impacts of mining have included the discharge of toxic substances into river systems, large volume waste disposal, the inadequate disposal of hazardous waste as well as long run environmental impacts resulting from poorly planned mine closure. Standards have risen, particularly among the larger companies but environmental damage continues to occur. Social impacts include the displacement of people and the destruction of local communities' livelihoods. A United Nations Environment Program (UNEP) survey suggests that despite the increased scrutiny of the environmental performance of the mining sector, the number of annually reported serious mining accidents has not decreased. Cyanide spills

[2] C. Digby, "Economic and Financial Aspects of the Mining Sector", Slides presented at the OECD Conference on "FDI and the Environment - Lessons from the Mining Sector", 7-8 February 2002, Paris. Papers and presentations from the conference are available at <<http://www.oecd.org/env/investment>>.

[3] S. Suryantoro and M.H. Manaf, "The Indonesian Mineral Resources Development and its Environmental Management to Support Sustainable Development", Paper presented at the OECD Conference on "FDI and the Environment - Lessons from the Mining Sector", 7-8 February 2002, Paris.

[4] G. Awudi, "The Role of FDI in the Mining Sector of Ghana and the Environment", OECD Conference, 7-8 February 2002, Paris.

[5] E. Hafild, "FDI in the Indonesian Mining Sector - Myths and Facts", OECD Conference, 7-8 February 2002, Paris.

[6] N. Borregaard and A. Dufey, "Environmental Effects of Foreign Direct Investment versus Domestic Investment in the Mining Sector in Latin America", OECD Conference, 7-8 February 2002, Paris.

[7] C. Boocock, "Environmental Impacts of Foreign Direct Investment in the Mining Sector in Sub-Saharan Africa", OECD Conference, 7-8 February 2002, Paris.

[8] Ibid.

from gold mines into river systems in Romania and Papua New Guinea are some of the most serious recent examples[9].

- *The threat to the mining sector of losing its "social licence to operate" in a number of countries.* Because of the sector's poor environmental and social record, civil society's support for mining has significantly decreased. The mining industry, along with the tobacco and chemical industries, receives the lowest public ratings. As a result, it has become increasingly difficult for the mining industry to develop new deposits in states with strict planning requirements.

- *The increasing reluctance of financial institutions (public and private) to provide finance to the sector.* In parallel with increasing public scrutiny of the mining sector's environmental and social performance, financial institutions involved in mining have come under increasing pressure to decline projects that could have adverse social and/or environmental impacts. For a number of years there have been demands from environmental non-governmental organisations (NGOs) that the World Bank disengage from financing mining projects. Similarly, the number of commercial financial institutions providing equity or loans to the mining sector has continued to decline. This is also related to the low rate of return from the sector[10].

- *An important initiative by mining industry chief executive officers (CEOs) to address concerns about sustainable development in this sector.* In response to an array of mounting pressure, and in the context of preparations for the World Summit on Sustainable Development in Johannesburg in 2002, CEOs from leading mining companies launched in 1999 a Global Mining Initiative to identify how mining and the minerals sector can better contribute to sustainable development[11].

While the mining sector has attracted a lot of attention in recent years, its relative size should be kept in perspective. The combined market capitalisation of the ten largest mining corporations is less than half that of British Petroleum. At the same time, the average financial return in the mining industry is currently about 2% due in part to low commodity prices. This comparatively low rate of return puts considerable pressure on companies to reduce costs.

**Themes from the Conference Discussion**

***Policy and Institutional Responses to the FDI and Environment Challenge***

Good governance is an important prerequisite for the effective management of the mining sector. This implies predictable, transparent policy making, decision making based on the rule of law, the presence of a bureaucracy imbued with a professional ethos, an executive arm accountable for its actions and civil society institutions with real opportunities to participate in public affairs.

Well-designed environmental requirements and their enforcement are important. Many avoidable environmental impacts of mining occur due to regulatory failures. While landscape change is an inevitable consequence of all mining (save for the most advanced open cast mines), other impacts relating to discharges, biodiversity loss and waste disposal are avoidable. In some developing

[9] International Task Force for Assessing the Impact of the Baia Mare Accident, Final Report, 2000, Brussels.
[10] M. Grieg-Gran, "Financial Institutions and the Greening of FDI in the Mining Sector", OECD Conference, 7-8 February 2002, Paris.
[11] See <<http://www.iied.org/mmsd>>

countries, weak governance and in particular in the areas of environmental regulations and their administering institutions has enabled substandard mining to occur. Even when countries established a credible system of rules and regulations to manage the environmental impacts of mining, enforcement institutions and procedures were inadequate in instances. The case of the Baia Mare mine in Romania and the release of more than 120 tons of cyanide into the nearby river system was only one among many examples reported on during the conference. In this context, the need to strengthen FDI-host country environmental management systems is clear[12].

Local communities require particular attention because the impacts of mining occur principally at this level. These communities often receive only a small part of the benefits resulting from mining operations, while carrying the major share of the environmental and social costs. For example, in Chile only about 10% of the tax revenue contributed by the mining sector is channelled back to regions hosting the mines, with much of it spent in an uncoordinated manner.[13] Mechanisms that help local communities secure an adequate share of mining benefits are needed. Opportunities include earmarked taxes, local mineral development funds or direct company contributions. In South Africa, local communities are frequently involved in the management and ownership of a mine[14]. Some participants proposed support for civil society groups through the establishment of an international, transparent information system about the royalties from mining and their distribution.

The implications of allowing mining in protected areas merits further consideration. Pressure to extend mining into protected areas such as natural reserves may endanger at-risk species, habitats and landscapes. "No-go zones" might be identified according to certain criteria (e.g. areas classified according to the International Union for the Conservation of Nature (IUCN) or other authorities). One participant proposed that the mining industry should make a voluntary declaration on "no-go zones"[15]. It was also suggested that violations of the principles of such a declaration should be sanctioned by government and be subject to enforcement at the international level.

A particular challenge for the design of environmental regulation in the mining sector is the non-discrimination principle in investment policy. While it was accepted that foreign and domestic investors should be treated equally, the implementation of the principle in the mining sector appears to have posed difficulties[16]. Whether a government decision with a discriminatory impact has been taken for legitimate environmental reasons or with a discriminatory intent, or both, may be difficult to determine given the problem of identifying "like circumstances" of mining operations. One factor is that the environmental and geological specificity of each mining site results in the use of different mining processes and technologies. The long-term nature of mining operations is an additional factor. The need to identify clearly the environmental rationale for government decisions remains undiminished, however. At the same time, an overly rigorous application of the non-discrimination principle in the mining sector could unduly constrain environmental policy makers in their efforts to protect the public from the environmental impacts potentially associated with this activity.

There was unanimous recognition of the need to strengthen environmental and mining institutions in developing countries. Capacity building to enhance enforcement capability is a priority. A number of measures exist that governments can implement without the need for external assistance, however.

[12] International Task Force for Assessing the Impact of the Baia Mare Accident, op. cit.
[13] Borregaard, op. cit.
[14] N. Frick, "FDI and the Environment - The African Mining Sector", OECD Conference, 7-8 February 2002, Paris.
[15] N. Dudley and S. Stolton, "To Dig or Not to Dig", WWF Discussion Paper, Gland, 2002.
[16] K. Von Moltke, "Discrimination and Non-Discrimination in Foreign Direct Investment Mining Issues", OECD Conference, 7-8 February 2002, Paris.

They include information disclosure requirements, effective anti-corruption measures and designing frameworks and instruments to better manage the integration of mining and environment policies[17].

Beyond the public sector, capacity building in civil society and the business community is also needed. This will facilitate the fuller participation of civil society in stakeholder processes and in carrying out effectively a "watch dog" function. Disclosure policies would ensure that all affected groups (trade unions, local communities and governments) have regular and understandable data about a mine's environmental performance. This would help civil society groups to identify non-compliant behaviour more easily. For business, there is a need to build additional capacity to cope with situations where governments are weak and to assist small and medium-sized enterprises (SMEs), which often have trouble in complying with regulatory requirements.

Capacity building efforts in developing countries are impacted by the steadily decreasing levels of official development aid (ODA), however. If the benefits of globalisation are to be more equitably distributed, there is a need to strengthen capacity in areas like trade and investment. The recent WTO Doha declaration explicitly identifies the need for capacity building for investment.

International financial institutions (IFIs) and export credit agencies have an important role to play. IFIs can help build capacity in developing countries and in providing finance with environmental conditionality attached to mining projects. While IFIs usually provide only a small share of the overall finance for mining projects, export credit agencies typically play a more important role. In the case of the Antamina project in Peru, for example, export credits accounted for more than half of the total project finance[18]. Work is underway in OECD to reach agreement on common approaches for environmental assessments of projects supported by export credit agencies. Conference participants called on export credit agencies to integrate such approaches into their operations as soon as possible.

Given that commercial financial institutions provide most of the capital for mining investment, some participants proposed that liability for environmental damages should extend to these agencies. If this included extra-territorial liabilities this would increase the incentives for financial institutions to monitor the environmental aspects of their investments more carefully and help compensate for the possible weakness of regulatory systems. Some participants emphasised the challenges of developing such an initiative. They suggested that a voluntary negotiated agreement among financial institutions on environmental requirements in their operations could be a more practical step forward[19].

***Voluntary Approaches***

Existing voluntary initiatives have not led to the expected results. When regulatory systems are weak and basic principles of good governance are not in place, the role of business in ensuring sound environmental and social practice gains added importance. Mining companies have attempted to improve their environmental performance through the adoption of codes of good practice, environmental management systems, environmental charters or other forms of voluntary initiatives. Generally, to date the efforts in the mining industry have been insufficient to improve the sector's "social licence to operate". The main reasons are the problem of free-riders, the frequent lack of a set of clearly defined targets, inadequate monitoring and enforcement procedures and the absence of external, independent verification.

[17] J. Bond and M. Weber-Fahr, "Attracting FDI in Mining - The Role of Reliable Environmental Frameworks and Competent Institutions", OECD Conference, 7-8 February 2002, Paris.
[18] Digby, op. cit.
[19] T. Garvey, "Lessons from Baia Mare for FDI", OECD Conference, 7-8 February 2002, Paris.

A new generation of voluntary environmental performance codes is required. They should be science-based, measurable and comparable, rigorous in design and transparent in reporting. The cyanide code developed by major gold producers, UNEP and the International Council on Mining and Metals to address urgent cyanide management needs is an important step forward[20]. Given the claims and counter-claims about the environmental impacts of mining, consideration might be given to establishing an international mining technology centre providing independent assessments.

The OECD Guidelines for Multinational Enterprises, which have been approved and signed by 36 OECD and non-OECD governments, are an important complement to existing regulatory frameworks in developing countries[21]. Their generic character makes them applicable to a wide range of sectors. The effectiveness of the guidelines depends on whether national contact points, who are in charge of their promotion and monitoring of their implementation, act as "honest brokers" in the case of complaints. In the mining sector several cases, spanning a range of issues (e.g. disclosure of information, resettlement, environmental health and safety), have already been forwarded to national contact points[22].

Voluntary initiatives can be a useful complement to regulatory systems. The effectiveness of such initiatives depends on the implementation of good governance practices[23]. For this reason, and because the key incentive for business to be involved in voluntary initiatives is to protect its reputation, they are not a substitute for sound government regulation. Voluntary initiatives have proven to be relatively ineffective within the SME sector, where companies do often not have a public image to protect.

**Areas for Further Work**

Participants identified several priority areas for future work:

- While there are numerous case studies documenting the economic, social and environmental implications of mining, further research to identify the aggregate impacts of mining-related FDI on developing country economies is needed. In particular, the distribution of costs and benefits among different groups within the host country and externally merits further attention. An extension of this approach to other industrial sectors would provide useful cross-sector comparisons.

- Good governance is a prerequisite for mining and other foreign investments to contribute positively to sustainable development. Where governance systems function poorly, it is difficult to deal adequately with the complex environmental and social problems posed by mining. Many of the sustainable development challenges related to the mining sector are linked to weak governance frameworks in FDI-host countries. Regulatory weaknesses and failures underlie many avoidable environmental impacts of FDI in the mining sector. There is a need to strengthen FDI-host country policy and institutional frameworks to manage the mining sector. Improving enforcement capability is a priority. Greater involvement of non-governmental organisations and community groups in the process of public decision making

[20] J. Hair, "Lessons from the Mining Sector: Sustainable Development and Voluntary Approaches for Enhanced Performance", OECD Conference, 7-8 February 2002, Paris.
[21] K. Gordon and F. Pestre, "Moving towards Healthier Governance in Host Countries - The Role of Extractive Industries", OECD Conference, 7-8 February 2002, Paris.
[22] P. Feeney, "The Relevance of the OECD Guidelines for Multinational Enterprises to the Mining Sector and to the Promotion of Sustainable Development", OECD Conference, 7-8 February 2002, Paris.
[23] Gordon and Pestre, op. cit.

on mining operations would support such effort. Civil society groups can play an important role in monitoring the environmental performance of mining operations but need support to develop appropriate capacities.

- FDI-source countries, and in particular OECD Member countries, can support these efforts in several ways. They can work with multinational enterprises and encourage them to apply best practices in their overseas operations (e.g. adherence to the OECD Guidelines for Multinational Enterprises). They can tie financial assistance provided through export credit agencies to the implementation of adequate environmental and social assessment procedures. And they can provide assistance for capacity building in FDI-host country institutions and organisations. A review of experience from the perspective of FDI- source and host countries would provide a useful comparison between the intent of these initiatives and their actual performance.

- Technical standards for environmental protection developed by the World Bank, and promoted through its financial mechanisms, are emerging as the major international environmental benchmark. However, the legitimacy of these standards to play such a role has been questioned. The World Bank standards have been developed largely through an expert process and are designed primarily for use by the Bank. Some developing countries are concerned that they are excluded from discussion of externally developed environmental standards applied within their territory. At issue is whether a more widely agreed set of standards is needed and how they should be developed. The Mining, Minerals and Sustainable Development Project led by the International Institute for Environment and Development is analysing this issue.

- A particular challenge for the design of environmental regulation in the mining sector is the non-discrimination principle in investment policy. Clearly, the environmental rationale for any decision that has a discriminatory impact should be clearly stated. However, this may be difficult to do in practice (e.g. defining like circumstances). The risk is that an overly strict application of the non-discrimination principle could unduly constrain environmental decision making. Work to follow-up the WTO Doha Declaration should take up this issue.

- The role of financial institutions (public and private) in helping to ensure positive environmental and social outcomes of mining was considered. IFIs and export credit agencies, and to a lesser extent commercial financing institutions, are increasingly attaching environmental requirements to the finance that they provide to the mining sector. While this has led to some improvements, it has not prevented a number of severe mining accidents occurring. Further work should be carried out on the possible development of an international legal instrument addressing the liability of financial institutions for the environmental impacts of their operations. A voluntary agreement on environmental risk assessment and management could be a more practical option in the short term.

- Going beyond the usual debate on voluntary approaches (VAs) versus other environmental policy instruments, participants recognised that they are one element in a policy mix. Within an appropriately designed policy framework, voluntary business initiatives can help to improve the environmental performance of companies. How voluntary initiatives complement other policy instruments is under-researched, however. Further work is needed to assess how different policy tools can contribute cumulatively to improving verification and arbitration of voluntary initiatives. A review of the implementation of the OECD Guidelines for Multinational Enterprises was also recommended.

- Given the difficulties of including environmental and social objectives effectively into corporate governance systems on a voluntary basis, consideration might be given to including them into company law instead. This could have the advantage of creating a level playing field by encouraging all companies to incorporate public good aspects into their decision making. The practicalities of this should be further investigated.

# PART I

# THE ENVIRONMENTAL PERFORMANCE OF FOREIGN INVESTORS IN THE MINING SECTOR: EMPIRICAL EVIDENCE

# Environmental Impacts of Foreign Direct Investment in the Mining Sector in Sub-Saharan Africa

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## Introduction

Foreign direct investment (FDI) is important to the future development of Africa. It is a means of increasing the capital available for investment and stimulating the economic growth needed to reduce poverty and raise living standards in the continent. In addition, it can contribute to sustainable economic development by promoting the transfer of new technologies, skills and production methods, provide access to international markets, enhance efficiency of resource use, reduce waste and pollution, increase product diversity and generate employment.[1] However, in the absence of regulations governing natural resource extraction, or when they are weak or poorly enforced, increased openness to foreign investment can accelerate unsustainable resource use patterns. The ability of developing countries to attract FDI and to maximise the associated benefits while minimising the risks depends on the effectiveness of their policy/institutional frameworks and institutions.[2]

Although the mining industry occupies a relatively small part of the land surface, it does have significant and often irreversible impacts.[3] The environmental legacy of past mining, frequently can pose major problems. Examples of environmental legacies of mining activities in sub-Saharan Africa include:

- environmental problems related to copper mining in Zambia prior to privatisation;
- abandoned pits and shafts over a large area of unregulated artisanal mining in West Africa. These pose a safety risk to local populations and animals; and
- tailings dumps from past mining activities around Johannesburg in South Africa, which are a source of dust affecting the health of neighbouring populations. In some cases, those responsible for the rehabilitation of the dumps are identifiable but economic constraints hinder clean-up.[4]

In recent years, the mining industry has given greater attention to the environmental impacts of its activities. The Global Mining Initiative[5] is one example of this. Another is the Mining, Minerals and Sustainable Development Project (MMSD), which is addressing the issue of the contribution of the mining sector to sustainable development.[6] And in 1998 the mining industry launched the Industrial Network for Acid Prevention as part of its contribution to dealing with the legacy of abandoned mines.[7] Mining projects can also have major socio-economic impacts. Positive impacts can include increased employment, better health care, improved infrastructure and schooling. On the negative side,

[1] Loots, 1999; Ngowi, 2001;UNCTAD, 1997.
[2] Wilhelms, 1998; Pigato, 2001.
[3] Danielson and Lagos, 2001.
[4] Balkau, 1999.
[5] See <<http://www.globalmining.com>>
[6] See <<http://www.iied.org/mmsd/>>
[7] Balkau and Parsons, 1999.

there may be disruption of traditional cultures, introduction of sexually transmitted diseases, basic commodity price increases, population displacement, land use conflicts and loss of livelihood.[8]
This paper reviews and analyses both the positive and negative environmental effects of FDI in the mining industry in Sub-Saharan Africa. The physical environmental impacts will be emphasised but relevant social issues are also explored where they have a significant bearing on the balance of benefits/risks associated with FDI or where they are closely related to the environmental issues. Policy recommendations for enhancing the environmental (and where relevant social) performance of FDI in the mining sector and maximising the benefits of FDI will be presented. These recommendations cover:

- measures which can be taken by FDI-host countries, notably to improve policy/institutional/regulatory frameworks both to attract FDI flows and to monitor compliance with applicable rules;
- measures which can be taken by foreign investors to improve their environmental performance; and
- measures that OECD Member country governments can take to support the above.

The analysis will focus on West, East and Southern Africa. Five countries that have succeeded in attracting relatively large sums of FDI to their mining sectors in recent years, Ghana, Mali, Tanzania, South Africa and Zambia, are examined in detail. Kenya, which until now has attracted little investment in the mining industry, but could be the target of significant investment if a planned mining project goes ahead, is also analysed. Countries in conflict or undergoing severe political and civil unrest are excluded from the analysis as they raise an entirely different set of issues. Therefore, despite the large mineral resources in countries such as Angola and the Democratic Republic of Congo they are not discussed here.

**FDI in the Mining Sector in Sub-Saharan Africa: An Overview**

The mining industry has traditionally been a major recipient of FDI in sub-Saharan Africa and it has been an important foreign exchange earner for the region. Over the forty years to 1993, Africa's share by value of world mining output declined from 23% to 10% because of poor policies, political interference and lack of investment.[9] Inadequacies associated with systematic geological mapping, poor technical data on mineral endowment, poor infrastructure, the lack of cheap and reliable energy resources, deteriorating commodity prices, poor investment climates and the scarcity of indigenous technical and professional workers have been compounding factors.[10] The publication by thirty-five countries of new mining codes at the end of 1995 is a recent development that has resulted in a reduction of tax levels, liberal import tax exemptions for equipment and the easing of immigration laws for expatriates.[11]

Absolute levels of FDI to African countries increased from an annual average of US$1.9 billion in 1983-87 to US$3.1 billion in 1988-1992 and to US$6 billion in 1993-1997.[12] In 1997, FDI to these countries totalled US$9.4 billion but this declined to US$8.3 billion in 1998.[13] Three-quarters of FDI in Africa in the period 1985-1991 went to the mining and oil extraction industries.[14] Focusing just on

[8] Danielson and Lagos, op. cit.; Machipisa, 1998; Abugre and Akabzaa, 1998.
[9] Allaoua and Atkin, 1993.
[10] Quashie, 1996.
[11] Abugre and Akabzaa, op. cit.
[12] UNCTAD, 1999.
[13] Loots, op. cit.
[14] Allaoua and Atkin, op. cit.

sub-Saharan Africa, in 1990 it received US$923 million in FDI, which rose to US$7.949 billion in 1999.[15] FDI flows to sub-Saharan Africa have traditionally been to oil and natural resources[16] although there has been a trend in recent years to invest in services and manufacturing.[17] A few countries in this sub-region account for most of the FDI inflow. In the period 1986-1996 Nigeria, Angola and Ghana were the dominant recipients. In fact, 41% of the average inflows in the period 1995 to 1998 went to four oil-exporting countries in the sub-region: Angola, Congo Republic, Equatorial Guinea and Nigeria.[18]

According to Loots, 15.3% of FDI in Africa in 1997 was in the primary sector, of which 60% went to mining and natural resource extraction, including fossil fuels.[19] In general, there is a lack of data on FDI flows at the sectoral level.[20] In relation to the countries assessed in this paper, sectoral data for FDI stocks for South Africa only was available.

Details of the mining industry, FDI and its environmental impacts are described below. The countries are represented by geographical region starting with Southern Africa, then West Africa and finally East Africa.
A caveat is that reliable data on the environmental impacts of FDI in the natural resources sector is lacking, as is sectoral FDI data. This makes it extremely difficult to attribute a particular environmental impact to FDI. The approach used here considers the environmental regulatory framework of the mining industry in the countries concerned as well as examples of particular projects for which some data are available. A preliminary assessment is made of whether environmental regulations are adhered to and enforced, and whether or not mining companies are in advance of current laws.

**FDI and its Environmental Impacts in the Mining Sector: Evidence from Selected Sub-Saharan African Countries**

***South Africa***

South Africa is richly endowed with minerals and possesses the world's principal reserves of gold, manganese, platinum group metals, chromium, vanadium and alumino-silicates. In addition, there are large reserves of other minerals including iron ore, coal, diamonds, uranium, titanium and nickel.

Mining is important to the country's economy, contributing about 6.5% of GDP and 33.5% of total export revenues in 1999[21] (see Table I.1 in the Appendix). Gold mining dominates but it has been declining steadily due to lower grades and greater depth of reserves. Recently there has been more emphasis on investment in downstream manufacture of finished products.[22]

Since 1994 South Africa has been a major recipient of FDI in sub-Saharan Africa (see Table 1). There have been large annual variations in FDI, largely due to investment in privatised government utilities,

[15] World Bank, 2001.
[16] Allaoua and Atkin, op. cit.; Morisset, 2000.
[17] UNCTAD, op. cit.
[18] Pigato, 2000.
[19] Loots, op. cit.
[20] Bennell, 1997; Marr, 1997.
[21] Gaven et al., 2001.
[22] Economist Intelligence Unit, 1999a.

such as the national telecommunications company. Sectoral data are only available for FDI stocks (see Table 2).
The surge in stocks in 1999 was mainly due to investment by Placer Dome of Canada in the so-called Southdeep project, an underground gold mine in the Witwatersrand Basin. The project is a 50:50 joint venture between Placer Dome and Western Areas Limited, and will involve a projected investment of US$ 750 million.

**Table 1: FDI Flows to Selected Sub-Saharan African Countries, 1990-1999 (million US$)**

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 |
|---|---|---|---|---|---|---|---|---|---|---|
| Ghana | 15 | 20 | 23 | 125 | 233 | 107 | 120 | 83 | 56 | 17 |
| Kenya | 57 | 19 | 6,4 | 1.6 | 3.7 | 32.4 | 13 | 40 | 42 | 42 |
| Mali | -7 | 1.2 | -21 | 4 | 17 | 111 | 84 | 39 | 36 | 40 |
| South Africa | -89 | 254.1 | 3,4 | 11 | 374 | 1 248 | 816 | 3 811 | 550 | 1 376 |
| Tanzania | 0 | 0 | 12 | 20 | 50 | 119.9 | 150.1 | 157.9 | 172 | 183.4 |
| Zambia | 203 | 34 | 45 | 52 | 56 | 97 | 117 | 207 | 198 | 163 |

Source: World Bank (1999 and 2001), *World Development Indicators*; UNCTAD (2000).

**Table 2: FDI Stocks - South Africa, 1996-1999 (million Rand)**

| | 1996 | 1997 | 1998 | 1999 |
|---|---|---|---|---|
| FDI stock - mining | 2 897 | 3 593 | 7 269 | 114 095 |
| Total FDI stock | 58 708 | 89 295 | 91 862 | 318 630 |
| Percentage | 4.93 | 4.02 | 7.91 | 35.81 |

Source: South African Reserve Bank Quarterly Bulletins, 1996-1999.

The South African Constitution enshrines the right to an environment that is not harmful to health or well-being and to protection of the environment for the benefit of present and future generations (South African Government Gazette, 20 October 1998). Mining is regulated by several laws, the most important of which are the Minerals Act (Act 50 of 1991) and the Mine Health and Safety Act (Act 29 of 1996). A new law, the Minerals Development Act, is being drafted and may be enacted in 2002.

Administration of the mining sector falls under the responsibility of the Department of Minerals and Energy.[23] The sector is also subject to the National Environmental Management Act, 1998. Mining regulations under this act are under development.

Under the Minerals Act, all operating mines must have an environmental management plan (EMP) approved by the Department of Minerals and Energy. The aim is to ensure a cradle-to-grave approach to environmental management. To assist companies in complying with this requirement an Environmental Management Programme Report has been developed. The report requirements include

[23] Botha et al., 2000.

a description of the pre-mining environment, the motivation for and a description of the project, an environmental impact assessment and an indication of how the impacts will be managed. The EMP requires adequate financial guarantees for mine rehabilitation and arrangements for monitoring and auditing.[24] Financial guarantees can take the form of bank guarantees or the establishment of a dedicated environmental trust fund. The aim of the government is to apply uniform standards of environmental management across all mining operations including artisanal mining.

Once approved by the government, the EMP becomes legally binding. Non-compliance may be sanctioned by suspension or withdrawal of a mining licence, or prosecution of the licence holder.[25]

The Minerals Act requires rehabilitation of the land surface after mining. On completion of mining operations, a closure certificate will only be given if the EMP has been implemented and successfully managed through the mine's life and if rehabilitation has been carried out to the satisfaction of the authorities.[26] In addition, prior to operation a mine must obtain a water permit from the Department of Water Affairs and Forestry, which regulates water use and discharge.

The major impacts of mining in South Africa relate to mine dewatering, tailings management, atmospheric emissions and acid mine drainage, which in some cases are specific to the type of mining carried out. South Africa is also confronted by the problem of the environmental legacy of past mining, particularly acid mine drainage from abandoned coal and gold mines. In this respect, if the owner of a coalmine that closed between 1956 and 1976 can be identified he is responsible for pollution control and rehabilitation. Atmospheric emissions have decreased with the introduction of EMP's and strengthened enforcement of legislation.[27]

Over time environmental performance has improved, in part driven by regulation but in some cases through industry initiatives. An example of this is the Chamber of Mines code of practice for the rehabilitation of strip-mining for coal that was prepared in 1976, four years before the relevant legislation.[28]

Due to the relatively low level of FDI in the South African mining industry, its contribution to environmental impacts is probably low. It has not been possible to collect specific data on environmental impacts related to FDI in the mining sector. The following proxy measures are used to assess the linkages: the annual environmental management report of an affiliate of a major multinational group, corporate attitudes to the environment at the Southdeep project, and government decision making on a proposed mining project in a wetland area (the Richards Bay Minerals case).

Concerning the Southdeep project, according to Placer Dome mine activities complied with the relevant corporate standards and South African environmental regulations in 2000. Reclamation and mine closure costs for the Placer Dome group as a whole were US$8/oz of gold produced. This represents 3.4% of total production costs (US$230/oz of gold produced).[29]

Certain companies are striving to surpass national guidelines. An example is the Palabora copper mine, a member of the UK-based Rio Tinto Group. The mine's environmental management system has been ISO 14001 certified since 1998. A Safety, Health Environment and Quality management

[24] Government of South Africa Gazette, 20 October 1998.
[25] Department of Minerals and Energy, 2000.
[26] Wilson, 1998a.
[27] Robb and Robb, 1998; Tosen and Conklin, 1998.
[28] Wilson, 1998a.
[29] Pacer Dome Financial Results, 2000.

system has been established with the aim that all employees subscribe to the company's environmental goals. The mine is adjacent to a major game park, and as such is closely scrutinised by the government, the National Parks Board and the local community. As part of the environmental management system the company conducts internal audits on a monthly basis and independent external audits on a bi-annual basis.[30]

Key environmental issues at Palabora are air pollution, water management, land disturbance and radiation. In 1999 the company achieved a 19% reduction in $SO_2$ emissions, which were well below national guidelines. On the negative side the company registered a 10% increase in energy consumption, mainly coal burning in the smelter furnace, and thereby contributed to higher greenhouse gas emissions. To minimise dust levels, haulage roads are regularly sprayed as are dumps prior to revegetation.[31]

Concerning water management, the processing plants operate on a closed water circuit, with maximum use made of recycled water where practicable. Shallow seepage from tailings is recovered in a seepage cut-off trench and returned to the processing circuit. Deeper recovery systems are being installed. Groundwater quality is constantly monitored.[32]

Rehabilitation occurs in parallel with operation of the mine, with the aim of returning the land to a condition as close as possible to that existing prior to mining. Revegetation of waste rock and tailings dumps with indigenous plants is undertaken, with the objective of establishing a self-sustaining system. On the negative side the open pit, now some 700m deep, will not be filled after operations cease although measures will be taken to block access to it. A detailed mine closure plan has been prepared in consultation with the local community and a decommissioning fund established. In 1999, the closure and rehabilitation cost provisions were about 8.6% of the year's profits after financial costs and taxation. These cost provisions are the net present value of the estimated cost of restoring environmental disturbance that had occurred up to the balance sheet date.[33]

The company has created the Palabora Fund, which receives 3% of net annual profits (US$15 million to date) in order to implement community projects within a 50 km radius of the mine. These projects seek to improve education standards, technical training and job creation.[34]

The government's concern about environmental protection is illustrated by the fact that mines in South Africa are subject to regular inspection and inspectors have the power to suspend operations if necessary. In addition, the government may refuse authorisation to mine if it considers that potential environmental risks outweigh the economic benefits of a project. An example of this is the decision not to allow heavy mineral sands mining by Richards Bay Minerals (RBM), an affiliate of the Rio Tinto Group, near the St. Lucia Estuary. This is the largest estuarine system in South Africa and has been recognised as a Wetland of International Importance under the Ramsar Convention.[35]

RBM has a good record in the application of its mining technology and subsequent rehabilitation and revegetation of dune sands. The latter involves reshaping the dunes and replanting with vegetation as

[30] PMC, 2000.
[31] Ibid; Viljoen, 1998.
[32] Ibid.
[33] PMC. 2000.
[34] Ibid.
[35] Heydorn, 1996.

close as possible to the original plant cover. In some cases this has allowed replacement of mono-species plantations by indigenous vegetation.[36]

Despite this record and a very thorough EIA there was major public concern about the project. Among these concerns were the effects of disturbance of the dune stratification on water seepage and replenishment of the lakes in the area, possible over-abstraction of water from the main river feeding the estuary and the visual impact of the operation on tourism. In 1993 an EIA Review Panel decided against allowing mining, a decision which was confirmed by the South African government in 1996.[37]

***Zambia***

Zambia is the most dependent of African countries on its mining industry. Copper-cobalt mining contributed 90% of export earnings in the mid-1990s, a situation largely unchanged since the 1960's. The stability of this commodity's contribution to export earnings masks the fact that the absolute value has varied markedly due to variations in world copper prices and diminishing copper production in Zambia. The Zambian government nationalised the copper industry in 1968-1969 but reversed the policy in the 1990s. In addition to copper and cobalt, the Zambian mining industry also produces lead, zinc, gold, coal and precious and semi-precious stones.[38]

After the early 1990s when FDI flows to Zambia were between US$34 million and US$50 million, FDI flows rapidly increased to US$207 million in 1997 before falling to US$163 million in 1999. In the late 1990s the Zambian government privatised Zambia Consolidated Copper Mines (ZCCM) as well as other parastatal organisations, a move that contributed to the increase in FDI flows.

In the past, legal provisions and regulations for controlling the environmental impact of mining have been marginal in Zambia despite the release of the National Conservation Strategy in 1985.[39] Mining companies had no obligation to observe environmental protection and according to Draisma the government assured them that they would not be charged for remediation of any damage caused.[40]

The 1985 National Conservation Strategy was the first step in the country's efforts to protect the environment in that it laid the basis for future legislation. In 1990 the Environmental Protection and Pollution Control Act (Act No. 12 of 1990) made Zambia a pioneer in this field in Southern Africa. The act enabled regulations for environmental protection and pollution control to be established as well as creating support institutions such as the Environmental Council of Zambia (ECZ), which has a wide mandate including environmental impact assessments and monitoring.[41] In 1992, the Ministry of Environment and Natural Resources was established and the act began to be implemented robustly. Questions remain, however, about the capacity of local councils to police industrial activities.[42]

In 1995, the government passed the Mines and Minerals Act regulating the mining industry. This act fails to address adequately matters such as environmental management because it is less stringent than the 1990 Environmental Protection and Pollution Control Act. In addition, the act has yet to be backed by mining regulations.[43]

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[36] Ibid.
[37] Ibid.
[38] Draisma, 1998.
[39] Ibid.
[40] Ibid.
[41] Ibid.
[42] Ibid.
[43] See <<http://www.hsrc.ac.za>>.

In 1996 it was announced that a new law on air pollution would be enacted and that the ECZ would set emission levels for industry and control compliance with these limits. That same year saw the launch of the National Environmental Plan, an Environmental Support Plan funded by the IUCN and World Bank.[44]

As far as physical environmental impacts of copper mining are concerned, air and water pollution pose major problems. Air pollution includes dust from waste dumps and tailings, which has contributed to increased bronchial diseases, and from $CO_2$, $NO_x$ and $SO_x$ emissions from smelter stacks as well as lead and cadmium poisoning near Kabwe. Water pollution is also a problem with some rivers in the early 1990s having copper levels that exceeded acceptable limits by 80 times.[45]

In 1992, in response to government pressure and legislation the ZCCM published an environmental policy plan. A year later it established an environmental protection department. The policy aimed to integrate sound environmental management into company strategy, to minimise environmental impacts and remediate past degradation and to exceed the relevant national standards. Despite these intentions, government enforcement of regulations resulted in the company being fined for excessive $SO_2$ emissions in 1996 and 1997.[46]

At the time of privatisation, the problem of environmental liability of ZCCM mines and smelters was transferred to the government. Legal opinion was that new owners should not take on responsibility for damage for which they were not responsible.[47] The development agreements between the government and the new owners confirmed this in exempting the latter from environmental liabilities related to the past activities of ZCCM. In addition, the agreements allowed for deferred compliance with the provisions of environmental plans drawn up by ZCCM and with environmental regulations. The role of the ECZ has also been limited as the new mine owner can choose to refer a non-compliance dispute to a nominated expert.[48]

With respect to the legacy of past environmental damage, it is interesting to note that the NGO "Citizens for Better Environment" has drawn up a Copperbelt Environmental Programme in a joint effort with the government, ZCCM and the World Bank. The latter is financing a US$50 million clean-up of hazardous waste left by ZCCM.[49]

Since the privatisation of ZCCM, little data are available on environmental management by foreign investors. Konkola Copper Mines (KCM), now owned by a subsidiary of UK-based Anglo-American plc, is part financed by the International Finance Corporation (IFC). The combination of the company's policy on environmental issues and the IFC loan conditions means that environmental concerns are treated seriously. Financial institutions providing credit or insurance coverage are commonly significant investors in mining projects. The potential environmental impacts of these projects are risks for the project backers, which has led them to adopt environmental evaluation and monitoring measures as well as to strengthen environmental management and social impact mitigation measures. Since the mid-1980s, international financing institutions and providers of insurance cover have included environmental and social assessments as part of their lending programmes. Companies seeking financial backing are increasingly required to demonstrate their commitment and capacity to

[44] Draisma, op. cit.
[45] Ibid.
[46] Ibid.
[47] McKay, 2000; Kabwe, 2001.
[48] See <<http://www.hsrc.ac.za>>
[49] Kabwe, op. cit.

implement environmental best practice in order to obtain funds from institutions that finance projects in developing countries. This is the case for the IFC. In addition, although these institutions may only supply a small portion of the total funding their approval is often necessary to enable companies to leverage additional funds.[50]

As a condition of IFC funding, KCM had to carry out a detailed audit that included the preparation of environmental and social assessment and management plans. It also had to implement mitigation measures. These plans were made available to the public both in Zambia and internationally through the World Bank Infoshop prior to consideration of the project by the IFC Board of Directors. Currently, the company faces problems with its smelter facilities that use old technology but it aims to reduce emissions to comply with government standards within three years.

KCM has introduced community health programmes in co-operation with the World Health Organisation (WHO) and the Zambian government. A resettlement programme is also underway under World Bank guidance and in co-operation with local communities.

As part of the overall privatisation of ZCCM, FDI-financed projects for the treatment of slag and tailings dumps have been launched. In the case of the former, investment of US$100 million in a high technology plant to extract copper and cobalt from existing smelter slag is expected.[51] Slag and tailings treatment will have positive environmental impacts by reducing the concentration of metals in the waste dumps and thereby lower the risk of heavy metal contamination of groundwater by seepage. Another positive impact of the increase of FDI in the mining sector in Zambia will be the substantial decrease in $SO_2$ emissions due to the modernisation and upgrading of existing plant facilities. However, the negative implication is that total copper production will eventually double[52], increasing demand for this resource.

The privatisation of ZCCM has generated major social impacts. A case in point is the Kanshsanshi Mine, where community displacement was required but consultations with the local people were inadequate and no compensation was provided. Significantly, no provisions exist for compensation in the 1995 Mines and Minerals Act.[53]

One of the major indirect impacts of mining in Zambia has been urbanisation of the population. The country is now the second most urbanised in sub-Saharan Africa. This has largely been the result of the establishment and growth of mining towns. These towns face serious health and environmental problems, including excess demand on waste collection systems and outbreaks of cholera and typhoid.[54] Prior to privatisation, the mine towns relied directly on ZCCM for the provision of essential services. The new owners consider this a function of central or local government, which often lack the capacity for adequate provision of services. In order to address the problem the Zambian government and ZCCM have created a company to manage water and sanitation services on a cost-recovery basis. To date the results have been disappointing.[55]

[50] Warhurst, 1998.
[51] Tassell, 2001a.
[52] Ibid.
[53] See <<http://www.hsrc.ac.za>>
[54] Draisma, op. cit.
[55] <<http://www.hsrc.ac.za>>

***Ghana***

The mining industry in Ghana is dominated by gold. Indeed, Ghana is the second largest producer of this commodity in Africa and it has been a leading exporter of gold since the 16th Century.[56] Other important mineral commodities include bauxite, manganese and diamonds.[57] Mining is a major foreign exchange earner for Ghana, contributing about 5.5% of GDP. In 1996 gold and bauxite mining contributed 46% of Ghana's foreign exchange earnings.[58] It is also a major recipient (approximately 60%) of foreign investment. FDI in Ghana increased rapidly from US$15 million in 1990 to US$233 million in 1994. It then decreased to US$17 million in 1999.[59]

Supervision of the mining industry is the responsibility of the Ministry of Mines and Energy. The Environmental Protection Council Decree of 1974 and Mining Regulations of 1970 regulate the environmental aspects of mining. The 1986 Minerals and Mining Law provides for environmental protection and pollution prevention.[60] Under the Minerals and Mining Law, the Minister of Mines and Energy is responsible for regulations, *inter alia*, restricting mining activities near water bodies and preventing water pollution. The 1994 Mining and Minerals Regulation aim to prevent permanent environmental damage by mining and encourage sound stewardship.[61] The regulation comprises three parts: guidelines for exploration, mining, processing and decommissioning; guidelines for the preparation of an EIA for new projects; and guidelines for preparing an environmental action plan (EAP) for existing projects. EIAs and EAPs are made available to the public. The Environmental Protection Council (EPC) must approve the EAP every two years.

The Ministry of Environment, Science and Technology was established in 1993. One of its roles is to administer environmental legislation. In 1994 the Environmental Protection Council, an advisory body, was transformed by statute into the Environmental Protection Agency (EPA) with powers of enforcement and control. The 1994 Environmental Protection Act established a National Environment Fund whose sources of income include government grants, levies collected by the EPA, donations and gifts. The aims of the fund include environmental education of the public, research and investigations related to the functions of the EPA and human resource development.[62] A Mineral Development Fund has also been established. Ten percent of all royalty payments are returned to mining areas to fund local infrastructure and investment in other non-mining forms of development. A further 10% helps finance regulatory institutions and the geological survey.[63]

Enforcement mechanisms in the mining industry include termination of prospecting licenses in cases of non-remediation and of inappropriate environmental practice. The Chief Inspector of Mines can require appropriate measures if a mining company does not comply with environmental requirements and recover the cost from the company. In extreme cases the mining lease can be terminated. Directors and officers of companies can be held liable for environmental offences committed by their companies.[64]

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[56] Morris, 1996.
[57] Economist Intelligence Unit, 1999b.
[58] Aubynn, 1997.
[59] The figure for 1999 differs according to source. The World Bank's 2001 edition of *World Development Indicators* cites a figure of US$17 million whereas UNCTAD (2000) quotes US$15 million.
[60] Acquah, 1995.
[61] Vormawor and Awuku-Apaw, 1996.
[62] Ibid.
[63] Acquah, op. cit.
[64] Ibid.

Available data do not permit an assessment of mining company compliance with environmental regulations or the enforcement of the law by the relevant authorities. However, according to Anane there have been at least two cases of clear infringement of environmental regulations in other industries (illegal importation of toxic waste and air pollution by an asbestos products factory) in which no punitive action was taken.[65] This could indicate either a lack of willingness or a lack of capacity. Companies are required to submit an annual environmental report as well as copies of audits undertaken. These audit reports are not available to the public.[66] A lack of national environmental standards meant that WHO, World Bank and European Union measures were used in the mid-1990s.[67] Economic instruments to promote environmentally sound practices complement regulations and standards.

The environmental impacts of large-scale mines include visual effects, vegetation loss, water and atmospheric pollution and effects on local health. Mineral extraction and processing are responsible for 10% of Ghana's industrial pollution. In relation to air pollution, the principal sources are $SO_2$, $As_2O_3$, NOx and particulate matter emissions. For example, $SO_2$ and As emissions at Ashanti Goldfields[68] at Obuasi are 1000 times higher than world standards.[69] In the case of water pollution, the major problem is the use of mercury by artisanal miners. Stream flow diversion and disposal of wastes in rivers by miners are additional problems.[70] Large-scale mining has also contributed to water pollution. Companies have supplied wells and pumps to local inhabitants to ensure they have an alternative drinking water supply when required. However, responsibility for the maintenance costs of these wells is currently a contentious issue.[71]

Negative social effects associated with mining include land displacement and loss of livelihood for women subsistence farmers, mining-related diseases and deforestation.[72] Land use issues are particularly important as the main gold producing areas co-exist with major logging and agricultural zones. In some cases, mining operations have disrupted local economic activities. Farmers have generally received cash compensation for crop damage and loss of livelihood but not offers of similar land or the means to continue farming. In the Tarkwa area this resulted in community protests in 1996.[73]

In most cases these problems are being addressed. In the case of Ashanti Goldfields at Obuasi the company operates in advance of some national environmental regulations.[74] This mine received a loan from the IFC conditional on an environmental audit, which detailed technological and managerial requirements necessary to improve environmental performance. Recent research appears to show that improvements in environmental management at Ashanti are motivated more by these loan conditions than domestic legislation.[75]

The introduction by Ashanti Goldfields of a new gold extraction technology, bacterial leaching, which obviates the need for cyanide treatment is a positive step as it is environmentally cleaner.[76] The

[65] Anane, undated.
[66] Acquah, op. cit.
[67] Ibid.
[68] A Ghanaian company whose major shareholder is London-based. The mine is partially financed by the IFC.
[69] Aubynn, op. cit.
[70] Ibid; Morris, 1996.
[71] Mate, 1998.
[72] Aubynn, op. cit.; WRM Bulletin 41, 2000; *Drillbits and Tailings*, 2000.
[73] Mate, op. cit.
[74] Vormawor and Awuku-Apaw, op. cit.
[75] Warhurst, op. cit.
[76] Acquah, op. cit.; Morris, op. cit.

introduction of this technology occurred because of recapitalisation of the company during privatisation. In this case, improved environmental performance is directly linked to FDI in the sector.

The EPA publishes an annual categorisation of mining companies based on their environmental management practices. This takes into account compliance, reporting, reclamation plans and bonds and the social policy of the companies. The weighting of these factors is unknown. The rating consists of five categories, A to E (A is the best, E the worst). In 2000, only one company received a B rating while the others rated from C to E. [77]

Exploration and mining in forest reserves in Ghana is currently a major environmental issue. In 1996, the government placed a moratorium on exploration in these areas but because exploration had previously been allowed some companies had invested in prospecting activities in these areas. To resolve the problem, the government authorised the 17 companies that had spent the most on prospecting in the forest reserves to continue work, subject to strict environmental guidelines. The situation remains problematic as several companies have advanced their projects to a stage where a decision whether to carry out mining is needed, which is not allowed under present laws. The Ghana Chamber of Mines has formulated guidelines for mining in the forest reserves. These are under discussion by the various stakeholders.[78]
Ghana faces severe environmental problems in the area of artisanal mining (Box 1). In 1989, this type of mining was legalised but the use of outdated machinery and techniques and the lack of administrative supervision create environmental degradation. Although this type of mining does not involve FDI, it does pose a problem for the government. The Ghanaian authorities should provide further technical assistance to these miners to enable them to improve environmental protection efforts.

***Mali***

Artisanal mining for gold and to a lesser extent diamonds dominated the mining industry in Mali for hundreds of years. Changes in the legal and fiscal framework for investment the country precipitated a gold rush in the early to mid-1990s[79], although other sectors also attracted investment. Mining activity has diminished recently as a result of declining gold prices and the inability of junior mining companies to raise equity finance. Nonetheless, two new major mines[80] have come into production in the last two years. The country is still relatively unexplored, and is considered to have potential for bauxite, manganese, base metals and lithium. In 2000, Mali was the third largest gold producer in Africa.

Gold is the second most important export earner in Mali, contributing to 37% of foreign exchange earnings.[81] The effect of recent investment in gold mining in Mali is apparent in the increase in production from 4.6 tonnes in 1991 to 23.7 tonnes in 1999[82], of which artisanal mines contributed about 2 tonnes. Other minerals exploited in Mali are phosphates, marble and kaolin.[83]

Foreign direct investment in Mali was characterised by net outflows in 1990 and 1992. FDI increased to US$111 million in 1995 and US$84 million in 1996, but then decreased to US$40 million in 1999.

[77] See <<http://www.epa.gov.gh>>
[78] Tassell, 2001b.
[79] Economist Intelligence Unit, 1996a.
[80] Yatela and Morila.
[81] <<http://www.izf.net>>
[82] Economist Intelligence Unit, 2000c.
[83] <<http://www.izf.net>>

FDI contributed 85.1% of the average inflow to Mali from 1990 to 1998 and 72.5% in 1999. The importance of the mining sector in attracting FDI is indicated by the fact that in the period 1996-2000, 105 non-mining projects accounted for 12.47% of FDI, while four mining projects represented the remaining 87.53%.[84]

The 1999 mining law (Ordonnance N° 99-032/P-RM du 19 Août 1999) is the principal statute regulating mining activities in Mali. As far as environmental protection is concerned, it stipulates that an EIA must be prepared prior to the granting of a mining license for a large-scale mine. The EIA is subject to annual revision and updating. In addition, companies are required to establish a rehabilitation fund, generally in the form of bank guarantees. Non-compliance with obligations related to environmental protection and rehabilitation can be sanctioned by withdrawal of the license. Environmental protection in mining areas is monitored by the Mines Department in liaison with the Ministry of Environment. These officials have the authority to compel operators to respect environmental conservation measures. Mine operators must submit annual environmental reports to the Director of Mines. The law also requires restoration of sites disturbed by exploration in certain cases. Malian law distinguishes between large-scale, small-scale and artisanal mining. Production and reserve size differentiate the first two types of mine. Small-scale mines are not subject to EIA but are required to submit a report on the state of the environment as well as proposed protection measures prior to the granting of a license, as well as an annual environmental report. Both large and small-scale mines are required to rehabilitate the site at mine closure. To date there are no data available on the actual enforcement of the law.

**Box 1: Artisanal Mining**

Up to 3.5 million people are active in the artisanal and small-scale mining sector in Africa.[85] There is no recognised definition of the terms small-scale and artisanal mining, but commonly they are subdivided into formal small-scale mining and informal artisanal mining.[86] Artisanal mining is often carried out in a primitive manner using hand tools and its principal characteristics are:

- little or no mechanisation
- labour intensive
- low safety
- untrained personnel
- migrant labour
- low pay and/or earnings
- low productivity
- lack of capital
- little or no consideration of environmental impacts
- mining of richest parts of deposits, which may render the remainder unprofitable
- exploitation of minerals requiring little treatment, and yielding readily saleable products such as gemstones and gold
- unknown reserves.[87]

[84] Calculated from figures from *L'Essor*, 11 July 2001.
[85] Zamora, 1999.
[86] Peake, 2000.
[87] Ibid; Labonne and Gilman, 1999.

Artisanal mining is usually illegal, with the miners having no formal property rights. In Ghana legal and illegal artisanal mining coexist.[88] Currently as many as 40,000 miners, of whom some 11,000 are legal, are involved in artisanal mining activities in Ghana.[89] Annual gold production by artisanal miners in Ghana is about 160,000 oz (about 5 tonnes)[90], which is equivalent to 6.8% of total production. In Mali, artisanal mining production totals about 2 tonnes per year (8.4% of total production in 1999).

It is generally accepted that artisanal mining is adopted as a last resort subsistence activity in the face of extreme poverty, lack of other employment opportunities and in some cases food shortages.[91] In West Africa, artisanal mining is commonly a dry season activity as the inhabitants turn to farming during the rains. However, there are also sites where it is a year round activity.

The sector can contribute meaningfully to the economy by stemming migration from rural to urban areas, by its contribution to foreign exchange earnings and by enabling the exploitation of reserves that may be uneconomic for large scale mining.[92]

Due to the lack of regulation and technical capacity artisanal mining can cause severe environmental damage, including river diversion, mercury contamination, increased sediment loads in rivers, deforestation, removal of vegetation, river bank degradation and the abandonment of open pits and trenches which pose a danger to livestock and wildlife.[93]

There also major social problems associated with the activity, including high accident rates in the mines, high rates of HIV infection, land conflicts caused by the presence of large transient populations, crime, poor sanitation and child labour. At the Koma Bangou site in Niger, at least 40 000 people are involved in mining gold and a limited survey of prostitutes (50 out of 2000) revealed that 2/3 were HIV positive.

Health problems are exacerbated by the lack of social services at mining sites.[94] In a study of salt and soda ash artisanal mines in Niger, it was found that 47.5% of the workers were children.[95]

A major problem in dealing with problems related to artisanal mining is that it commonly occurs in the poorer countries of the world, which lack the resources to regulate the sector effectively.[96] The international community began to address the issue of artisanal mining with the publication of the Harare Guidelines in 1993, which were supplemented by others adopted at a meeting in Calcutta in 1996.

The UN, the International Labour Office (ILO) and the World Bank are trying to deal with the issues of small-scale mining. A 1990 ILO meeting recognised the importance of the activity and called for various forms of assistance to the sector. In 1993, a UN organised seminar agreed on the Harare Guidelines for small-scale miners, development assistance agencies and NGOs.

[88] Tassell, 2001b.
[89] Acquah, op. cit.; Mate, op. cit.
[90] Tassell, op. cit.
[91] Labonne and Gilman, op. cit.; Bullington, 2001; Parsons, undated.
[92] Jennings, undated.
[93] Parsons, undated.
[94] Bullington, op. cit.; Labonne and Gilman, op. cit.
[95] International Labour Office, 1998.
[96] Parsons, op. cit.

In 1995, the World Bank organised a Round Table on Artisanal Mining that called for an integrated solution involving government, NGOs, miners' associations, donor organisations and international mining companies.[97] This resulted in a strategy to establish enabling conditions for artisanal mining, alleviate technical and financial constraints, improve environmental performance and raise the living and working conditions of miners.

Also in 1995 the World Bank created the "Consultative Group for Artisanal and Small-scale Mining" (CASM), whose aim is to assist the Bank in reducing poverty, particularly in rural areas. In 1996 further recommendations were outlined at a conference on small-scale mining in Calcutta.[98]

However, according to Jennings efforts to date have been concentrated on technical assistance and have failed to address basic economic and social issues.[99] In addition, the sector is generally low on government priorities. Key issues in the sector are land title and property rights, access to finance, labour and social concerns, living and work conditions, decreasing environmental impacts and improving technical and business skills.

In 1989, the Ghanaian government legalised small-scale mining and started implementing a policy to simplify licensing and technical assistance by the government.[100] In order to assist legal small-scale miners, the Ghana Chamber of Mines plans to develop closer links with them. In addition, some bigger mines in the formal sector have yielded areas of their concessions to small-scale miners in order to foster good relations.[101]

In Mali, artisanal miners are required to have an annually renewable artisanal mining permit ("l'autorisation d'exploitation artisanale"). This is not a property right. Artisanal mining comes under the administration of local authorities. The government has set aside specific areas ("couloirs d'orpaillage") for artisanal mining, although mining companies may operate in these areas with the agreement of local authorities. Artisanal mining is also allowed in areas where no mineral rights have been granted or if agreed to by the licence holder (Ordonnance N° 99-032/P-RM du 19 Août 1999). The Malian approach is common in much of francophone Africa.

The South African government treats all types of mining equally under the law. However, it has recognised the potential for small-scale mining (including artisanal mining) to contribute to economic development and to this end in 1999 created the National Small-scale Mining Development Framework. The framework provides administrative and regulatory guidance, and technical and financial assistance to small-scale miners. A National Steering Committee oversees the operational aspects and its policy is to allow no compromise on environmental and health and safety standards. Assistance is provided to miners to improve their performance in these areas. The cost of the assistance is recovered once a project is viable and generating sufficient income.[102]

The government is currently drawing up regulations on mine closure and is likely to follow the World Bank's guidelines in this area. If the Bank's guidelines are adopted by the Malian government rehabilitation will probably mean returning the soil to a state in which it can support pre-mine usage, eliminating any negative effects on nearby water resources, maximising the use of waste material in rehabilitation and contouring and revegetating, with indigenous species where possible, waste dumps

[97] Zamora, op. cit.
[98] Ibid.
[99] Jennings, op. cit.
[100] Acquah, op. cit.; Zamora, op. cit.
[101] Tassell, op. cit.
[102] NSC, 2000.

to minimise erosion. Financial provision for closure and rehabilitation is already required under the Mining Law.

The Sadiola mine, a joint venture between Anglogold (South African), Iamgold (Canadian), the Malian government and the IFC, came into production prior to the adoption of the new Mining Act. Nevertheless, the project operator conducted an EIA and consulted widely with stakeholders. A major issue identified by the local population was the withdrawal of groundwater. To alleviate this concern, water is pumped from the Senegal River via a 56 km long pipeline. In response to security concerns and the views of Peul nomadic herdsman, who feared that an above-ground pipeline could impede the movement of their livestock, the pipeline was buried for its entire length. Boreholes used in the construction phase of the project were upgraded and handed over to local villages to improve their water supply. The water quality in the boreholes is regularly monitored.[103] In addition, the company has drawn up and implemented a safety, health and environmental policy, based on ISO 14001 standards. Five staff are currently responsible for environmental protection matters, with one dedicated to social issues.

Anglogold, the operator of the Sadiola mine, is also applying similar policies at its other mines in Mali.[104] The company appears to have a strong commitment to high standards of environmental management, with the executive officer for the environment reporting directly to the CEO. This commitment has been recognised by the Dow Jones Sustainability World Index, which rates Anglogold as a Sustainability Leader in the precious metals sector. Corporate sustainability is defined by the index in terms of economic, environmental and social policies.[105]

The annual audit of the Sadiola mine conducted in 2000 confirmed that it complied with commitments set out in the EIA and EMS. An EIA has now been completed for the Yatela mine. At the Morila mine, site-wide environmental monitoring facilitates compliance with EIA commitments.[106] The extent to which the conditions attached to IFC financial backing of the Sadiola underlie the company's commitment to environmental management is unknown. This issue requires further study.

In general, IFC environmental conditionality attached to loans and local social pressure have stimulated mine operators in Mali to prepare environmental and social management plans and commit themselves to their implementation. Disbursement of IFC loans may also occur in stages and be dependent on fulfilment of environmental commitments. IFC environmental staff carry out regular visits to monitor projects funded by the organisation.

***Tanzania***

The mining sector in Tanzania is small, contributing about 2.3% of GDP. Nonetheless, it is an important earner of foreign exchange.[107] Recent investment, particularly in gold exploration and mining, has led to the rapid expansion of the sector. Tanzania is slated to become an important producer in the African context. Other mineral resources include diamonds, coloured gemstones, coal, salt and limestone.[108] (See also Table I.3 in the Appendix.)

[103] Nazari, 1999.
[104] Anglogold Annual Report, 2000.
[105] Infomine's Headline News Digest, 2001.
[106] Anglogold Annual Report, op. cit.
[107] See <<http://www.tanzania.go.tz>>
[108] Economist Intelligence Unit, 1997c.

FDI flows were non-existent in the early 1990s but changes to the investment laws resulted in an increase in funds from US$12 million in 1992 to US$183.4 million in 1999. In 1996 the Tanzanian government issued a New Investment Policy, which was followed by the Tanzania Investment Act No. 26 of 1997. These instruments sought to increase the transparency of the legal framework, deregulate the investment process, create a one-stop investment agency and provide for transferability of capital and profits. The mining industry is subject to a 30% corporate tax rate, no customs duties or sales tax on capital goods, 100% deduction allowances on capital goods and a 10% withholding tax on dividends.[109] Between 1990 and 1998, 34 new petroleum and mining projects were approved. Of this total, 22 were foreign owned and accounted for 6.4% of total investment.[110]

Tanzania's Mineral Policy was adopted in 1997. This aims to promote private sector led mineral development, to ensure that the wealth generated from mining supports sustainable economic and social development and to minimise or eliminate adverse social and environmental impacts of mining activities.[111] To achieve this, mining in Tanzania is regulated by the 1998 Mining Act and the Mining (Environmental Management and Protection) Regulations of 1999, both of which are administered by the Ministry of Energy and Minerals. The Act requires independent consultants of international standing be selected by the developer and approved by the Government to conduct EIAs on proposed mining projects. The developer must produce an Environmental Management Plan acceptable to the Government. Approval of a project involves screening, scoping and EIA and EMP evaluation by government experts. In addition, relevant regional authorities, local government administrations and the public are consulted and their opinions taken into account during the review process. The approved EMP is subject to a first review by the government after two years and thereafter every five years.[112]

In the case of the Geita mine, a major recent investment by Ghanaian and South African companies, the EIA and EIS (Environmental Impact Statement) were submitted for approval in January 1999, prior to the Minerals Act entering force. A South African company undertook the EIA, and all relevant local authorities and agencies were consulted. Since the mine is located in the Lake Victoria catchment area and inland drainage system, it is a particularly sensitive project. In addition, a river cutting across the old Geita tailings dam contains background levels of certain metals close to the maximum stipulated in the regulations. Accordingly, discharge of any hazardous chemicals into the river was prohibited. Both the engineering design of the mine and the EMP took account of the topography, geology and distance of the mine perimeter from the lake (26 km). Monitoring of groundwater around the tailings dam and the processing plant was a critical aspect of the EMP, requiring the sinking of monitoring boreholes.[113] Currently there is no data available on the mine's compliance with the national environmental legislation.

The national licensing authority approved the EMP once it was satisfied that environmental protection and management measures would be established, including for biodiversity conservation of the Lake Victoria catchment. To prevent seeping or spillage and possible cyanide contamination, several measures were adopted. They included diversion of a river from the old tailings dam and the newly designed tailings dam, recycling of tailings dam water back to the processing plant and lining the tailings dam with high-density plastic liner to prevent seepage and leakage in the event of poor construction or seismic activities. The mine operators have established a monitoring system which includes boreholes around the tailings dam and a decant facility. Samples were initially collected and analysed every fortnight but this is now done on a monthly basis. Two inspectors of mines based at

[109] <<http://www.tanzania.go.tz>>
[110] <<http://www.strategis.ca>>
[111] <<http://www.tanzania.go.tz>>
[112] Ngonyani, 2000.
[113] Ibid.

Geita carry out compliance monitoring on behalf of the Ministry of Energy and Minerals. They monitor mining activities, inspect and enforce the environmental management and protection regulations and occupational health and safety regulations.[114]

The other major mine due to begin production in the near future is Bulhanyulu. This mine is partially financed by the IFC and will be required to adhere to strict environmental considerations.

***Kenya***

Of the six countries discussed here, Kenya has the least developed mineral industry. Industrial minerals, which contributed 0.14% of GDP in 1999, dominate production.[115] (See Table I.4 in the Appendix.) A new project, the Kwale mineral sands development could attract at least US$137 million of FDI just in the construction phase (see below).

In the 1990s the Kenyan government implemented a series of policy measures to improve the investment climate. As a result FDI increased from the 1985-1995 average of US$26 million to US$42 million in 1999.[116]

Before 1999, environmental concerns were inadequately covered by existing legislation in Kenya even though there was legislation to control environmental pollution. These statutes include the Agriculture Act, the Planning Act, the Town Planning Act and Local Government Act, the Public Health Act, the Forest Act and the Water Act. The latter contains provisions to control water pollution but no national effluent standards have yet been established. Regulation of air pollution is ambiguous in the absence of detail in the relevant legislation. Major problems with pollution control in Kenya include little operational co-operation and policy co-ordination among the relevant authorities, ineffective enforcement of existing rules and regulations because of budgetary shortfalls, bureaucratic inertia, a lack of political will and corruption.[117]

The lack of a comprehensive national environmental policy framework is notable. Environmental policies cover more than five different sectors. Regional authorities have also developed their own environmental policies. As a result, a coherent national approach is missing.[118] A National Environmental Management and Co-ordination Act first discussed in the 1980s has only recently been enacted. The act stipulates that prior to mining the company must submit an EIA in order to obtain an environmental permit and a mining lease from the Ministry of Environment and Natural Resources.

Historically, FDI has not played a significant role in the Kenyan mining industry. The Kwale mineral sands project, which could involve a total foreign investment of US$225 million, was recently approved and could herald the start of a new era. The project is discussed in some detail below because it highlights important aspects of environmental management in the mining industry in Sub-Saharan Africa.

The Kwale project is highly controversial but government support for the project appears to have overridden public concerns. The proposed mine sites are located in a fragile ecosystem in Kenya's coastal forest, listed as one of the world's 25 hotspots by Conservation International.[119] An EIA was

[114] Ibid.
[115] Economist Intelligence Unit 2000e.
[116] UNCTAD, 2000.
[117] Nasong'o and Gabsa, 2000.
[118] Ibid.
[119] See <<http://www.miningwatch.ca>>

commissioned by Tiomin, the mine developer, based on terms of reference which complied with World Bank standards, Kenya's EIA guidelines and the Environmental Management and Co-ordination Act. Preparation of the EIA was co-ordinated by a South African company. After completing the scoping study, preliminary terms of reference were submitted to the District Environmental Committee for comments and approval in April 1999. Throughout the preparatory stages of the project (1996-1999) Tiomin consulted widely, holding 159 meetings with the relevant authorities and 55 with local communities. The public review period for the EIA lasted three months, during which time meetings were held with affected parties.

Despite the fact that the EIA was prepared in accordance with Kenyan law and World Bank standards, project opponents criticise the study as not going far enough.[120] An independent study by Kenyatta University raised questions about the possibility of neglected environmental impacts. Tiomin questioned the findings of this assessment, pointing to inaccuracies in assumptions made by the study team about the project. The International Union for the Conservation of Nature (IUCN) has also identified a number of weaknesses in the EIA.[121]

The project will require the displacement of 450 farming families. After 21 years the land is to revert to the farmers. Some critics maintain, however, that it will take a further 10 to 30 years for the land to return to productivity. The company negotiated comprehensive compensation and rental agreements with landowners but dissatisfaction with the terms is an emerging issue. People with no land title were not covered by the agreements as the company considered them squatters and therefore a government problem.[122]

Compensation agreements were based upon individual property valuations made by a registered Kenyan land valuer. The compensation package included a base payment per acre, a payment for land improvement for agricultural purposes and an annual lease per acre. The latter will increase by 10% each year throughout the life of the project.[123]

The Kenyan parliament is to debate the possibility of revoking the mining license citing a lack of clarity in the EIA about how compliance with local and international environmental standards will be achieved. Local residents have also taken court action to stop the project.[124]

Lack of communication is also a problem. For example, critics of the project organised a conference of all stakeholders in June 2000. Despite being invited, representatives of the company did not attend.[125] The company maintains it did not have sufficient notice to attend the meeting, but its representatives did attend a follow up meeting the next day.[126]

[120] Mugo, 2001.
[121] <<http://www.ichrdd.ca>>
[122] See <<http://www.miningwatch.ca>>
[123] Tiomin reply to the ICRHDD; see Ibid.
[124] *Drillbits and Tailings*, 30 June 2001.
[125] <<http://www.ichrdd.ca>>
[126] Tiomin reply to the ICRHDD; see Ibid.

***Discussion***

The environmental impacts of FDI have traditionally been analysed in terms of structural, scale, technology and regulatory or policy effects. I largely follow that approach below, with the caveat that there is a lack of data on sectoral FDI flows and the environmental impacts of mining related to these flows in Sub-Saharan Africa. The social impacts of FDI in the mining sector will also be discussed.

***(i) Structural Effects***

Positive structural effects occur when the target of FDI is an activity involving less environmental pressure than previous targets, such as a shift from manufacturing to services.[127] In the mining sector the main potential structural effect is the replacement of artisanal and small-scale mining by large-scale projects. This has occurred at the Sadiola mine in Mali. At this stage, however, it is not possible to assess whether the effects are positive or negative.

***(ii) Scale Effects***

Scale effects can be positive if the economic growth engendered by the investment results in increased demand for environmental goods and if the economic benefits are used to remediate environmental problems. Negative scale effects can occur in the absence of regulation or environmental management measures as well as through increasing consumption of natural resources, generation of wastes and scale of operations.[128]

South Africa already has a large domestic mining industry and FDI plays a small role in overall investment in the sector. Any negative scale effects of FDI directed to mining in that country are probably small. In the other five countries considered in the paper, FDI has and will continue to play an important role in the development of their respective mining industries. In particular, it has led to the development of both "greenfield" sites and increases in mining activity and mineral production at existing operations. This has the obvious corollary of a concomitant increase in the generation of mining and processing wastes. Overall, the environmental impact of FDI in mining appears negative for these countries with the exception of Zambia. Here, the treatment of existing slag and tailings in old mining sites may reduce the potential for metals contamination of soil and water, an environmentally positive outcome.

***(iii) Technology Effects***

Technology effects can be positive benefits from the use of environmentally friendly technology.[129] Abugre and Akabzaa consider that there is little potential for technology diffusion from investment in mining because mines are essentially low-technology earth-moving operations, particularly where open pit operations are concerned. In this analysis, the term mining industry is not confined to the extraction phase but also includes ore treatment and metallurgical processing, where the potential for technology transfer exists.[130]

South Africa's mining industry is one of the most developed in the world and much of its mining technology has been developed locally. The technological effects are likely to be small in mining *strictu senso*. Potential positive spillover effects are more likely to occur in mineral processing and

[127] OECD, 1997.
[128] Ibid.
[129] Ibid.
[130] Abugre and Akabzaa, op. cit.

finished product manufacture, where foreign investors may introduce environmentally friendly technology. A lack of data precludes a definitive conclusion, however. In Zambia, technological effects should be positive through upgrades of old technology at existing processing plants and imports of new equipment at some mines. This outcome may be limited in those mines that are replacing equipment with refurbished second-hand equipment, as is the case at Chibuluma South (a South African investor). Most components of the processing plant were bought second-hand and refurbished.[131] In Ghana, positive technological spillovers have occurred with the introduction of environmentally friendly bacterial leaching of gold at some operations. The increased gold production implies greater use of the natural resource. If wisely used, the Mineral Development Fund can replace this environmental capital and contribute to sustainability of economic development in mining areas.

It is too early to assess technology effects in the remaining countries examined in the paper. This relates to their early stage of mining industry development and their newcomer status in attracting FDI into this sector.

### *(iv) Regulatory and/or Policy Effects*

Positive regulatory and/or policy impacts relate to potential improvements in regulation. On the other hand, these impacts can be negative if regulations are not enforced or done so poorly.[132]

In the case of South Africa, the country has strong regulatory environment and institutions with long experience in effectively supervising the mining industry. The government is willing to forego potential economic benefits if doubts exist about the environmental impacts of a mining development. This is illustrated by the Richards Bay Minerals case discussed earlier. It appears unlikely that FDI in the mining sector will have negative regulatory or policy effects. Foreign investors in the South African mining industry tend to adhere to current rules and regulations. In some cases there is an attempt to go beyond existing requirements, as the discussion on the Palabora Mining Company showed. In these instances, FDI may have a small positive regulatory effect.

The regulatory effects of FDI in Zambia's mining sector appear to be negative. In order to attract investment the government has relaxed its enforcement of environmental policy. This is particularly apparent in the development agreements discussed earlier. A challenge for the government is to enhance institutional capacities and to ensure that its willingness to bring ZCCM to account in the recent past extends also to the mine's new owners. It is encouraging that the environmental legacy of past mining is being addressed. However, the costs of such remediation will probably mean that Zambia will need further outside financing to support such initiatives.

The available data for Ghana indicate that some mining operations financed by FDI, in particular where IFC financing is involved, are applying environmental standards in advance of those required by law. This suggests that a "race to the bottom" is not occurring. Nevertheless, according to Abugre and Akabzaa there have been cases where enforcement of EIAs and EMPs has not occurred.[133] This may be because of a lack of institutional capacity. Shortcomings also exist in the approach to the impact assessment of mining projects in Ghana, particularly the lack of public consultation and inadequate social impact assessment.[134] In addition, the government should clarify its position about mining activities in forest and nature reserves. Long-term benefits from ecotourism and biodiversity in these reserves needs to be balanced against short-term gains from mining. Environmental impacts

[131] Tassel, 2001c.
[132] OECD, op. cit.
[133] Abugre and Akabzaa, op. cit.
[134] Morris, op. cit.

will not be confined to the mine itself but may also be associated with increased access to the reserves. By allowing continuation of activities after the 1996 moratorium the government has given companies an expectation that if a commercially viable discovery is made, mining would be permitted. If this does not occur, the companies might seek compensation for their investment to date. It appears that lobbying by foreign investors to continue their activities in the reserves is exerting downward pressure on environmental standards.

In Mali, foreign mining companies have to date been in advance of local legislation. This is probably due to leverage by institutions such as the IFC and the commitment of certain companies to good environmental management. Currently, it appears that FDI is not having negative regulatory effects in the country.

It is too early to assess the environment-FDI linkages in Tanzania's mining sector. From the case study it appears that the government is taking a rigorous approach to enforcing environmental regulation and policy.

The Kenyan example illustrated several issues confronting Sub-Saharan countries in the mining sector. Given that the Kwale mineral sands project is the first major such development in the country, it is unlikely that Kenya has the necessary capacity or expertise to assess comprehensively all the implications.[135] The government has resolutely supported economic development and has failed to take into account public hostility and the potential environmental costs. Communication between the project developers and the public appears to have been poor. At this stage, it seems that FDI in Kenya's mining industry has had negative regulatory effects.

### *(v) Social Impacts*

For historical reasons, South Africa has developed a culture of assessing social impacts and of carrying out meaningful public consultations in recent years. Such approaches are lacking in other Sub-Saharan African countries.

Privatisation of the Zambian copper mines has had negative social effects for two reasons. First, consideration of the social impacts of mining is not included in the 1995 Mines and Minerals Act. Second, mining companies do not treat socio-economic impacts as being equally important as physical environmental impacts in environmental management.[136]

The attribution of mining licenses to foreign investors for large-scale mining projects can potentially cause loss of livelihood for artisanal miners when they are displaced by these projects. Currently there are several approaches to this issue in sub-Saharan Africa. In South Africa, such conflicts should theoretically not arise because all mining activities require licenses that confer exclusive rights to the license-holder. In Mali, the government's approach has been to set aside specific areas for artisanal mining (see Box 1). Some large-scale mine operations in Ghana have allowed artisanal miners to continue their activities on certain areas of their mining licenses in order to avoid conflicts (see Box 1). Loss of livelihood for subsistence farmers is one of the main social problems in Ghana, and investors will need to pay more attention to this issue in the future.

There are little data on social impacts of mining in Mali and Tanzania at present. In the case of the Sadiola mine in Mali, the issue of resettlement was thoroughly addressed. In Kenya, the main problem

[135] Mugo, op. cit..
[136] See <<http://www.hsrc.ac.za>>

related to development of the Kwale mineral sands project is displacement of the local population from their land. Investors need to give greater attention to this issue.

## Conclusions and Recommendations

Lack of data concerning both FDI and environmental impacts of mining in sub-Saharan Africa precludes a detailed analysis of their linkages. However, from the examples discussed there is evidence of some companies striving to improve their environmental performance beyond existing government regulations. Companies are also introducing new technology and refurbishing existing installations, which will result in better environmental performance. This indicates that FDI in the sector is in some cases leading to improved environmental management practices.

There is also evidence indicating that negative regulatory effects exist in some of the countries examined. A lack of institutional capacity, finance and in some cases political will, as well as lobbying by investors, is hampering efforts of some host country governments to implement effective environmental regulation. In addition, the social impacts of FDI in the mining industry have not been well addressed in instances.

A major problem facing sub-Saharan African countries is environmental management of artisanal and small-scale mining. Part of the problem arises because governments tend to establish different legal requirements depending on the size and type of mining activity. The notable exception is South Africa, which considers that mining regulations must apply to all mining operations. This may imply support by government institutions in assisting small-scale and artisanal miners in managing the environment. As stated earlier, legislation in Malia does not require an EIA for small-scale mining. This could lead to major environmental problems if the potential for developing such mines is realised. Problems will also arise if a small-scale mine, by virtue of the discovery of increased reserves or increased production, is reclassified as a large-scale mine. Will the company concerned be liable for environmental damage that may have occurred previously even if its operations obeyed the law, or will this be a liability for the government?

A different problem relates to the delay in promulgating decrees and regulations setting environmental standards. Typically, they are enacted well after the framework environmental laws have been adopted.

In the light of the above, mining host countries, OECD countries and the mining companies themselves could take the following measures to improve environmental management in the mining sector in Sub-Saharan Africa.

### *Mining Host Countries*

Sub-Saharan African countries are currently enacting, or have recently enacted, environmental protection legislation. In some cases, however, regulations defining the application of the law have yet to be drafted or promulgated. The delays may be several years, inhibiting enforcement efforts. For example, in Cameroon environmental legislation was enacted in 1996 but the implementing regulations have yet to be drafted. Several reasons may explain the delays, including a lack of institutional capacity and in some cases the desire of governments to develop standards specific to their country. In this respect, governments should consider applying internationally acceptable environmental standards (e.g. those developed by WHO, World Bank) rather than developing local ones.

Although it may be valid to develop standards in terms of a country's carrying capacity the trend is towards both local and international environmental pressure groups insisting on benchmarking against internationally accepted standards.

Environmental rehabilitation costs are an important aspect of any mining project. There needs to be an assurance that funds will be available when a mine closes and in the event of premature closure. Lack of prior provision for rehabilitation could leave governments facing large environmental liabilities, effectively allowing companies to externalise environmental costs. Environmental and/or mining regulations should include requirements for bank guarantees or dedicated trust funds to cover closure and rehabilitation costs. Some countries in the region have enacted relevant legislation but in others where mining industries are a new development the necessary expertise to assess funds requirements is unclear.

Particular issues that require attention are:

- ensuring that environmental impact assessments and feasibility studies outline and cost rehabilitation and closure plans;
- premature closure during construction. Mitigation would require completion guarantees and implementation of a satisfactory closure plan;
- clear definition of post-mining land use objectives, environmental standards required and sign-off procedures;
- periodic review of mine closure plans, costs and financial guarantees in order to take into account changes to the project and external factors such as inflation;
- financial failure and use of closure funds for other purposes. These can be prevented by setting up a separate non-fungible financial structure for the funds; and
- fund guarantees provided prior to construction and operation.[137]

In some cases, environmental concerns may be subordinated to decisions by traditionally powerful ministries such as finance and industry. There are historical reasons for this, in particular the priority given to economic development in government policy. In the past this may have been at the expense of the environment. In Ghana, for example, the cost of environmental degradation to the economy in 1988 was estimated at US$189 million, of which at least US$17 million was a result of mining activities. This is equivalent to 4% of GDP in a context where GDP growth was 5%. This growth occurred almost entirely at the expense of the country's natural resource base, an unsustainable situation.[138]

The potential solution to this problem is to give a higher profile to the environment ministry in government decision making. This is largely a matter of political will rather than a specific policy measure. However, there are certain practical measures that could be implemented.

In the case of privatisation in Zambia, development agreements were drawn up between the government and investors. These agreements allowed for deferred compliance with environmental regulations. This has had negative regulatory effects. The government should ensure that full compliance with environmental regulations is required. This could be achieved by requiring the agreements to be scrutinised by the environment ministry. In francophone Africa, mining licences are only granted after the signature of a "Convention d'établissement" which defines, *inter alia*, the fiscal

[137] Nazari, op. cit.
[138] Acquah, op. cit.

and customs regimes applicable. The possibility of including environmental conditions in the conventions should be considered.

Mining legislation should not undermine environmental protection regulations, as appears the case in Zambia. Again, it may be possible to avoid this by ensuring that the environment ministry has the right to verify conformity of mining legislation with existing environmental regulation.

Responsibility for enforcement of environmental regulations is a problem. One approach in sub-Saharan Africa has been to create an environmental protection agency with responsibility for monitoring and enforcement of regulations. Another method has been for officials of the ministry of mines to undertake these tasks. In both cases, there is evidence of a lack of expertise or lack of will in certain countries. In Zambia doubts exist about the capacity of local authorities to monitor environmental performance.[139] In addition, although the government has shown a willingness to enforce environmental regulations in the past[140], the recent investment agreements related to privatisation of the copper mining industry seem to indicate that the government is reducing the role of the ECZ as well as allowing for delayed compliance with legislation.[141] In Ghana, although there is no direct evidence of a lack of environmental enforcement in the mining sector this has occurred in other industries.[142] This may be because of either a lack of political will or of capacity. Kenya's environmental legislation is relatively new. A lack of capacity, budgetary problems and political will appear to be important issues.

Mining raises important distributional issues about how revenues (taxes or royalties) from mining are re-invested. In addition to using the revenue to finance infrastructure and essential social services in mining areas, investment in alternative forms of economic development will be necessary. One possibility is to establish a development fund, either by using a percentage of royalty payments, as in Ghana, or specifically earmarking tax revenue from mining operations for this purpose.

Social impacts associated with mining are not well accounted for in many mining projects, as the country review highlighted. It may be necessary for governments to legislate to this end. Any such legislation should be the result of consultations between government, mining companies and the public.

Artisanal mining can have significant negative environmental and social impacts. Efforts are underway to address this issue and would be premature to suggest major recommendations. However, a precautionary measure would be to prohibit the use of mercury in gold recovery. Practically, this could require the interdiction of mercury imports. In addition, artisanal miners face problems in raising finance. One reason is a lack of collateral for loans. Governments could consider regulating the sector by attributing mineral rights, as is the procedure for larger operations, rather than permits. These rights should have the same conditions as those applying to larger mines, i.e. be a transferable, mortgageable property right.

Governments should give a clear policy commitment to prohibit mining activities in natural reserves. Even allowing exploration gives companies the impression that mining will be permitted if a viable deposit is discovered, as is currently the case in Ghana. In addition to the potential for environmental degradation from mining activities, development of mining infrastructure could lead to population influx and further pressure on the environment in these sensitive areas. In Cameroon, this issue was

[139] Draisma, op. cit.
[140] Ibid.
[141] <<http://www.hsrc.ac.za>>
[142] Anane, op. cit.

the subject of much discussion during a seminar held in September 2000 to define a new national mining policy. There was concern that by excluding mining activities the country could suffer economic loss as deposits that might exist would not be developed. In general, mines have a finite life and only generate short-term earnings. Natural reserves have the potential to produce a long-term revenue stream through a range of sustainable activities, including eco-tourism.

Finally, governments may be able to assist in technology transfer from foreign mining operations to the local mining industry. The terms and conditions for doing this require further investigation.

***Mining Companies***

In the examples of the Palabora (South Africa) and Sadiola (Mali) mines discussed earlier the environmental management record of the companies is in part attributable to a commitment at management level to good performance. The environmental manager at Sadiola reports directly to the CEO of the mine's operating company. Other mining companies could consider raising the profile of environmental management within their organisations by ensuring that environmental departments are represented at board level.

It also appears that in these two cases the determination of the companies to obtain internationally recognised certification of their environmental management systems contributed partially to improvements in their practices. The issue of which system to apply is not be addressed in this paper. In the context of assisting the mining industry's attempts to integrate environmental concerns into their operations, research into the applicability of the various systems to the sector may be useful.

The inadequacy of social impact assessment and social management plans in several sub-Saharan countries was highlighted. Increased understanding of the mining industry's role in economic development by affected communities and the public might be facilitated if the social impacts were better assessed. Consultation with affected communities at an early stage of project development could enable timely diagnosis of potential areas of concern. Communication with local communities should be an ongoing process throughout the life of a project. This requires establishing and maintaining a dialogue with the public and keeping them regularly informed. There are inevitably risks associated with mining and mineral processing operations. These, as well as the planned mitigation measures, should be explained to the public. They need to be aware of procedures to be followed in the case of a major emergency. As mining operations are commonly located in remote areas, where government institutions may lack the capacity to respond quickly to emergencies, much of the burden will inevitably fall on the project operators.

As part of the process of gaining public acceptance, companies should consider making the results of environmental audits available to the public. The situation in Ghana, where such audits are not made publicly available, may foster mistrust and hostility. Audits should not only be internal but also be conducted by independent auditors on a regular basis.

Governments have a responsibility to legislate in the domain of environmental protection. However, where legislation is lacking the cost of environmental mitigation measures, mine closure and rehabilitation must be an integral part of a company's economic analysis of a planned project. As a general policy, internationally accepted standards should be adhered to where local standards do not exist. This is predicated on the standards being acceptable to the government.

As noted above, governments need to clarify their position about mining in nature reserves. Mining companies for their part could undertake to exclude such areas from any mining licence application.

The above measures could be applied rapidly but where they require board or shareholder approval, companies should table the proposals as soon as possible.

***OECD Member Countries***

One of the causes of poor enforcement of environmental regulations is a lack of capacity in the countries concerned. Support for national environmental action plans by international organisations such as the World Bank, the IUCN and aid agencies started in the 1990s. These plans aim to create the institutional and technical capacity needed for effective environmental monitoring, to guide policy formulation and co-ordination and to address specific environmental problems.[143] OECD countries can provide further support for such initiatives, taking into account the lessons learnt to date.

As far as corporate behaviour is concerned, the OECD has drafted Guidelines for Multinational Enterprises which include environmental aspects.[144] OECD Member countries should insist that their investors follow these guidelines. As noted in the country analysis, improved environmental performance by mining companies has been driven in part by loan conditions imposed by international financial institutions. OECD Member countries should support the financial institutions in ensuring that environmental and social management plans are standard requirements for project loans.

The environmental legacy of past mining can impose large costs on the countries affected, as illustrated by the Zambian example. South Africa faces major costs as the environmental legacy of mines closed prior to 1956 is the government's responsibility. Arguably the most important legacy is that of acid mine drainage from old mines in the Witwatersrand goldfields. The possibility of providing financial and technical assistance in rehabilitating old mine sites should be considered.

Current measures targeted at artisanal mining should be supported further. The applicability of the South African approach to small-scale and artisanal mining to other sub-Saharan African countries should be investigated, perhaps with aid agencies of OECD Member countries supplying financial and technical assistance where required

The role of international financial institutions such as the IFC in contributing to improved environmental performance via loan conditions appears to have been positive in Ghana.[145] An assessment of the IFC's role in environmental performance at Sadiola in Mali is not possible at this time. Further investigation into the role of international financial institutions is required.

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[143] Acquah, op. cit.
[144] OECD, 2000.
[145] Warhurst, op. cit.

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## Appendix 1: Mineral Production Statistics

### Table I.1: Production of Selected Minerals in South Africa, 1991-1999

| | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 |
|---|---|---|---|---|---|---|---|---|---|
| Gold ('000 kg) | 601 | 611.1 | 619.2 | 579.3 | 519.8 | 494.6 | 492.5 | 464.2 | 450.9 |
| Iron Ore | 29,075 | 28,226 | 29,385 | 32,321 | 32,144 | 30,951 | 33,333 | 32,965 | n/a |
| Chrome | 5,100 | 3,002 | 2,827 | 3,599 | 5,130 | 4,982 | 5,794 | 6,480 | n/a |
| Copper | 194 | 167 | 166 | 165 | 161 | 151 | 151 | 153 | n/a |
| Manganese | 3,146 | 2,464 | 2,507 | 2,851 | 3,165 | 3,254 | 3,095 | 3,044 | n/a |
| Diamonds ('000 carat) | 8,431 | 10,166 | 10,324 | 10,857 | 9,569 | 10,166 | 10,009 | 10,705 | 10,014 |
| Coal | 178,000 | 174,072 | 182,031 | 195,805 | 203,427 | 208,362 | 218,617 | 224,827 | n/a |
| Lime, limestone | n/a | 18,320 | 18,215 | 19,719 | 18,776 | 18,495 | 18,600 | 17,248 | n/a |
| Mineral production | 23,511 | 23,909 | 24,458 | 23,844 | 23,094 | 22,773 | 23,049 | 22,949 | n/a |
| GDP | 244,549 | 238,711 | 242,485 | 248,575 | 255,770 | 263,694 | 268,142 | 268,182 | n/a |
| Mineral production | 9.61 | 10.02 | 10.09 | 9.59 | 9.03 | 8.64 | 8.60 | 8.56 | 6.5 |

Production figures in '000 tonnes unless stated otherwise. Value in million Rand, 1990 prices
Sources: Economist Intelligence Unit, 1997a, 1999a, 2000a; Botha et al., 2000; Gaven et al., 2001.

**Table I.2: Production of Selected Minerals in Ghana, 1990-1998**

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
|---|---|---|---|---|---|---|---|---|---|
| Gold ('000 kg) | 16.5 | 26.1 | 31.4 | 38.6 | 43.3 | 51.3 | 48.3 | 53.5 | 72.9 |
| Bauxite ('000 tonnes) | 382.1 | 485.1 | 498.1 | 482.5 | 426.1 | 513 | 413.2 | 500.7 | 408.6 |
| Manganese ('000 tonnes) | 364 | 415.2 | 477.7 | 361.7 | 269.7 | 100 | 447.9 | 333.4 | 421 |
| Diamonds ('000 carat) | 150.3 | 419.4 | 584.5 | 616 | 426.1 | 422.7 | 714.3 | 585.5 | 869.4 |
| Mineral production value | | | | | 222 | 234 | 244 | 258 | 268 |
| GDP | | | | | 3,999 | 4,160 | 4,351 | 4,534 | 4,741 |
| Mineral production value (% of GDP) | | | | | 5.55 | 5.63 | 5.61 | 5.69 | 5.65 |

Sources: Economic Intelligence Unit, 1997b, 1999b, 2000b

**Table I.3*:* Gold Production in Mali, 1991-1999**

| | 1991 | 1995 | 1996 | 1997 | 1998 | 1999 |
|---|---|---|---|---|---|---|
| Gold production, kg | 4,600 | 6,291 | 6,584 | 16,323 | 20,589 | 23,689 |

Sources: Economist Intelligence Unit, 2000c*;* <<http://www.izf.net>>

**Table I.4: Production of Selected Minerals in Tanzania, 1991-1999**

| | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 |
|---|---|---|---|---|---|---|---|---|---|
| Gold ('000 kg) | 5,436 | 8,555 | 3,245 | 2,720 | 1,413 or 320 | 318 | 323 | 427 | 4,890 |
| Diamonds ('000 carat) | 72 | 67.5 | 40.7 | 22.7 | 49.5 | 126.7 | 123.1 | 97.8 | 234.7 |
| Coloured gemstones | 59.6 | 26.7 | 33 | 48.5 | 111.4 | 142.2 | 509.5 | 48.5 | 95.2 |
| Coal | 33.2 | 31.8 | 40.2 | n/a | 43.2 | 52 | 28.5 | 45.1 | 75 |
| Salt | 30.8 | 18.6 | 35.2 | 32.5 | 105 | 86.7 | 72.5 | 75 | 35.9 |
| Phosphate | 2.4 | 4.8 | 2.2 | n/a | 6.7 | 0.7 | 2.1 | 1.4 | 7.3 |
| Gypsum | 8 | 14.2 | 86.5 | n/a | 42 | 55.4 | 46.3 | 59.1 | 21.2 |
| Limestone | 553.4 | 990.5 | n/a | n/a | 1,062 | 1,200 | 1,282 | 1,181 | 1,241 |
| Mineral production value (% of GDP) | 1.40 | 1.90 | 1.40 | 1.60 | 1.30 | 1.10 | 1.20 | 1.50 | |

Production in '000 tonnes unless otherwise stated.
Sources: Economist Intelligence Unit, 1997c, 2000d.

**Table I.5: Production of Selected Minerals in Kenya, 1995-1999**

| | 1995 | 1996 | 1997 | 1998 | 1999 |
|---|---|---|---|---|---|
| Soda Ash | 218.5 | 223 | 257.6 | 242.9 | 245.7 |
| Fluorspar | 74.2 | 83 | 68.7 | 60.9 | 93.6 |
| Salt | 73.5 | 41 | 6.3 | 21.7 | 44.9 |
| Limestone products (excluding cement) | 29.6 | 31.9 | 32.7 | 32 | 32 |
| Others | 70.9 | 60.8 | 10.6 | 80.7 | 345.9 |
| Mineral production value (% of GDP) | 0.2 | 0.2 | 0.2 | 0.14 | 0.14 |

Sources: Economist Intelligence Unit, 1996b, 1997d, 1998, 1999c, 2000e

# Environmental Effects of Foreign versus Domestic Investment in the Mining Sector in Latin America

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## Introduction

One of the characteristics of the world economy over the last two decades has been the strong growth in flows of foreign direct investment (FDI).[1] A greater number of companies in an increasingly wider range of economic sectors and countries are expanding their investments beyond national borders. In parallel, investment host countries compete with increasing intensity to attract such investment.

Developing country share in global FDI flows increased consistently between 1984 and 1997. In the latter year this share peaked at 41%. Flows of FDI to Latin America followed this upward trend also, reaching a total of US$767 billion in 1998. This was equivalent to about 40% of the total investment flow to developing countries.[2] It is important to recall, however, that the strong increase in FDI has not been spontaneous. Supportive policy reform processes include liberalisation of the economy, changes to regulatory policies and privatisation of state assets.[3] The agreement to grant national treatment to foreign investments, endorsed by WTO members, has also contributed to this process.

The economic benefits of FDI are well known: technological innovation, increases in competitiveness, improvements in efficiency and transfers of intangible resources such as new forms of organisation, administration and marketing.[4] On the other hand, environmentalists have argued that FDI can generate negative environmental effects especially in developing countries that have lower environmental standards, possibly constituting pollution havens. In addition, many developing economies, including in Latin America, rely on natural resource-based production and exports. The mining, forestry and fishery sectors play dominant roles. These are environmentally sensitive sectors, not only because of the potential environmental effects of resource processing but also in terms of their sustainable use.

Within this context, the paper assesses the environmental impact of FDI in the mining sector in Latin America. Considering the scarcity of information available on the subject within the region, we selected Chile and Peru as representative countries for analysis. Both countries are regionally important in terms of mining production and exports. They also illustrate differences in terms of their production structures and sectoral development. The impact of FDI in the mining sector on the environment is considered against its scale and structural effects, its effect upon environmental regulations and its effect upon technology. In addition, several additional factors that relate to the environmental effects of domestic and foreign investment will be briefly analysed. These factors include the degree of public environmental awareness, the existence of a regulatory framework, the financial sources of the capital base and public image. The methodology used combines a literature

[1] According to the OECD benchmark definition, FDI refers to capital invested with the aim of acquiring a lasting interest in a company and in order to exercise some degree of influence over the company's operations.
[2] See CEPAL, 1999.
[3] See OECD, 1998.
[4] See Johnston, 1999.

review, interviews with selected experts in the respective countries and a survey of the major mining companies in Chile[5].

**Domestic and Foreign Investment in the Mining Sector**

Investment in Latin America's mining sector increased from US$200 million in 1987 to US$117 billion in 1997. Chile and Peru are the most important mining countries in Latin America. Chile is the largest copper producer in the region, indeed the world. It accounts for about a third of the global copper production alone. Peru ranks seventh globally and second in Latin America. In both countries, foreign investment statutes and tax regimes are investor-friendly. An extensive privatisation process supplemented this process in Peru.

***Chile***

***(i) Production***

The mining sector in Chile includes mining of metals, non-metals and fuels. The most important sub-sector is mining of metals, which accounted for an average of US$6.9 billion a year in exports in the 1995-1999 period. Within this category, copper is the most important commodity followed by gold, molybdenum, iron ore and silver. The second ranked sub-sector is the mining of non-metals. Exports were valued at an average of US$276.7 million between 1995 and 1999. Iodine, saltpetre, lithium carbonate and table salt are especially important commodities within this sub-sector. The fuels sub-sector is the least important in economic terms. It comprises coal, crude oil and natural gas.

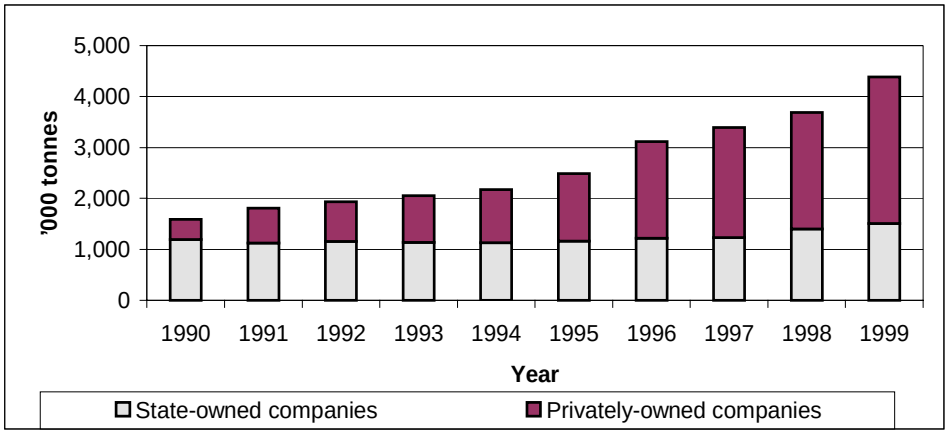
During the last decade the mining sector contributed an average of 8.5% to the country's GDP. Between 1990 and 1999, 46.71% of total exports were sourced from the mining sector. Copper was the principal commodity, representing 38.7% of all exports in this period. For many regions the mining sector is the main source of growth and income, especially in the northern part of Chile. For example, in 1996 the mining sector contributed 56%, 47%, 22% and 15% respectively of the Gross Regional Product (GRP) for the regions of Tarapacá (I), Antofagasta (II), Atacama (III) and Coquimbo (IV).[6] In southern Chile, mining is an important source of income only in the regions of Bernardo O´Higgins (VI) and Magallanes (XII), contributing 25% and 20% of GRP respectively.

As Figure 1 shows, copper production increased slowly during the 1990s. Private production increased from 393,000 tons in 1990 to 2,875,000 tons in 1999. The significant increase in production by private companies over the decade is mainly due to the opening of new mines, especially La Escondida, Candelaria, Zaldivar, Cerro Colorado, El Abra and Collahuasi.

[5] The survey was sent to 50 mining companies in Chile. The survey aimed to obtain basic information on environmental management by foreign and domestic companies. The response rate was 26%. The respondent companies account for approximately half of total mining production in the country.

[6] Chile is divided into 13 administrative regions, numbered from I to XII from the north to the south. Region XIII is the Metropolitan Region of Santiago.

**Figure 1: Copper Production by Company Type, 1990-1999**




Source: COCHILCO, 2000.

***(ii) Investment***

The increase in private investment is attributable to the rise in foreign direct investment. Table 1 shows the share of FDI in total investment in the mining sector. This ranged from 61.7% in 1996 to 78.3% in 1998. Decree 600 adopted in 1974 catalysed FDI in the mining sector. It applies to investment in all economic sectors of the country, establishing non-discriminatory treatment for national and foreign investors, unfettered access to domestic markets and sectors, elimination of payments for the repatriation of utilities and the possibility for foreign investors to opt for a special tax regime providing long-term tax stability.

Chapter XIX of the Compendium of Regulations for International Exchanges of the Chilean Central Bank adopted in 1985 is an additional pro-investment policy instrument. This instrument stimulated investment in the forestry sector but it was irrelevant in the mining industry.[7]

FDI in the mining sector between 1974 and 1999 amounted to US$14.72 million, equivalent to 36.2% of total FDI in this period (totalling US$40.66 million). Between 1974 and 1989, FDI in mining amounted to US$2.40 million. This figure rose to US$12.323 million between 1990 and 1999. (See Figure 2.)

**Table 1: FDI and Domestic Investment in the Mining Sector, 1996-1999 (US$ million)**

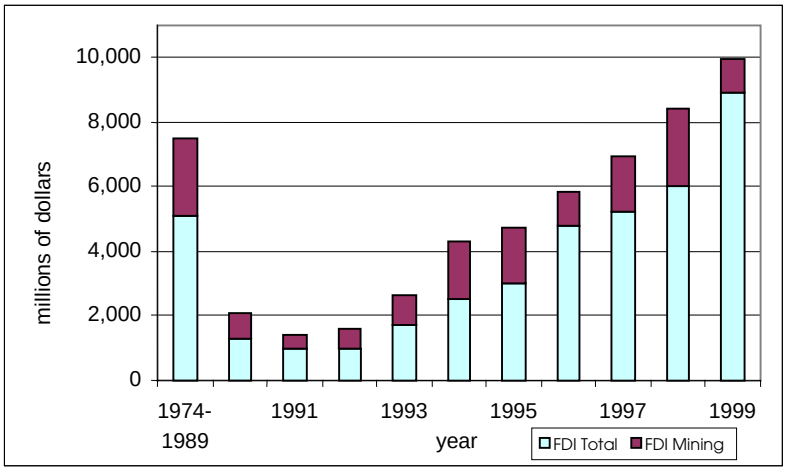
| Year | FDI | Domestic Investment[8] | Total Investment | % FDI |
|---|---|---|---|---|
| 1996 | 999 | 619 | 1.618 | 61.7 |
| 1997 | 1.705 | 848 | 2.553 | 66.8 |
| 1998 | 2.394 | 665 | 3.059 | 78.3 |
| 1999 | 1.068 | 434 | 1.503 | 71.1 |

Source: Authors' calculation from data in COCHILCO, 2000.

[7] CEPAL, op. cit.

[8] As a proxy for domestic investment in the mining sector, figures for the state-owned company CODELCO were used.

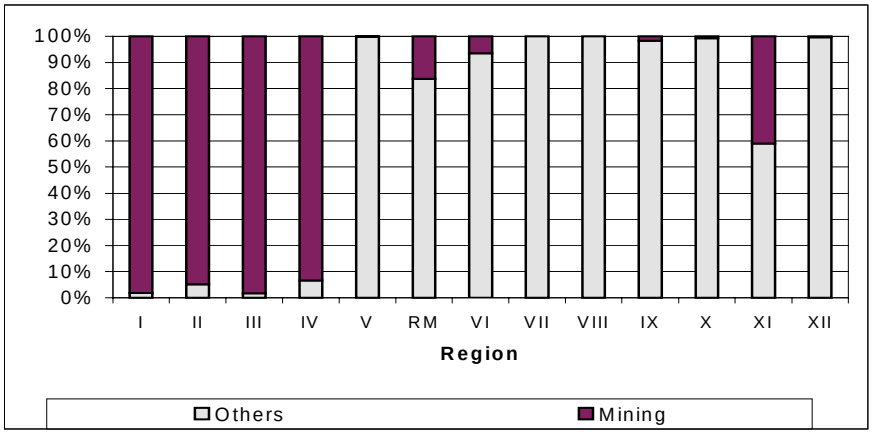
**Figure 2: FDI in the Mining Sector, 1974-1999**




Source: Foreign Investments Committee, Chile.

Between 1974 and 1999, 36% of FDI in mining went to Region II, 20% to Region I and 18% to the Metropolitan Region. The remaining 26% went to regions IV, V and VI. In northern Chile almost all FDI has been in the mining sector. For example, between 1979 and 1999, 98%, 95%, 98% and 93% of FDI in regions I, II, III and IV respectively was in mining (see Figure 3). The table in Appendix 2 lists investments in large-scale mining between 1974 and 1998.

**Figure 3: Contribution of FDI in Mining by Region, 1979–1999**




Source: COCHILCO, 2000.

***Peru***

***(i) Production***

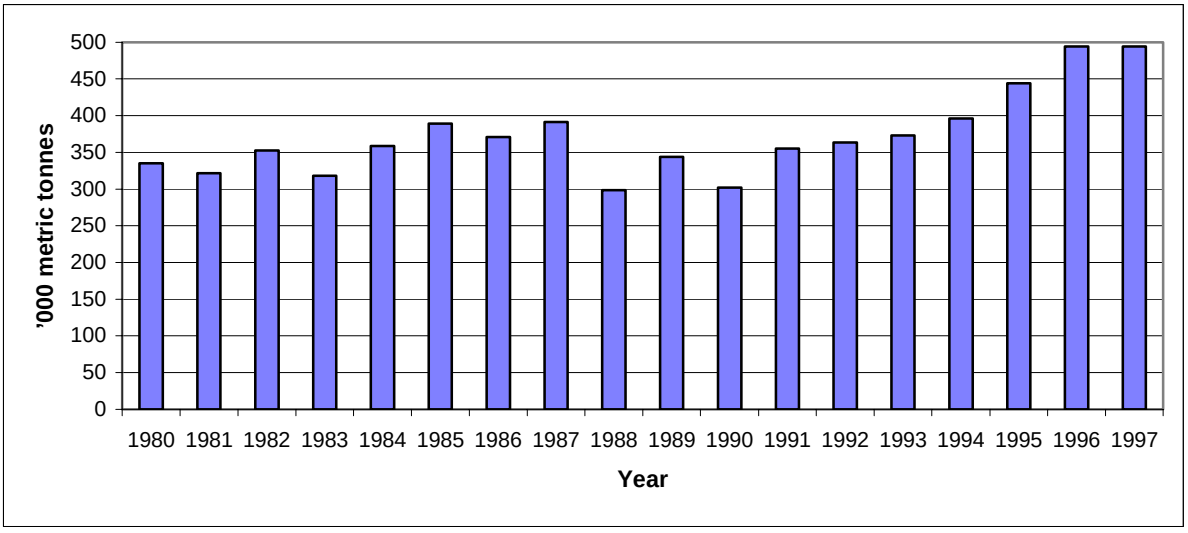
Peru has a long tradition in mining, an activity with a significant share in the national economy. Between 1990 and 1997 mining contributed 44.5% to total exports. In 1997 production from metal

mining was responsible for 7% of GNP, an amount that rose to 10% when smelting and material refining activities are included.[9]

In 1997, 33.4% of the value of mining production came from copper, followed by zinc (28.8%), gold (24.1%), silver (9.3%) and lead (4.4%) (Ibid). Copper production is undertaken by large, medium and small-scale operators. Large-scale mining accounts for 93% of national copper production, with Southern Peru Copper Corporation (SPCC) the dominant producer. The other large mining companies are BHP Tintaya, Compañía Minera Cerro Verde and Centromín Perú. Foreign investment is present in all these companies. Domestically owned companies dominate medium-scale mining operations. This sector contributes about 6% to national copper production (Ibid).

Copper production has increased quickly in recent years (see Figure 4). This contrasts with the situation in the 1980s when unfavourable macro-economic policies and a complicated political and social context hindered expansion in production.

**Figure 4: Copper Production, 1985-1997**




Source: Anuario Minero del Perú, 1997

### *(ii) Investment*

The tariff structure and multiple exchange rate system that prevailed in Peru until 1990 resulted in a cost disadvantage averaging 40% for mining companies compared to their international competitors.[10] This, together with social and political instability, reduced the attractiveness of the country for long-term investment in the mining sector. Indeed, since the beginning of the 1970s investment in the sector had been stagnant. The only private investment was the development of the Cuajone mine by SPCC in 1976, which was not nationalised. All the other mining projects carried out during this period (Cerro Verde, Tintaya, Cobriza) were all public sector investments. At the beginning of the 1990s the Peruvian government initiated a series of structural reforms to improve the country's investment environment. Initiatives included adopting a coherent exchange rate[11], reducing and subsequently

[9] Pascó-Font, 2000.
[10] Ibid.
[11] Previously, each sector had a different state-fixed exchange rate.

eliminating export taxes, reforming tariffs, adopting legislation to promote private investment with the objective of attracting foreign capital and launching the privatisation process in the mining sector.[12]

The shift in FDI in the mining sector between 1992 and 1999 is shown in Table 2. It increased on average by 18% annually during this period while the growth of total FDI amounted to 35.9% annually. In this context, FDI in mining as a share of total FDI declined from 37% in 1992 to 19.2% in 1999. On the other hand, foreign investment as a share of total investment (foreign and domestic) in the mining sector increased from 44% in 1992 to 76% in 1996.

**Table 2: Shift in FDI in Peru, 1992-1999 (US$ million)**

| | **1992** | **1993** | **1994** | **1995** | **1996** | **1997** | **1998** | **1999** | **Average 1992-1999 (%)** |
|---|---|---|---|---|---|---|---|---|---|
| FDI in Mining | 557 | 565 | 876 | 1,046 | 1,141 | 1,225 | 1,364 | 1,649 | 17.8 |
| Total FDI | 1,503 | 1,642 | 4,450 | 5,541 | 6,232 | 7,267 | 7,998 | 8,573 | 35.9 |
| Mining FDI/Total FDI (%) | 37.0 | 34.4 | 19.7 | 18.9 | 18.3 | 16.9 | 17.1 | 19.2 | |

Source: Calculated from data in CONITE and Pascó-Font (2000)

The guarantees and incentives provided to foreign investors at the beginning of the 1990s as well as the privatisation process were crucial to the flow of investment. Foreign companies acquired the state mining companies Hierro Perú, Cerro Verde, Tintaya and Cajamarquilla, La Granja and Antamina. At the end of 1997 the state, which in 1990 controlled 50% of mining production, had reduced its participation to 1.5%.[13]

The table in Appendix 2 lists investments in large-scale mining between 1992 and 2001.

**The Environmental Effects of FDI**

The environmental effects of mining have been well researched and discussed extensively in numerous international and national forums. Currently the Mining, Minerals and Sustainable Development Project (MMSD) is receiving considerable attention from industry participants. Rather than discussing the different environmental impacts from mining, the focus of this paper is on the question of the environmental impact specifically attributable to foreign direct investment. Before analysing this interaction, it is important to keep in mind that mining involves the extraction of natural resource as well as aspects of contamination generated during the extraction and processing phases.

The traditional framework for identifying and evaluating the environmental impacts of trade is applied here to structure the analysis. According to this framework, environmental effects are differentiated by:

- scale effects - positive scale effects occur when the economic growth (in this case that deriving from FDI) creates a surge in the demand for environmental goods and the economic gains are used to address environmental problems. Negative scale effects occur in the absence of environmental regulations and management. Economic growth increases the use of natural resources and the generation of waste and residues. At a micro level scale

[12] Pascó--Font, op. cit.
[13] Ibid.

effects can refer to the increase in scale of individual operations and the corresponding impacts on the environment;

- structural effects - these relate to, *inter alia*, changes in the pattern of economic activity, including shifts from one product to another, price changes in input prices, changes in industry ownership and/or changes in efficiency. The changes might imply positive or negative environmental effects;
- technological effects - these refer, on the one hand, to positive spill-overs from the use of environmentally friendly technology in production and exploitation. On the negative side, there might be a transfer of obsolete technology or technology prohibited in the country of origin because of its negative environmental effects. This technology might be exported from the country of origin to another country where its use has not yet been restricted;
- regulatory/policy effects - these refer to potential effects on domestic environmental regulation. Positive impacts relate to pressures to improve regulation while negative impacts refer to downward pressure due to intense competition to attract foreign investment[14] (the so-called "race to the bottom").

We make several general observations. First, the differentiation between foreign and domestic investment is increasingly blurred. Joint ventures are common in the mining sector given the large amount of capital required to finance operations. The more open is the economy the more subtle the differentiation between large domestic and foreign investors. Nonetheless, as the discussion below highlights these subtle differences can still be extremely important.

Second, it is very difficult to provide an overall evaluation about the effects of FDI in an economic sector. Pascó-Font, for example, argues that FDI played an important role in the success of Peru's privatisation process. He states that "The net environmental effect of this process [privatisation] is positive"[15] but quantitative and qualitative data are missing to substantiate this statement.

Third, our survey results indicate that foreign and domestic investors in the mining sector have converged in their environmental management practices over the last decade. Today, all mining companies have environmental departments with an average of four employees, all companies have established water and air quality monitoring systems although not for soil quality and all companies have an environmental policy and implementing guidelines. The average amount spent on environmental affairs in the mining companies surveyed represents 1-5% of the overall company budget. This result compares to previous findings, such as by Geisse[16] and Borregaard et al.[17] which highlighted the difference in environmental performance between foreign and domestic companies in the 1980s and early 1990s. The involvement of Chilean state-owned copper company CODELCO alongside multinational mining companies in important initiatives to improve the environmental performance in the sector - such as the MMSD project referred to earlier - reinforces our finding. On the other hand, some differences between foreign and domestic investors in the mining sector are discernable. For example, to date only foreign-owned companies have been certified to ISO 14001 standard.[18]

Motivations behind the environmental activities and priorities of mining companies, such as existing environmental regulations, environmental awareness of civil society, environmental liabilities, are

[14] For a detailed description of this analytical framework and its components see UNEP, 1999 and OECD, 1995.
[15] Pascó--Font, op. cit.
[16] Geisse, 1990.
[17] Borregaard et al., 1998.
[18] In Chile the ISO 14001 certified companies in the mining sector are La Escondida (owned by BHP) and Candelaria (owned by Phelps Dodge)

analysed in the last part of the paper. Different factors can affect the environmental effects of FDI. For example, while FDI can exert an influence on domestic environmental regulation, the same regulations can also act to moderate the environmental effects of FDI.

***Scale Effects***

In both Chile and Peru the mining sector has undergone rapid expansion, catalysed by foreign investment. Undoubtedly, this expansion, in Chile by a factor of three in the 1990s, implies significant environmental effects. Even the cleanest production process still has environmental effects, especially in mining. These include air emissions from smelting, dust from mineral extraction, water contamination due to tailings or acid mine drainage, soil contamination from wastewater that contains heavy metals and arsenic from smelting, toxic and non-toxic solid waste and landscape modification. Increased investment in mining implies more environmental effects resulting from the expansion of production. However, these effects can be partially offset by the use of cleaner and more modern technologies. In this way, scale effects are not necessarily related in a linear manner to environmental and production effects. Cleaner technology can make a difference.

In Chile, the main environmental impacts from mining relate to air contamination, water contamination, and water use. [19] Table 3 shows production increases by mining company for the period 1990-1999.

**Table 3: Chilean Copper Production By Company[20] ('000 Of Tonnes Of Fine Copper)**

| Company | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | Participation 1999 (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Codelco-Chile | 1,195 | 1,125 | 1,156 | 1,139 | 1,134 | 1,165 | 1,221 | 1,231 | 1,403 | 1,508 | 34.4 |
| Enami | 142 | 149 | 149 | 154 | 119 | 127 | 128 | 97 | 83 | 71 | 1.6 |
| Mantos Blancos | 73 | 79 | 69 | 75 | 76 | 76 | 122 | 133 | 138 | 152 | 3.5 |
| Disputada | 112 | 104 | 132 | 181 | 188 | 199 | 201 | 202 | 216 | 248 | 5.7 |
| Escondida | 9 | 298 | 336 | 389 | 484 | 467 | 841 | 933 | 868 | 959 | 21.9 |
| Cía. Minera El Indio | 27 | 27 | 25 | 28 | 32 | 35 | 35 | 32 | 28 | 15 | 0.3 |
| Michilla | - | - | - | - | 27 | 56 | 63 | 63 | 62 | 61 | 1.4 |
| Candelaria | - | - | - | - | 31 | 150 | 137 | 156 | 215 | 227 | 5.2 |
| Cerro Colorado | - | - | - | - | 21 | 36 | 59 | 60 | 75 | 100 | 2.3 |
| Quebrada Blanca | - | - | - | - | 7 | 46 | 68 | 67 | 71 | 73 | 1.7 |
| Zaldívar | - | - | - | - | - | 22 | 78 | 96 | 135 | 150 | 3.4 |
| El Abra | - | - | - | - | - | - | 51 | 194 | 199 | 220 | 5.0 |
| Collahuasi | - | - | - | - | - | - | - | - | 48 | 435 | 9.9 |
| Lomas Bayas | - | - | - | - | - | - | - | - | 19 | 45 | 1.0 |
| Los Pelambres | - | - | - | - | - | - | - | - | - | 12 | 0.3 |
| Others | 30 | 29 | 66 | 88 | 101 | 110 | 112 | 128 | 127 | 108 | 2.5 |
| | | | | | | | | | | | |
| Total | 1,588 | 1,811 | 1,933 | 2,054 | 2,220 | 2,489 | 3,116 | 3,392 | 3,687 | 4,384 | 100.0 |

Source: COCHILCO, Statistics for Copper and Other Minerals 1990-1999.

[19] See for example Blanco et al., 1997; Borregaard et al., 2000.
[20] With the exception of Codelco and Enami, all are privately-owned companies.

As Table 3 shows, the scale of total production as well as that from individual mines has increased over time. For example, mines operated by CODELCO-Chile produced just over 1.5 million tons of copper in 1999[21].

### *(i) Air Pollution*

Control of sulphur emissions from copper smelters is a priority environmental issue in Chile. Despite a substantial reduction in emissions over the last decade (see Table 4), the problem remains significant. Their impacts relate to human health, ecosystem functioning and agricultural production.

**Table 4: Approximate Sulphur Emissions from Smelters in Chile**

| | **Chuquicamata's Smelter** | **Paipote's Smelter** | **Ventanas Smelter** |
|---|---|---|---|
| **Year** | **Sulphur (tons/year)** | **Sulphur (tons/ year)** | **Sulphur (tons/ year)** |
| 1993 | 215.000 | | 64.000 |
| 1994 | 160.000 | | 62.000 |
| 1995 | 150.000 | 35.000 | 60.000 |
| 1996 | 160.000 | 30.00 | 55.000 |
| 1997 | 115.000 | 20.000 | 45.000 |
| 1998 | 105.000 | 17.000 | 23.000 |
| 1999 | 120.000 | 10.000 | 15.000 |

Source: Lagos, Lehudé and Andía, 2000.

Chagres is the only smelter that is foreign-owned (Exxon is the owner). Given that Chagres represents less than 5% of Chile's total smelting capacity, its emission data are not included in Lagos, Lehudé and Andía (2000)22. Nonetheless, local farmers consider the effects of its emissions as significant.23

The increase in production of refined copper from smelters over the last decade is much smaller in relative terms than the increase in overall copper production (see Table 12). This suggests that most of the additional copper produced in foreign-owned operations is either exported in the form of copper concentrate (before smelting) or it is based on hydrometallurgical processing, which does not require smelting[24].

[21] CODELCO-Chile comprises all CODELCO operations.

[22] For a comparison in emissions between Chagres and CODELCO smelters see the section on technological effects.

[23] Personal communication with agricultural producers in the area. They claim that there has been an effect on production. This assertion has not been proven by monitoring results.

[24] Currently, two main methods are used worldwide to process copper ores. The most important one, probably used for more than 75% of the total primary copper produced in 1995, is the "traditional" method, which consists of crushing, grinding, flotation, smelting and electro-refining. This method is applied to sulphide ores, i.e. to "ores" that contain sulphur rather than oxygen. Chalcopyrite, CuFeS2, is the most common copper species in Chile's copper deposits. The second method is termed "hydrometallurgical". This method consists of crushing, agglomeration (optional), leaching, solvent extraction, and electro-winning. The method can be applied to oxide species such CuO, Cu2O, carbonates, some silicates and under certain circumstances, to simple sulphides such as chalcocite and covellite, $Cu_2S$ and CuS. When properly used, hydrometallurgical processing is a more environmentally friendly process. Chemical species treated usually do not contain sulphur and it requires much less energy than the traditional process because the ore is not finely ground and there is no smelting involved.

No systematic data are available on the impact on mine workers of air pollution from dust and particles. We are also not aware of any monitoring of these emissions for such workers.

### *(ii) Water Contamination*

Water contamination relating to mining in Chile is an under-researched issue. There are no specific studies of acid mine drainage or of the impact of mining activities on water quality. Systematic monitoring of these areas is not undertaken. Nonetheless, some information about these issues is available. For example, following a court decision in 1990 the División Salvador of CODELCO (located in Region III) was compelled to construct a tailings dam with a treatment plant to treat and store mine waste instead of discharging it into the sea. For over 30 years these tailings were discharged into the Bay of Chañaral, resulting in sand silts with heavy metals and the accumulation of copper and heavy metals in some marine species. Another example is Enami's Planta Osvaldo Martínez located downstream from Diego de Almagro (in Region III). Discharge of mine tailings into the Salado River stopped in 1990. Currently, mining causes contamination in the following rivers: San José, Loa, (Region II), Limari, Cogotí (Region IV) Aconcagua, Chacabuquito, Rapel (Region V), the Alhué marsh and in the Pampa del Tamarugal (Region I) - Quebrada Cahuisa.[25]

The Universidad de Chile has carried one of the few studies on mining and water contamination.[26] It showed that the Loa River has consistently exceeded standards for arsenic levels in irrigation water and drinking water. There is, however, no apparent direct relationship between copper production levels and the arsenic concentration in the waters downstream of the Loa River.[27] To date, the only severe case of water contamination related to large-scale mining operations was El Chañaral, in which tailings from the state-owned copper mine were discharged over many years directly into a bay close to the mine. This damaged the ecosystem in and around the bay, and remedial actions have been too little, too late.

### *(iii) Water Use*

Water use is critical in Chile's mining regions, which are mainly desert areas. Each water right granted to mining companies implies an opportunity cost with regard to other productive activities. In regions II and the III the mining sector consumes about 70% and 60% respectively of local water resources. The General Water Authority has calculated a 50% increase in water demand by the mining sector in the 1993-2017 period based on existing and projected investments.[28] In northern Chile, the increased demand for water from the mining sector may trigger a price increase in water use rights. Mining operations also tap underground water sources. It is important here to determine whether the aquifers used are confined or not. If the aquifer is confined, meaning there is no entry or exit of water, its use would correspond to exploitation of a non-renewable resource.

It is unclear to what extent technological improvements, such as the application of hydrometallurgical instead of pyrometallurgical processes[29], can reduce the use of water. In addition, little is known about the potential contribution of water recycling. Our survey results indicate that most of the domestic

[25] Universidad de Chile, 1999.
[26] Ibid.
[27] A cause-effect relationship could not be proved between the operation of the CODELCO mine and pollution of the river.
[28] General Water Authority, 1997.
[29] Unit consumption figures vary between 0.2 and 0.7$m^3$/ton of mineral in hydrometallurgical processes and 0.5 to 2.0 $m^3$/ton of mineral in pyrometallurgical processes.

mining companies recycle less than 10% of the water used whereas the majority of the foreign-owned operations recycle more than 50%.

### *(iv) Other Effects*

Beyond the direct environmental impacts of production, it is important to bear in mind that minerals are a non-renewable finite resource. A faster rate of extraction accelerates resource depletion and can lead to the early closure of a mine, with important implications for local communities. The dependence on mining operations is significant in some areas, such as in Chile's region II. This can have serious consequences for economic and social sustainability in the affected areas.[30] There have been several mine closures, including the saltpetre operations in northern Chile. They are now ghost towns and tourist attractions.

Many experts and local interest groups argue that the key sustainability issue related to mining is resource depletion, which has implications for local development.[31] In general, in Latin America there are no special taxes on mining operations to assure the economic, social and environmental sustainability of the host region after mine closure. Indeed, there are few programmes to fund local development while the mines are in operation. At present, it is up to the individual company whether sustainability schemes for local communities are established. One of the better examples is the Foundation La Escondida in Chile's region II. The foundation receives income from interest generated by an endowment from Minera Escondida.[32] Notwithstanding this positive development, establishing a foundation is not the only way to ensure long-term sustainability. For example, state-owned mining company CODELCO is investing large sums in local community development programmes and has implemented initiatives with indigenous and agricultural communities.[33] Preliminary analysis indicates that foreign-owned companies typically do not differ from domestic companies on this issue. This appears to be the case whether the indicator is amount of resources provided to the community[34] or the quality of community relations as reflected, for example, by the degree of participation of local groups in the design and implementation of company-financed projects to improve the quality of life in communities. Rather than long-term agreements between the company and the local community, there is a tradition of paternalistic relationships. This pattern will take time, effort and creativity to change.[35] The Mining, Minerals and Sustainable Development (MMSD) initiative stresses the social responsibilities of the mining industry in local development and the necessity to make progress in this area, especially in Latin America.

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[30] Even though copper companies in Chile's region II have historically discovered ever larger resources this phenomenon cannot be expected to endure. Borregaard et al., 2000 suggest that most large operations expect to close between 2017 and 2030.

[31] The preliminary results of the Mining and Minerals Sustainable Development Initiative for Chile and Peru indicate that stakeholders in both countries give highest priority to local development. This confirms the finding of previous, more limited studies such as Borregaard et al., 2000.

[32] For a more detailed description of the Foundation see Ojeda, 2000.

[33] Mining Policy Research Initiative, Uruguay, together with the CIPMA, Chile: "Actividades de Desarrollo Comunitario de Empresas Mineras y de Explotación de Recursos Naturales en América Latina y el Caribe", March - August 2001.
See project undertaken by the Mining Policy Research Initiative, Uruguay (forthcoming).

[34] Borregaard et al., 2000 attempted to quantify the resources mining companies spend in a local community in Chile. The absence of systematic identification in company policies and accounting procedures meant that exact amounts were unquantifiable. Figures included financial (generally amounting to not more than about US$100,000 annually) and in-kind contributions.

[35] See project undertaken by the Mining Policy Research Initiative, Uruguay (forthcoming).

The environmental impact and risks that remain after mine closure are also an important aspect. Eight out the ten foreign companies who responded to this question in our survey indicated that they have prepared a mine closure plan but none of the domestic mining companies.[36] Very few companies have prepared a plan either to return the area to the pre-existing condition or to monitor long-term environmental risks. Again, there is a scale effect in terms of long-term impacts beyond mine closure.

Pascó-Font asserts that "[u]p to a few years ago the environmental performance of the Peruvian mining sector has been very poor."[37] The most significant environmental conflicts relate to air pollution around smelters and water contamination due to the absence of adequate tailings dams.[38] It should be recalled that in Peru foreign investment implied the acquisition and consolidation of existing mining operations.[39] Increases in production were based not on an expansion of operations but rather improvement of existing ones. Approximately 51% of the increase in production resulted from the use of hydrometallurgical processes[40] suggesting that scale effects and technological changes have co-existed. In the case of Southern Peru Copper, Pascó-Font calculated scale and technological effects from the 100,000 tons increase in production of refined copper between 1990 and 1997.[41] The conclusion was that the latter substantially outweighed the former. There have not been any similar calculations for total Peruvian copper production but Pascó-Font does provide examples of production increases resulting from investment in technological improvements.

In the case of Chile, foreign investment in the mining sector has not been associated with the acquisition of existing operations but rather the establishment of new projects. Scale effects are likely to outweigh technological effects. The exception would be where cleaner technologies introduced by foreign investors have been widely adopted throughout the sector as a whole. This is analysed in the following sections.

***Structural Effects***

Two structural effects of FDI in mining that have potential environmental effects are:

- the relative increase in the production and export of copper concentrate versus refined copper in Chile; and
- the increase in production and exports contributing to a decline in world market prices.

The former could have positive environmental impacts given that smelting to obtain refined copper generates air pollution. However, a reduction in refining implies less value-added to the raw ore, less workers required and less funds potentially available for community development. In a broad perspective, the environmental impact might be negative.

Authors such as Blanco et al. (1997) have commented on the second point in relation to the effect of structural changes on the size of mining companies.[42] In particular, the economic viability of small-scale mining operations faced with declining world market prices doubtful. In Chile, government subsidies are available to small-scale miners when world market prices are depressed. The environmental effects of small-scale mining in Latin America have been analysed by commentators

[36] Not yet compulsory in Chile or Peru but under consideration.
[37] Pascó-Font, op. cit., p. 24.
[38] See for example Tolmos, 2000; Pascó-Font, op. cit.
[39] An exception is the Antamina project which should enter production in 2002.
[40] Pascó-Font, op. cit.
[41] Ibid.
[42] Blanco et al., 1997.

such as McMahon et al.[43] In their view, "…on average artisanal and small scale mining is significantly dirtier per unit of output than other types of mining."[44]

Subsidising small miners when world market prices are low is not a solution. As noted in IENIM, "solving the environmental and social problems associated with informal mining should focus on alleviating the worst aspects of the situation without subsidizing or otherwise prolonging uneconomic operations."[45]

Ambiguity prevails regarding the social and community development effects of small-scale mining. On the one hand, it can provide more (at least perceived) net benefits to the local community. On the other hand, it can result in cultural impacts when miners outnumber the local population and form a dominant sub-culture.[46]

***Technology Effects***

Foreign investment in Peru's mining sector has stimulated the use of environmentally friendlier technologies, motivated largely by international competitiveness concerns.[47] This has contributed to better environmental performance by the sector.[48] Examples of investments in new technologies include US$445 million spent on modernising Southern Peru Copper. Of this sum, US$135 million was committed to building a sulphuric acid plant.[49] Improvements to the tailings dams and other environmental projects were also funded. In the case of Sociedad Minera Cerro Verde, investments in new technologies amounted to US$485 million between 1993 and 1998.

Peru's privatisation process catalysed a technological transformation in the mining sector. For example, increased use of hydrometallurgical processes reduced environmental impacts compared to the traditional pyrometallurgical processes because of lower water use and no air emissions.

The case of Chile is somewhat different. State-owned CODELCO still exists and it had to carry the burden of funding the necessary investments for technological upgrades in the old mines. Between 1994 and 1999, CODELCO invested US$727 million in environmental improvements, including in air pollution control, tailings dams and other projects. As Borregaard et al. have noted, however, the introduction and use of environmentally friendly technology cannot be attributed directly to FDI.[50] Many of the new technologies such as the Teniente furnace have been developed by Chilean companies while others like the hydrometallurgic process have been adopted and adapted quickly by both foreign and domestic companies.

Some commentators believe that currently there are no technological differences between new CODELCO operations and those of foreign-owned mining companies. However, for older CODELCO operations differences are still evident. For example, concerning emissions Blanco et al. have analysed the characteristics of air emissions generated by the Exxon-owned Chagres operation compared to those generated by Chilean owned projects. The analysis indicated that:

[43] McMahon et al., 1998.
[44] Ibid, p. 10.
[45] IENIM, 1996, p. 74.
[46] See McMahon et al., 1998.
[47] Pascó-Font, op. cit.
[48] Ibid.
[49] According to Pascó-Font, op. cit., Southern Peru Copper plans to invest in a Kennecott-Outokumpu Flash Converting Process by 2003, a technology which would minimise emissions.
[50] Borregaard et al., 1998.

- the emission levels of all the refineries have been (or will be) reduced;
- Codelco began to reduce emissions from its refineries at the end of the 1980s-beginning of the 1990s. The highest reductions were expected in 2000;
- Enami's refineries were the last to implement reduction plans. There were no significant emission reductions before 1997;
- Exxon's refinery demonstrated significantly better environmental performance than the state-owned refineries. This operation began to investing in environmental improvements in the mid-70s with the construction of the first sulphuric acid plant. During the 1980s and 1990s the refinery received considerable environmental upgrades. Its emissions per unit of refined copper are far lower than those of Codelco and Enami, averaging 30% less than the emissions of Codelco and Enami in the period examined.[51]

In the area of "soft technologies" such as environmental management, there were wide differences between CODELCO and foreign-owned companies in the 1980s and early 1990s. Today, these differences have narrowed. Our survey results suggest that both domestic and foreign-owned mining companies have a department of environment, employing on average four staff. Both types of companies indicate that they spend between 1 and 5% of their budget on environmental issues. It is unclear whether the activities of the foreign-owned companies spurred this development or whether it would have occurred by itself. Nonetheless, some differences exist. For example, to date the only ISO 14001 certified mining companies in Peru and Chile are foreign-owned. In addition, most foreign-owned companies have an environmental risk prevention plan as well as a mine closure plan.[52] Domestic companies lack either. Some authors[53] have also referred to management and budgetary structures in state companies that do not permit the required flexibility and dynamism to confront environmental challenges.

There have been considerable investments in technology, some driven by cost considerations and increases in productivity while others have had primarily environmental improvement objectives. In the case of Peru investments in new technology have tended to be part of the acquisition "packages" negotiated between the government and foreign companies in the privatisation of state-owned companies. As Pascó-Font notes, "[t]he environmental problems of the state companies were responsible for the delay in the privatisation process. The investors participating in the bidding wanted to assure some formal agreement with the state to assume the historical environmental burden."[54] Privatisation presented an opportunity to reach agreement on the introduction of environmental improvement measures by sharing the financial cost.

The question of potential positive technology spill-overs through FDI has been analysed by several authors. They conclude that they have been limited. For example, Kuramoto describes in detail the introduction of new technology in the foreign-owned Minera Yanacocha in Peru.[55] The author emphasises that the operation uses the most advanced pollution control technologies, stating that "The technologies applied in all the processes in Yanacocha are clean."[56] On the other hand, the author also points out that "[t]he Yanacocha mine maintains very few production and commercial relations with the local agents"[57], limiting the possibility of technology transfer beyond the mine's immediate site.

[51] Blanco et al., op. cit.
[52] These closure plans are still rather basic in detail, however.
[53] See for example Borregaard et al., op. cit.
[54] Pascó-Font, op. cit.
[55] Kuramoto, 1999.
[56] Ibid, p. 39.
[57] Ibid, p. 3.

***Regulatory Effects***

In both Chile and Peru a parallel process of privatisation, increase in foreign direct investment and improvement in environmental legislation is observable. Without a more detailed analysis it is difficult to establish which comes first: FDI or improvement in environmental legislation. There does seem to be a direct link between the two, however. In the case of Chile, Borregaard et al. describe in some detail how investments by foreign mining companies stimulated improvements to the legislation, including pressure to establish an environmental impact assessment (EIA) process, enforce existing environmental standards and require decontamination plans to be prepared.[58] Several authors[59] have described how all the foreign-owned companies prepared environmental impact assessments when this was not obligatory and how they accepted being the first to trial the new EIA process. The number of mining-related EIAs up to 1995 was approximately 50, about half of all the EIAs submitted up to then. As Lagos states, the mining EIAs have used stricter standards than those applied elsewhere in Chile and in many cases refer to aspects not even regulated by Chilean legislation.[60] An example of this is the standard required for tailings dams, which go far beyond the obsolete Chilean regulation of 1970.

Foreign mining companies not only applied international environmental assessment procedures, standards and management practices but they also lobbied the Chilean authorities to have clear regulations defined. Pagani et al. state that the experience accumulated with the voluntary submission of environmental impact studies has been significant in the definition of the EIA system within the Framework Environmental Law.[61]

Lagos argues that "internationalisation has brought external requirements, in the sense of raising environmental standards, and completing and making more coherent the legislation on the subject".[62] According to Lagos, "the contribution of foreign companies toward introducing the most modern environmental technology, in terms of equipment, processes and management in Chile, has been instrumental for the domestic companies of the sector, as it has enabled the transfer of those technologies within the country, to the benefit of the national mining sector."[63]

O'Brien assigns Exxon, who acquired the Compañía Minera Disputada de Las Condes (CMD) in December 1977, an important role.[64] He states that the company had a clear idea of the need to comply with home standards even where Chilean legislation left a void.

Jaime Solari, who in 1990 was the first environmental co-ordinator at the Mining Ministry, clearly emphasises the influence of foreign companies on environmental management in the mining sector. He believes that his work and the motivation for hiring him arose from a concern to create a clear regulatory framework for foreign investors and to determine what was required in order to raise the environmental performance of state-owned companies to that of foreign competitors[65].

[58] Borregaard et al., op. cit.
[59] McMahon et al., 1998.
[60] Lagos, 1997.
[61] Pagani et al.,1992.
[62] Lagos, op. cit.
[63] Ibid.
[64] O'Brien,1994.
[65] Personal communication, May 1998, cited in Borregaard et al., 1998.

In the case of Peru, several authors[66] have described the development of the new legislative framework for the mining sector, including PAMA and EIAs. However, all authors emphasise the weakness of Peru's enforcement system and the limited impact of environmental regulation. At the same time, Pascó-Font states that:

> Given that the principal actors in the copper industry are transnational companies, the institutional shortcomings have not had significant effects. The foreign investors act with an environmental ethic that corresponds to world standards and in various cases they have applied environmental standards that go beyond Peruvian legislation.[67]

In order to highlight the commitment of international investors, Pascó-Font cites the recent experience of EIAs with the mining company Antamina.[68] It is required to comply with the domestic legislation, relevant World Bank guidelines as well as the environmental and social policies of the foreign-owned mother company. Pascó-Font emphasizes the high standard of the EIA but at the same time points out that "…for now it is premature to evaluate the impact these projects will have."[69]

It is unclear how far foreign investment in Peru has influenced the creation and improvement of domestic environmental legislation. The high standards of the foreign investors may have exerted upward pressure on environmental legislation in the country.

***Summary of Environmental Effects of FDI in the Mining Sector***

In general, a large number of foreign investors in the mining sector attempt to apply the latest technology and environmental management practices to their operations in Chile and Peru. This is noticeable in areas such as air pollution control, effluent management and water use. Weaknesses relate to sustainability issues such as local community development.

Scale effects are important regarding the scale of individual operations as well as overall production. Increasing scale places increasing pressure on natural resources and imposes new regulatory challenges. The size of investment implies a need for greater enforcement capacity. Certification schemes based on self-assessment or independent verification by a third party can only partially compensate for a lack of enforcement capacity. In general, neither Chile nor Peru is yet prepared to confront the issue of resource depletion. There is a lack of policies for ensuring local and regional sustainability post-mining. This is a serious problem in the context of FDI, requiring a coherent policy response. Beyond the question of resource depletion, resources used as inputs are also affected. Competition for scarce water is causing problems with regard to protecting biodiversity values and meeting water demand from human settlements.

If governments were to promote sustainability in the mining sector and promote the positive effects of foreign investment, potential technological spill-overs might be enhanced. Positive effects from FDI in the mining sector relate to the upward pressure on domestic regulation, as illustrated in the Chilean case regarding the introduction of an EIA process and a requirement for decontamination plans. The use of "soft" technology through environmental management practices is more established and quantifiable in foreign-owned companies. Certification schemes play an important role in this regard. The interface between certification schemes and local communities could provide an opportunity for local

[66] See for example Falla, 2000; Pascó-Font, op. cit.
[67] Pascó-Font, op. cit.
[68] Ibid.
[69] Ibid, p. 7.

communities to become more involved in the development of performance criteria. For example, company-community relations could receive particular attention in certification schemes. Certification is, however, not within reach of some small mine owners, which can create problems of exclusiveness and differentiation on the international market.

The existence or lack of a robust regulatory framework is important in several ways: to attract foreign investment, to close the gap between foreign and domestic investors in terms of environmental management obligations and to minimise environmental damage. In general, foreign investment has acted as a catalyst for improving domestic environmental legislation in the host country. The process of privatisation has also provided opportunities to address issues of environmental liability, as in the Peruvian case highlights.

**Domestic and International Pressures for Improved Environmental Performance**

Understanding the factors that influence the environmental behaviour of companies is critical to analysing the interrelation between FDI and the environment, and to developing policy recommendations. Understanding the motivations behind environmental improvement is essential for the design and implementation of policies, programs or specific instruments. These include influences at the international and national levels. The former include international NGOs, consumers' requirements, international financial markets, international industry associations, pressure by competitors or environmental guidelines established by the headquarters or parent company located abroad. National factors include local environmental regulations, environmental or other NGOs, local image, media pressure, national industry associations and lobbying by affected parties.

In the case of Chile and Peru, pressures for improved environmental performance in the mining sector derive primarily from the international level. National level factors have also exerted some influence but to a lesser extent. This is reflected in the literature and supported by our survey results and interviews with company personnel.

***Domestic Pressures***

The role of a strong domestic regulatory framework as one of the key variables in managing the environmental effects of FDI is a consistent theme throughout the literature. Some environmental NGOs consider it a pre-condition for FDI. Our survey results confirm the relevance of domestic regulation. Both domestic and foreign investors consider it one of the key factors influencing their environmental performance.

Theoretically, environmental regulation applies to both domestic and foreign investments without discrimination. In practice, however, there can be differences. In the case of Chile, the Chagres smelter had the lowest emission levels and was the first required under Chilean regulation to establish a decontamination plan, in 1992. This was a "voluntary" decontamination plan since the relevant official regulations did not come into force until several years later. Although this treatment was not criticised by the Exxon-owned operation, it is arguable that there was pressure on this foreign-owned operation to be the first to comply with the regulation even though it had yet to be adopted formally.

Environmental consciousness has only begun to develop and take on relevance in Latin America since the late 1980s - early 1990s. Increased environmental requirements imposed on investors by local communities, especially in highly sensitive sectors such as mining and forestry, are a phenomenon that only recently has become more widespread. In Chile, there are no NGOs or independent academic

centres specialising in mining and its environmental or social effects. This contrasts with Peru where several NGOs focus on the mining sector[70].

In the case of the Peruvian mining sector, authors such as Baker state that in the face of private investment in mining operations "…environmentalists within Peru and outside have called for companies to take a certain amount of responsibility in these cases."[71] The importance of the "environmental deals" negotiated between the Peruvian government and the foreign investors within the framework of the privatisation process should not be under-estimated. The effects can be considerable.

***International Pressures***

International pressure derives from NGOs, international organisations, clients and consumers and the financial market (in form of the shareholders as well as the capital market). Whereas major foreign investors generally receive some capital from international financial institutions (IFIs) such as the International Finance Corporation (IFC) or major private commercial banks, most domestic operations are either self-funded or financed through public funds or small local banks.

In the case of the foreign mining operations in Chile, these depend primarily on self-financing. Foreign commercial banks and IFIs do have some exposure, however.[72] In the case of La Escondida the IFC has 2.5% equity in the overall operation, funding that was crucial to the launch of the operation.[73] Under the terms of the agreement, La Escondida must carry out an annual environmental audit and meet domestic environmental regulations or, where relevant standards do not exist, IFC environmental standards.

Our survey results indicate that foreign mining companies generally attribute highest importance to the guidelines provided by headquarters or the mother company. This supports the findings of other studies.[74] For example, Borregaard et al. state that:

> The foreign mining companies, including smelters and copper exploitation, have adopted environmental policies and management practices that go far beyond national regulations. This behaviour is explained by the fact that most of these companies have their headquarters in Canada, USA, England, Finland, Australia and South Africa, and have a commitment to applying their home standards in all their foreign investments.[75]

These guidelines are a reflection of the shareholders' interest, the consumers and clients' requirements, pressure by NGOs and the requirements of financing institutions. Pascó-Font, for example, states that "[t]he multinational companies confront pressures of the large international NGOs in case there are any environmental problems. ASARCO, one of the principal [foreign] owners of Southern Peru Copper, has confronted actions by international NGOs due to the environmental problems in Ilo."[76]

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[70] For example GRADE, <<http://www.grade.org.pe>>; o Sociedad Peruana de Derecho Ambiental, <<http://www.spda.org.pe>>

[71] Baker, 1997.

[72] Personal communication with Rick Killam, Placer Dome, and Andrés Camaño, La Escondida.

[73] David Humphreys, Río Tinto. Paper prepared for an informal seminar on the mining and metals industry, OECD, February 2000

[74] See for example Lagos, op. cit.; Borregaard et al., 1997.

[75] Borregaard et al., op. cit.

[76] Pascó-Font, op. cit.

While there has been growing interest and an evolving body of literature referring to social and environmental responsibility schemes in international financial markets, there is still very little understanding and knowledge about how these pressures work "on the ground". In the case of FDI in mining in Chile and Peru, the literature is sparse. It is, however, a potentially important research question.

Social and environmental responsibility schemes developed recently by international financial markets include the Dow Jones Sustainability Index, the Global Reporting Initiative and the Social and Environmental Investment Funds.[77] IFIs have their own environmental standards that are generally in advance of the standards prevailing in Latin American countries. Major private commercial banks also require as a general rule strict performance covenants and compliance with World Bank or other internationally acceptable standards.[78] However, as Martin Whittaker of Innovest put it "[t]he mainstream financial sector still has to be persuaded of the benefits of addressing sustainability."[79]

The significance to international organisations of sustainability in the mining sector is demonstrated by recent conferences and initiatives such as the "Finance, Mining and Sustainability Conference" organised by the World Bank and the IFC in April 2001. UNEP's Financial Institutions Initiative and the Agreement on Environmental Guidelines for Export Agencies developed by the OECD are examples of other relevant work. One objective of these initiatives is to promote the use of positive and negative screens and best-of-sector approaches concerning sustainability performance. The initiatives are motivated by an awareness of the significant impacts of mining, especially locally, and the greater risk this implies to investors.[80] Shawn Mays, General Manager at Westpac Financial Services, points out that surveys of pension fund members show that human rights and environment are their two major concerns. He concludes that "[m]ining companies that do not address sustainability run the risk of increased cost of capital and loss of their license to operate."[81]

One indication of the importance of shareholder influence on social and environmental requirements in the mining sector is highlighted by the Los Pelambres project in Chile. This depended on financing from the Catholic church, who withheld support until the country started its democratisation process in 1990.

**Conclusions**

Overall, the dividing line between foreign and domestic investment is increasingly blurred. This is also the case concerning the environmental impacts of different types of investment. Whereas one or two decades ago the difference in environmental management between foreign and domestic companies was, at times, significant[82], today it has become more alike. There are positive and negative cases in foreign and domestic companies. In very general terms, FDI in mining in Chile and Peru has fared reasonably well in meeting defined environmental requirements.

[77] The latter in general do not direct funds to the mining sector. For a discussion of socially responsible investment see Robins, 2001.
[78] See for example Urda, 1997.
[79] Intervention at World Bank/IFC Conference on "Finance Mining and Sustainability", 8-9 April 2001, Washington D.C.
[80] J. Bond, Intervention at World Bank/IFC Conference on "Finance Mining and Sustainability", 8-9 April 2001, Washington D.C.
[81] Intervention at World Bank/IFC Conference on "Finance Mining and Sustainability", 8-9 April 2001, Washington D.C.
[82] See for example Borregaard et al., 1998 concerning the case of Chile's mining sector.

The biggest challenge, however, lies in efforts to promote local sustainability. This is an unresolved issue requiring urgent attention. Investors have a responsibility to assure local sustainability that lasts beyond the life of an operation. Foreign mining companies have to develop clear strategies regarding their interactions with the local community, identifying the local community's priorities and the creation of long-term partnerships. This issue also requires better public policy to be established. In both Chile and Peru there is a lack of public policies to assure local sustainability in mining operations and indeed a lack of clear policies on natural resource development. The combination of slow progress on this issue by even the more progressive investors and the lack of appropriate public policy has created a widening wedge between supporters of globalisation and those concerned with its impacts at the local level.

The second challenge is the need for information on environmental issues. A lack of data and information is noticeable, a gap that in this paper was partially filled by the survey and interviews. On some environmental issues there is no monitoring data (e.g. for soil contamination) and for others there is hardly any information at all (e.g. on acid mine drainage). Environmental impact assessments of new investment projects can generate relevant data if monitoring and public reporting are included as part of licencing conditions. Easily accessible and verifiable information is required if international certification schemes or environmentally oriented stock market listings are to become useful tools for monitoring the environmental performance of FDI.

It is clear that both local sustainability and the lack of information will require innovative strategies and further research. Testing of preliminary approaches has taken place in different countries and different regions.[83] An exchange of experiences would be useful. Co-operation between companies, between companies and the public sector, between companies and NGOs and between the public sector and NGOs is necessary in order to make progress. Initiatives such as the Mining, Minerals and Sustainable Development Project[84], the Non-ferrous Metals Consultative Forum for Sustainable Development organised by the International Copper Study Group, the International Nickel Study Group, the International Lead and Zinc Study Group and UNEP's Mineral Resources Forum help to create a dialogue between the different stakeholders and to start bridging the globalisation-local sustainability gap. These efforts need to be strengthened.

This paper has provided a preliminary analysis of the evidence. It poses more questions than it answers, the central ones being: Where (and for which stakeholders) does the responsibility to manage the social and environmental impacts of investment in mining lie? Are there sufficient tools (including regulatory and voluntary) and resources available at the international, national and local level to provide guidance for improving the social and environmental performance?

Finally, many investment projects referred to in this paper are relatively recent. Their actual financial and environmental performance will depend on short- and longer-term compliance with commitments expressed, whether on a voluntary or mandatory basis.

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[83] See for example the Thailand Business in Rural Development initiative described in Grieg-Gran, 2001 and the tax credit initiative in Papua New Guinea discussed in Borregaard et al., 2000.
[84] See www.mmsd.org

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## Appendix 1

### Table 1: Principal Investments in Mining in Chile in Accordance with DL 600, 1974-1998

| Foreign investor | Country of origin | Authorised investment (US$ million) | Actual investment (US$ million) | Receiving company |
|---|---|---|---|---|
| Cyprus El Abra Corp. | USA | 3.000 | 1.349 | Soc. Contractual Minera El Abra |
| Exxon Overseas Investment Corp. | USA | 2.400 | 1.995 | Cía. Minera Disputada de las Condes S.A. |
| Amcoll Limited | South Africa | 2.078 | 976 | Cía. Minera Doña Inés de Collahuasi |
| BHP Escondida Inc. | Australia | 1.725 | 1.052 | Minera Escondida Ltda. |
| Los Pelambres Investment Co.Ltd. | UK | 1.650 | 266 | Minera Los Pelambres |
| PD Candelaria Inc. | USA | 1.200 | 457 | Cía. Contractual Minera Candelaria |
| Nippon LP Resources BV | Japan | 1.100 | 187 | Minera los Pelambres |
| Westmin Resources Ltd. | Canada | 1.015 | 278 | Cía. Minera Lomas Bayas |
| RTZ Escondida Ltd. | UK | 900 | 591 | Minera Escondida Ltda. |
| Río Chile Inc. (Río Algom) | Canada | 772 | 564 | Cía. Minera Cerro Colorado |
| Falconbridge | Canada | 560 | 406 | Cía. Minera Doña Inés de Collahuasi |
| Outokumpu Copper Resources Chile B.V. | Finland | 500 | 409 | Cía. Minera Zaldivar. |
| Cominco Ltd. | Canada | 400 | 369 | Cía. Minera Quebrada Blanca S.A. |
| Macaines Mining Properties Ltd. | Canada | 400 | 305 | Cía. Minera Mantos de Oro. |
| Japan Collahuasi Resources B.V. | Japan | 360 | 248 | Cía. Minera Doña Inés de Collahuasi |
| Teck Gold Ltd. | Canada | 342 | 59 | Minera Sta. Rosa SCM |
| Minorco Société Anonyme | South Africa | 300 | 244 | Inversiones Minorco Chile Ltda. |
| JECO Corporation | Japan | 300 | 194 | Minera Escondida Ltda. |
| Sumitomo Corp. | Japan | 300 | 160 | Cía. Contractual Minera Candelaria |
| Kap Resources Ltd. | Canada | 132 | 115 | Minera Yolanda Ltda. |

Source: Foreign Investments Committee, Chile.

**Table 2: Investment in Large-Scale Mining in Peru, 1992-2001**

| Owners | Project | Mineral | Investment (US$ millions) | Period |
|---|---|---|---|---|
| Quellaveco (AngloA) | Quellaveco | Cu, Mo | 800 | 1993-2002 |
| Corona | Cerro Corona | Cu, Au | 250 | 1994-2003 |
| Shougang | Pellets plant | He | 172 | 1993-1999 |
| Cerro Verde (Cyprus) | Cerro Negro expansion | Cu | 485 | 1995-1999 |
| Cerro Verde (Cyprus) | Cerro Negro | Cu | 99 | 1999-2000 |
| La Granja (Cambior) | La Granja | Cu | 1.100 | 1994-2003 |
| BHP Tintaya | Tintaya expansion | Cu | 123 | 1995-1998 |
| Ref. Cajamarquilla | Equipment renovation | Zn | 50 | 1995-2004 |
| Ref. Cajamarquilla | Expansion 230.000 TM/year | Zn | 250 | 1996-1999 |
| Dore Run (Oroya) | PAMA | Cu, Zn, Pb, Ag | 107 | 1998-2007 |
| Dore Run (Oroya) | Improve processes | Cu, Zn, Pb, Ag | 85 | 1998-2007 |
| Yanacocha | Carachugo | Au | 37 | 1992-1997 |
| Yanacocha | Maqui-Maqui | Au | 55 | 1994-1999 |
| Yanacocha | Yanacocha | Au | 190 | 1996-2000 |
| Southern Perú | Cuajone expansion | Cu | 245 | 1996-2002 |
| Southern Perú | Renovate refinery Ilo | Cu | 20 | 1995-1998 |
| Southern Perú | Renovate equipment PAMA | Cu | 445 | 1992-1996 |
| Southern Perú | New foundry | Cu | 700 | 1997-2006 |
| Southern Perú | Renovate foundry | Cu | 871 | N/A. |
| Antamina | Antamina | Cu, Pb, Ag, Zn | 2.265 | 1997-2001 |
| Pierina Barrik | Pierina | Au | 316 | 1996-1999 |
| | | | 8.665 | |

Source: Kuramoto, 1999.

# Environmental Impacts of Foreign Direct Investment in the Mining Sector: The Russian Federation and Kazakhstan[1]

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## Introduction

The Newly Independent States of the former Soviet Union (NIS) are among the most important manufacturers of mining products worldwide. For some of these countries the income they derive from mining activities represents an important part of their fiscal income and a substantial share of their foreign currency earnings.[2] At the same time, the costs generated by the environmental and social impacts of mining can sometimes outweigh the benefits. This paper analyses the extent to which foreign direct investment (FDI) contributes to these impacts in the non-ferrous metals sector of the Russian Federation (hereafter referred to as Russia) and Kazakhstan. Information was gathered through a literature review and interviews with selected experts and stakeholders from mining companies and pressure groups working in the mining sector.

Both Russia and Kazakhstan are exceptionally rich in non-ferrous commodities. Together they account for 91.2% of the copper reserves of the NIS and 11.2% of global copper reserves.[3] As successor countries of the former Soviet Union, they have recently opened their markets to foreign investment. While there are differences in the development of the legal and economic structures in each country, both are targets for foreign investors.

The inflow of FDI into the non-ferrous metals industry has been relatively low in the past few years. Russia and Kazakhstan together have received about US$374 million. This compares with inflows of over US$1 billion in Chile and Peru.[4] What accounts for this difference? And what are the associated environmental impacts? Have mines in Russia and Kazakhstan benefited from inflows of new skills and technologies, with positive impacts on the environment? What have been the environmental impacts of FDI at the local level?[5]

Recent analyses suggest the most important factors influencing the destination of FDI are political, economic and industry-related.[6] These categories are used here to examine the role of FDI at the national, regional and local levels. In addition, the environmental implications will be analysed at national and local levels. Their quantification at the regional level is difficult.

The next part of the paper discusses the non-ferrous metals and mining sector in the NIS region. Individual commodities, their output and the inflow of FDI to this sector are discussed. Following this, case studies of Russia and Kazakhstan are presented. The analysis focuses on investors and investment in environmental production methods. In identifying the environmental issues that company managers are targeting, the case studies concentrate on selected projects implemented by private companies in

[1] The OECD wishes to thank the German Federal Ministry for Environment, Nature Conservation and Nuclear Safety for the financial support provided for the work on this paper.
[2] BGR, 1998b.
[3] WVB, 2001b.
[4] Calculations for 1999 based on UNCTAD, 2001a. See also Borregaard and Dufey, this volume.
[5] See for example OECD, 1999b, p. 15.
[6] Dalheimer and Ellmies, 2000; OECD, 1999b.

both countries. The implementation of cleaner technologies and environmental management systems, and the role of national environmental legislation in the mining sector, are also considered. Conclusions are presented in the last part of the paper.

## The Non-Ferrous Metals Sector in the NIS

### *Economic Factors*

In reviewing the economic situation, I divide the NIS into geographical sub-regions. This comprises the western NIS (Ukraine, Belarus and Moldova), Central Asia (Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan and Uzbekistan), the Caucasus (Armenia, Azerbaijan and Georgia) and Russia. All NIS countries need to transform their economies to become internationally competitive and to attract foreign investment. The pace and depth of the transition process differs widely among countries, however. Table 1 shows the range of per capita FDI inflows for the NIS.

**Table 1: Annual Average Inflow of FDI per Capita, 1993-2001 (US$million)**

| COUNTRY | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001est. |
|---|---|---|---|---|---|---|---|---|---|
| Ukraine | n/a | 2.95 | 4.97 | 10.33 | 11.50 | 14.85 | 9.79 | 11.97 | 16.41 |
| Belarus | n/a | n/a | 1.42 | 7.08 | 19.34 | 14.41 | 44.05 | 9.01 | 16.33 |
| Moldova | n/a | n/a | n/a | n/a | n/a | n/a | n/a | 24.22 | n/a |
| Kazakhstan | n/a | 40.54 | 60.1 | 73.09 | 86.04 | 76.57 | 108.98 | n/a | n/a |
| Kyrgyz Republic | n/a | 9.32 | 31.20 | 8.78 | 15.52 | 18.1 | 8.85 | 10.78 | n/a |
| Tajikistan | n/a | n/a | n/a | n/a | n/a | n/a | n/a | 4.53 | 3.04 |
| Turkmenistan | 19.86 | 25.58 | 51.96 | 23.43 | 23.1 | 19.68 | 18.39 | 20.25 | 32.59 |
| Uzbekistan | 2.2 | 3.28 | n/a | 3.93 | 7.19 | 9.58 | 8.38 | 9.24 | n/a |
| Armenia | n/a | 1.37 | 8.48 | 3.78 | 11.21 | 55.25 | 31.83 | 37.72 | n/a |
| Azerbaijan | n/a | 2.98 | 38.07 | 87.38 | 143.18 | 131.89 | 65.52 | 62.8 | 128.68 |
| Georgia | n/a | n/a | n/a | n/a | n/a | n/a | 18.94 | 21.86 | 24.86 |
| Russia | n/a | 3.72 | 13.5 | 16.25 | 36 | 22.86 | 29.28 | 30.3 | n/a |

Source: EBRD, 2001a-j.
n/a: not available

NIS countries have made considerable efforts to improve their economic situation and to attract FDI. The figures in Table 1 show that Russia and Kazakhstan, which are the largest countries in the NIS and have the richest natural resource endowment, have received the highest inflow of FDI in recent years. Nonetheless, the inflow of FDI to the NIS is significantly lower than to developing or emerging economies.[7] Other key indicators such as the increase in GDP reinforce this difference.[8]

The Asian financial crisis and the deterioration in the terms of trade for export commodities, including non-ferrous metals, deepened the economic problems facing the NIS in 1998. In 2001, for the third year running the region recorded positive economic growth of 4.4%.[9] Parallel with this recovery, a number of NIS countries have achieved significant gains from domestic economic reform processes, especially Russia and Azerbaijan and, to a lesser extent, Belarus and Uzbekistan. Turkmenistan's commitment to economic and political reform has been disappointing.[10] In general, most of the NIS

[7] Deutsche Bank Research, 2001c.
[8] EBRD, 2001a-j.
[9] Ibid.
[10] Ibid.

countries have started to reform their economies and begun to implement regulations to attract FDI. However, the overall economic situation lags other comparable economies.

***Political Factors***

Although the NIS countries were able to establish stable administrative and enforcement mechanisms in the 1990s, their performance lags that of other countries in transition and developing countries. The consistency of administration is a matter of ongoing concern for international investors. Claims of corrupt behaviour by local officials and the absence of a clear and enforceable legal framework for foreign investment have eroded investors' confidence.[11] In Russia there is a gap between actual and projected levels of FDI, reflecting concern about the policy framework for foreign investment. This gap occurs also in the non-ferrous mining sector, where the privatisation process has been problematic. Domestic investors dominate the market and there is little co-operation with foreign investors.

For both domestic and foreign investors, environmental regulations are an additional consideration. The NIS has inherited a legacy of significant environmental problems at many of its mining and metallurgical operations. The environmental standards and practices used in the NIS do not reflect international norms. In recent years, there have been efforts to develop new generation environmental legislation and regulations to close this gap. Nonetheless, the overall slow pace of economic reform and the financial crisis have impeded progress. Levels of pollution and resource consumption have declined less than industrial outputs, while some environmental problems have worsened during the transition period. While environment ministries and committees have made commendable efforts to reform environmental policies, this sector has received less attention in public and government agendas compared to social issues.[12] Ongoing re-structuring of environmental management responsibility, including the trend of transferring this task from national to sub-national and local levels, has also affected the development of coherent policies and programmes.[13] Some progress is evident.[14]

***Industry-related Factors***

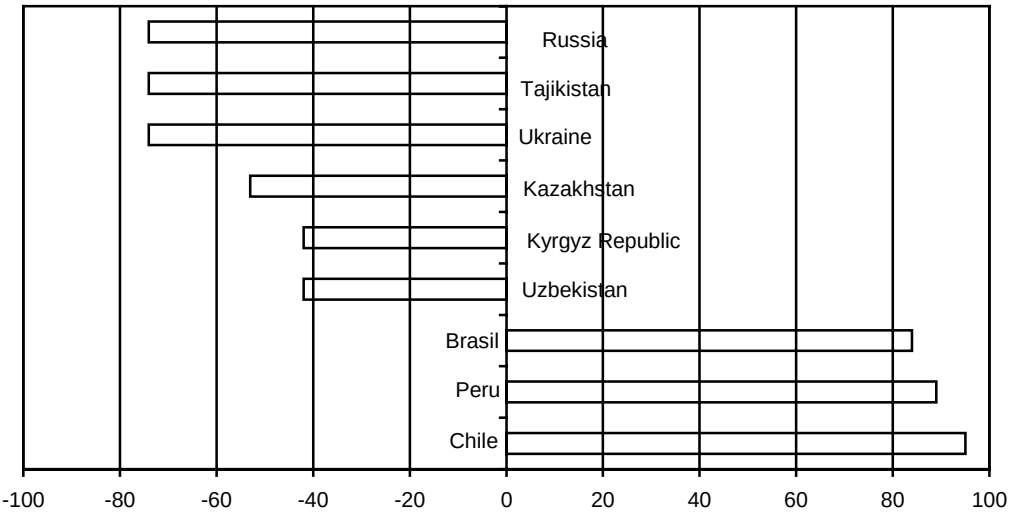
Non-ferrous commodity reserves in the NIS are located principally in Russia and Central Asia. Other sub-regions such as the Caucasus or Western NIS are not rich in non-ferrous metals.[15] Exports of non-ferrous metals from the region have trended up in recent years while overall production has declined. The dramatic decline in domestic demand is a factor behind this apparent contradiction.

As noted earlier, all NIS countries began to privatise their enterprises and to liberalise their markets in the early 1990s. However, the extent of the privatisation process varies enormously between countries and industries. The legacy of the former Soviet Union is evident in the structure of the non-ferrous metals sector. For example, there exist enterprises that have still not been fully privatised.[15] Another implication of the privatisation process is the domination of domestic ownership in the non-ferrous

[11] Anon, 1999.
[12] OECD, 2000.
[13] Ibid.
[14] EBRD, 2001b.
[15] There are no significant reserves of non-ferrous metals in these countries apart from small amounts of gold. In Belarus, the metals industry as a share of total industrial production is only 2.4%. Other countries such as Georgia have even less dependence on the non-ferrous metals industry. See BGR, 1997; BGR, 1998b; WRI, 1998.
[15] See Gunningham, this volume.

metals sector. This is especially noticeable in Russia and Kazakhstan where large domestic companies now own most of the enterprises. Foreign investors find it difficult to enter the sector. One result is the NIS is less attractive to foreign investors compared to other countries producing large amounts of non-ferrous metals, such as Peru and Chile (see Figure 1).

**Figure 1: Investments in the Mining Sector in Selected Countries**[17]




Source: Dalheimer and Ellmies, 2000.

**The Non-Ferrous Metals Industry in Russia and Kazakhstan**

***Russia***

***(i) Economic and Political Factors***

Russia lacks a political, legal and economic climate that is attractive to foreign investors. In the mining sector, declining levels of foreign investment have affected the sustainability of the country's mining industry. FDI in the sector has fluctuated in recent years (see Table 2). Despite a decline in absolute figures, there has been a relative increase in the share of FDI in the non-ferrous metals industry, however. The main reasons for this might be the slow pace of privatisation and poor implementation of regulatory reforms by local authorities.

**Table 2: Foreign Direct Investment in Russia, 1997-2000**

| Foreign Direct Investment | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|
| Total (US$billion) (UNCTAD calculation) | 6,6 | 2,8 | 3,3 | 2,7 |
| Total (US$billion) (Deutsche Bank Research calculation) | 3,6 | 1,2 | 0,7 | 1,2 |
| Total (US$billion) (OECD calculation) | 6,6 | 2,8 | 3,3 | - |
| Ferrous and Non-Ferrous-Metals Industry (in %) (OECD calculation) | 4,4 | 4,5 | 9,7 | 9,5 |

Sources: OECD, 2001a; UNCTAD, 2001a; Deutsche Bank Research, 2001.

[17]See Dalheimer and Ellmies, 2000. The figure shows the result of a poll of leading western mining corporations. The scale ranges from -100 (unsuitable investment climate) to +100 (very good investment climate).

Recent OECD analysis concludes that an adequate, rules-based legal and regulatory environment for investment exists in Russia.[18] A national legal framework for trade and investment was established in 1994. Other industry- and activity-specific laws subsequently supplemented this framework. Nonetheless, there is no unified policy framework for investment because of the plethora of administrative barriers, particularly at the regional level. These regional rules are often in contravention of federal legislation and regulations. Examples include unannounced licensing or permit requirements, licence fees in excess of what is legally required, tax payments that are negotiable rather than statutory and "voluntary" contributions to extra-budgetary funds.[19] Indeed, firms specialising in helping new investors to negotiate this process are becoming a new growth industry. Some Western financiers, however, would "'rather eat nuclear waste' than invest in Russia."[20] Clearly, this perception has implications for the country's mining sector and the ability to compete with alternative commodity suppliers.[21] However, Russian policymakers are beginning to appreciate the financial, technological and management benefits of foreign investment in the mining and minerals sector.[22]

The OECD identified a strong need for reform of:

- the system of licensing capital account operations, which should be made more transparent;
- the elaborate system for non-resident rouble accounts should be made clearer, more systematic and user-friendly;
- the foreign exchange control system for both current and capital account operations should be amended to allow companies to make unrestricted payments and transfers required to satisfy binding contracts and to cover legal business transactions;
- the 1992 Foreign Exchange Law and its implementing regulations. In particular, revisions to simplify the regime and bring it into line with international practice.[23]

Privatisation presents a particular problem. In the non-ferrous metals sector the total number of companies increased from 192 in 1990 to 1078 in 1997. However the sector remains characterised by a lack of competitiveness, little privatisation and few foreign investors. Table 3 shows that although private enterprises dominate by type of ownership, mixed enterprises in which the state retains some equity and in which foreign shareholders are absent accounts for the majority of both total production output and workforce employment. Domestic companies dominate the ownership of privatised enterprises, reflected in the low level of foreign investment in general and in the non-ferrous metals sector in particular.

[18] See OECD, 2001a.
[19] Ibid.
[20] "Western financiers hold their noses when they do business in Russia", *The Economist*, 24 February 2001.
[21] See Figure 1; "A dangerous bear-dance", *The Economist*, 27 August 1998.
[22] See "Russia champs at the drill-bit", *The Economist*, 13 November 1997; "Hope gleams anew", *The Economist*, 3 November 2001.
[23] Ibid.

**Table 3: Type of Ownership in Russia's Non-Ferrous Metals Sector, 1997 (1996 figures in parentheses)**

| Type of ownership | Percentage of companies (100% = 1078) | Percentage of total production | Percentage of total workforce |
|---|---|---|---|
| Percentage of state-owned and communal enterprises | 1.8 (2.2) | 4.2 (5.4) | 6.3 (6.7) |
| Private enterprises | 84.2 (83.7) | 30.6 (23.1) | 27.6 (15.1) |
| Mixed enterprises with partial state-ownership (mainly stock corporations but without foreign share ownership) | 10.8 (10.0) | 61.6 (70.1) | 60.9 (76.4) |
| Mixed enterprises with partial state-ownership (mainly stock corporations but with foreign share ownership) | 3.1 (3.9) | 3.6 (1.4) | 5.2 (1.8) |

Sources: GOSKOMSTAT, 1997; WVB, 2001b.

### *(ii) Industry-related Factors*

The mining industry, including oil and gas, smelting, iron and steel and the non-ferrous metals sectors, accounts for almost 50% of Russia's industrial production and employs about 1.9 million people, or 13.4% of the industrial labour force.[24] Mining of the following commodities occurs in the non-ferrous metals sector: aluminium, antimony, cobalt, copper, lead, nickel, zinc as well as magnesium, molybdenum, titanium and tungsten. The sector's structure reflects the concentration on these commodities, despite the effects of the on-going privatisation process. Box 1 presents information about FDI in Russia's largest producer of non-ferrous metals, Norilsk Nickel.

A number of mergers and acquisitions occurred in the non-ferrous metals sector in the 1990s. Today, two large groups remain: Norilsk Nickel and Urals Mining and Metals.[25] Geographically, the major non-ferrous metals companies are located in the Krasnoyarsk region, in Murmansk, Orenburg, Chelyabinsk, Sverdlovsk and the Novosibirsk regions, the Bashkortostan Republic and the Primorsk region.

Analysis of the growth rates of the different metals reveals significant changes.[26] According to Goscomstat, Russia's output of non-ferrous metals rose by 11.3% in 2000 compared to 1999 figures (see Table 4 for 2000 figures for a range of commodities). Russia remained the world's second largest exporter of these metals despite the lack of any significant investment in modernisation or replacement of equipment in the sector during the last decade.[27] Table 5 shows the breakdown in terms of volume

[24] Ibid.
[25] Lyaskovskaya and Grishankov, 2001.
[26] While there was growth overall, focusing on specific metals reveals major differences. For example, the tin industry grew by 36% but the lead industry declined.
[27] See for example Norilsk Nickel, 2001b.

and world output ranking for several non-ferrous metals. Prices on world markets for these metals have declined, plunging on average by 40% since 1972.

**Box 1: FDI in Russia's Largest Producer of Non-Ferrous Metals**

Norilsk Nickel is Russia's largest manufacturer of non-ferrous metals and the worlds largest nickel manufacturer. Its exports represent about 4% of Russia's total exports. Following its privatisation in 1997, the Interros Industrial Financial Group now owns Norilsk. Norilsk's activities are located on the Kola Peninsula in North-west Russia and on the Taimyr Peninsula in Northern Russia. Major foreign shareholders include Credit Suisse First Boston (7.9% shareholding), Citibank (5.6%) and Chase Manhattan Bank International (1.8%).[28]

"There has been no significant investment in modernisation or renewal of equipment for the last ten years. ... The company's metal production processes, especially those for nickel, seriously lag behind those used by the international competitors. Norilsk Nickel's production is more costly in terms of energy and materials, requires greater labour input and has a significantly more serious environmental impact than that of analogous companies elsewhere in the world."[29] NGOs also report serious environmental damage. For example, World Information Transfer (WIT) asserts that "The Norilsk Nickel factory is the biggest single source of sulphur emission in the world and results in acute acid rain problems, which have destroyed more than 4,000 square kilometres of larch forests in the Norilsk area."[30] Severe air pollution has affected about 750 $km^2$ in the Norwegian and Russian border area. In a second zone of 2000 $km^2$, extensive damage to vegetation is evident.[31]

In April 1999, company management approved a development plan for Norilsk Nickel's production unit. According to Interros, the estimated cost of this long-term programme to 2010 is US$3.5 billion. In 2000, Norlisk Nickel spent about US$ 52.3 million on nature conservation, a figure 2.5 times more than it did in 1999.[32] Norilsk Nickel will soon begin modernising its Pechenganickel Combine, supported by grants from Norway and the Nordic Investment Bank.[33] "One of the principles of the Development Plan for the whole period up to 2010 is that all modernisation programmes will include the introduction of environmental protection technology."[34]

Norilsk is also taking part in a regional UNEP Programme and is committed to "support the project and all initiatives that will encourage a balanced approach to biodiversity conservation of the peninsula, preservation of the unique nature and economic development."

Foreign investors with stakes in the economic sustainability of the operation have promoted changes in environmental management practices. Neighbouring Scandinavian countries directly affected by acid rain deposits financed the installation of air pollution control measures, however.

[28] Norilsk Nickel, 2001b.
[29] Ibid.
[30] WIT, 2001.
[31] Finnland-Online, 2001.
[32] Norilsk Nickel, op. cit.
[33] Norilsk Nickel, 2001a.
[34] Ibid.

**Table 4: Change in Commodity Growth Rate, 2000**

| Commodity | Growth rate in % |
|---|---|
| Aluminium | +3 |
| Titanium (sponge) | +16 |
| Refined copper | +12 |
| Nickel | +7 |
| Zinc | +4 |
| Tin | +36 |
| Lead | -7 |

Source: Author's calculations.

**Table 5: Mining Output in Russia, 1998**

| Commodity | Volume (tonnes) | World output ranking | Percent of global reserves |
|---|---|---|---|
| Gold | 114 | 7 | 4.7 |
| Bauxite | 3,500,000 | 9 | 2.8 |
| Zinc | 115, 000 | 13 | 1.5 |
| Copper | 515,000 | 5 | 4.2 |
| Lead | 12,000 | 26 | 0.4 |
| Nickel | 235,000 | 1 | 21.1 |
| Antimony | 1,400 | 4 | 1 |

Sources: Author's calculations; WVB, 2001b.

The Russian government responded by developing a medium-term programme to ensure the sustainable growth of the non-ferrous metals sector. Under the programme companies are responsible for sourcing investment funds. Public subsidies to the sector remain insignificant.[35] Between 2001 and 2004 approximately US$1 billion per annum is needed to make the sector competitive.[36] During this period, public subsidies will be between US$0.7 and 7 million. Current inflows of FDI are insufficient to fund enterprise growth or innovation in the sector. This is not to imply that growth is impossible. Some projections indicate that domestic demand for a range of products will increase in four years' time. This includes demand for aluminium (rising by 35-37%), aluminium roll (50-60%), copper and zinc (32-35%), copper roll (35-40%) and lead (25-27%).[37] By 2005 it is projected that demand for non-ferrous metals as a sector will increase by 20-25%.[38]

[35] See Metals-russia.com, 2001.
[36] Ibid.
[37] This assumes sustained economic performance.
[38] See WVB, 2001a.

**Box 2: Medium-scale FDI in Gold Mining in Russia**

The Kubaka mine in eastern Siberia is Russia's largest gold mine. It is a joint venture between Omolon Gold Mining Co. and Kinross Gold Co. of Canada, the latter of which holds 54.7% of the shares. The mine produces 500,000 ounces per year, or 15% of the country's gold production.[39]

According to Kinross, the company developed a comprehensive environmental protection programme when it took over the mine in 1998. Kinross made a commitment to "take positive action to protect the safety of its workers, to protect natural resources, and to minimize the environmental impact of its activities through diligent application of appropriate technology and responsible conduct at all stages of exploration, mine development, mining, mineral processing, decommissioning and reclamation."[40]

Kinross states that they frequently use systems, skills and technology that are new to the operation. In 1998, Omolon spent US$9.94 million on measures to ensure that facilities will perform as designed throughout the life of the mine and not adversely affect the natural resources of the area after the mine closes. According to Kinross, eleven regulatory inspections of the mine occurred in 1998 and resulted in only one minor comment. As an overall indicator of the effectiveness of Kubaka's environmental management programme, no impacts to the cold-water fisheries in the Kubaka River or Malaya Avlandya River have been detected since the mine began operating. In addition, an independent engineering analysis performed in June 1998 concluded that the mine was in compliance with all regulatory requirements.[41] The mine also operates a number of environmental management approaches previously not available in Russia. This includes equipment and techniques for wastewater management, and soil and air quality monitoring.

New techniques and technologies introduce by Kinross supplement earlier environmental measures established in the pit area. The recent initiatives are compatible with the new owner's internal environmental policy and standards.

### *(iii) Environmental Implications*

The non-ferrous metals sector is the second largest source of hazardous waste in Russia[42] and its contribution continues to rise.[43] In contrast, waste re-use and treatment is relatively low.[44] Soil contamination is also a severe environmental problem, affecting an estimated 2.3 million hectares. The activities of the (petro-) chemical, oil, ferrous- and non-ferrous metals industry have contaminated approximately 730,000 hectares.[45]

[39] EBRD, 2001.
[40] Ibid.
[41] Ibid.
[42] These figures refer to the entire metallurgical industry, including mining and processing. In the case of hazardous waste generation, the mining industry is the main source.
[43] OECD, 1999a.
[44] Centre of Environmental-Economic Research and Information, 2001.
[45] OECD, 1999a.

Russia lacks effective environmental management systems. Currently, there are no standard criteria and/or regulations comparable to those applying in OECD countries. For example, the waste management system does not meet international standards.[46] The National Environmental Action Plan (NEAP) states that companies should be fined for causing environmental damage but enforcement and extracting payment from offenders are fraught with difficulty. At the same time trust and co-operation between environment agencies and large companies is required if the latter are to invest in cleaner technologies in an attempt to achieve ISO 9001, ISO 14000 and EMAS accreditation.[47] Although the Russian Ministry of Natural Resources has started to draft standards based on ISO 14000, they have yet to be enacted.[48] An administrative structure and regulatory framework for waste management exists but budgetary constraints limit their implementation. Opposition by local authorities is a further impediment to the implementation of a sound environmental management system.

### *(iv) Summing Up*

Domestic rather than foreign companies dominate investment in Russia's non-ferrous metals sector. Some improvements in environmental performance have occurred with the inflow of foreign investment, such as in Norilsk Nickel and the Kubaka goldmine. Compared to other regions of the world, FDI inflows to the sector have been low. Few positive environmental effects at the national, regional or local levels are discernible. Little evidence exists that policy reforms in this sector have catalysed the implementation of innovative technologies, management approaches or industry structures. A strong need for enterprise modernisation and adoption of new and "cleaner" technologies in the sector is evident. [49]

## *Kazakhstan*

### *(i) Economic and Political Factors*

Kazakhstan is rich in petroleum and mineral resources. Investment in petroleum has dominated inflows since the country achieved independence. Investment in the mining and metallurgical sector has not been commensurate with the country's geological potential or the importance of a sector that accounted for over 30% of total export earnings, 16% of GDP and 19% of total industrial employment in 2000.[50]

The mining sector dominates the economic structure of some oblasts (provinces). In addition, a number of municipalities depend on mine-related enterprises for providing social and infrastructure services. The government has adopted a policy of fostering private sector development for mining and metallurgy and has privatised mining enterprises.[51]

Foreign investors have been interested in Kazakhstan's potential since 1994. Estimated net FDI in 2000 was US$1.3 billion, down from US$1.5 billion in 1999 (see Table 6). An expected increase in investments in the oil and gas industries underlay projections of an increase to US$1.7 billion in 2001.[52]

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[46] Ibid.
[47] NEAP, 1999-2001.
[48] OECD, 1999a.
[49] Norilsk Nickel, 2001b.
[50] World Bank, 2001b.
[51] Levine, 1998.
[52] EBRD, 2001a.

**Table 6: Foreign Direct Investment in Kazakhstan, 1997-2000**

| Foreign Direct Investment | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|
| Total (US$billion) (UNCTAD estimate) | 1.3 | 1.2 | 1.5 | 1.3 |
| Total (US$billion) (Deutsche Bank Research) | 1.3 | 1.1 | 1.5 | 1.2 |
| Total (US$billion) (World Bank) | 1.3 | 1.2 | 1.6 | 1.2 |

Sources: World Bank, 2001a; Deutsche Bank Research, 2001c.

The biggest investors in the Kazakh oil and gas sector are US companies such as Chevron. In addition to this sector, privatisation of the telecommunications, energy and mining sectors have catalysed inflows of FDI. Today, there are more than 130 US companies operating in Kazakhstan. Twenty out of approximately 300 registered joint venture companies are involved in large-scale projects in the oil and gas, mining and energy sectors. Other large investors in the country are China, Germany, Japan, South Korea, the UK, Switzerland and Turkey[53] (see Tables 7 and 8).

**Table 7: Breakdown of FDI into Kazakhstan by Source Country, 1993-1999 (% of total FDI)**

| Country | 1993-1996 | 1997 | 1998 | 1999 |
|---|---|---|---|---|
| US | 28.44 | 9.88 | 32.38 | 50.17 |
| UK | 14.54 | 14.78 | 7.01 | 9.03 |
| China | 4.85 | 14.86 | 7.03 | 2.76 |
| Turkey | 5.29 | 3.09 | 7.20 | 1.89 |
| South Korea | 21.41 | 34.17 | 2.58 | 1.60 |
| Switzerland | 1.19 | 1.48 | 3.79 | 1.32 |

Source: EBRD, 2001.

**Table 8: Breakdown of FDI by Industry, 1993-1999 (% of total FDI)**

| Sector | 1993-1996 | 1997 | 1998 | 1999 |
|---|---|---|---|---|
| Oil and Gas | 48.42 | 34.08 | 66.86 | 83.51 |
| Non-Ferrous Metals | 23.29 | 36.13 | 6.27 | 2.77 |
| Ferrous Metals | 4.90 | 5.25 | 1.01 | 0.82 |
| Energy | 2.75 | 6.09 | 6.99 | 1.27 |
| Food | 3.63 | 3.35 | 3.48 | 4.24 |
| Banking | 0.75 | 1.23 | 6.89 | 2.33 |

Source: EBRD, 2001.

In the wake of the collapse of the Soviet Union, established markets for Kazakhstan's mining and metallurgical output disappeared or became insolvent. As a result, minerals output declined and the enterprises experienced severe financial pressure. In 1994-96, in an attempt to redress the situation and maintain production, employment and social services, the government either privatised or awarded "management contracts" for many of the enterprises to consortiums of local and foreign investors.[54] The financial crises in Asia and Russia in 1997-1998 further depressed the market for Kazakh mineral products.

[53] Ibid.
[54] Levine, 1998.

The privatisation programme and management contracts system have produced mixed results. On the one hand, production has stabilised and the enterprises have continued to provide employment and social services to the communities in which they operate. This has been the case, for example, with the takeover of the Karmet iron and steel works by Ispat International (UK-India owned), the Samsung (South Korea) agreements with the Dzhezkazgan and Balkash copper operations and the Swiss-owned Glencore Trading agreements with Kazzinc (on the latter see Box 3). On the other hand, some investors allegedly did not honour their commitments and the government cancelled their management contracts. Disputes related to these cancellations have led to litigation and/or arbitration in local and foreign courts.[55]

**Box 3: FDI in Zinc Mining by Glencore Trading**

About one-eighth of Kazakhstan's industrial output comes from non-ferrous metals. Zinc comprises a significant proportion of this output. Kazzink is the country's main producer of lead, zinc, gold and silver. Indeed, it is one of the largest producers in the NIS. Kazzink controls five mines, three mills and two zinc plants with a total capacity of about 260,000 tonnes of metal. It also owns a zinc plant with a capacity of 160,000 tonnes as well as sulphuric acid production plants, refining and rare metal production plants, service plants and other infrastructure. Staff numbers total 26,000. Kazzink was formed in 1997 through a merger of three major mining and metallurgical companies, the Ust-Kamenogorsk lead and zinc company, the Leninogorsk polymetal company and the Zyryanovsky lead company. The production facilities are located in east Kazakhstan.

Glencore, a Swiss company, controls Kazzink. Glencore has invested about US$65 million in the opening of a new mine at Maleyevsky, which is expected to have an annual output of up to 2.2 million tonnes of zinc. In addition, through its subsidiary Kazastur Zinc AG, Glencore will provide funding of about US$190 million to increase production between 2000 and 2005. Kazzink's target for zinc production was approximately 156,000 tonnes in 2001. Kazzink has recently invested in batch concentrators to recover fine gold from the process stream and from zinc plant tailings.

New environmental management initiatives were implemented after foreign control was secured in 1995. The results have been impressive in his view: "Since 1996 no major incident and/or accident has occurred at the mining and processing sites of the company group. Major investment in foreign modern technologies related to end-of-pipe and process integrated measures have been made, especially in catalysts and dust removing precipitators." Foreign investment finance has facilitated the establishment of these measures. In its absence, it would have been very difficult to fund them.

This experience has prompted some in the international mining investment community to consider Kazakhstan a "no-go" country.[56] Recent FDI figures in the sector reflect this: in 1999 the country attracted a mere US$9 - 10 million in new exploration funding, which is inadequate to research new deposits. Other contributory factors include the reduced availability of funding in international capital markets and low commodity prices on the world market. Nonetheless, other countries with less geological potential than Kazakhstan managed to attract higher levels of new investment.

[55] World Bank, 2001b.
[56] BGR, 1998b.

Actual FDI figures for 1999-2000 show that Kazakhstan has made little progress in improving the framework conditions for investment in the mining sector or in strengthening relevant environmental protection measures.[57] The principal reasons for this relate to:

- the absence of a clear government strategy and policy for the sector;
- deficiencies in the legal system, and in the taxation and institutional framework;
- a tendering process for minerals prospecting that is not consistent with international practice;
- a reserve classification system which is incompatible with international standards; and
- a perception of unfair and arbitrary dealings between the government and the private sector, reflecting dubious governance practices.[58]

### *(ii) Industry-related Factors*

As noted earlier, the main policy objective in the mining sector has been the development of favourable conditions to promote foreign investment. Kazakhstan's Foreign Investment Law dates from 1994. It was revised in 1997. Complementing the legislation is a programme to restructure the management of mining companies through combinations of government ownership, privatisation and foreign management. Under the programme, the majority of Kazakhstan's mining and metallurgical industries were transferred to trusts managed by foreign companies. In 1996, the government started privatising selected companies under this scheme.

Approximately 233 mining and metallurgical enterprises produce a wide variety of mineral products, the volumes and values of which are summarised in Table 9. Kazakhstan is a producer of chromite ores, ferroalloys and ferrochrome, alumina and uranium. It is a major producer of refined copper, lead and zinc, iron ores and pellets, steel, coal, manganese, alumina, titanium, barites and rhenium. Exports account for over 90% of the mineral production because domestic consumption of metals is relatively low.[59]

Kazakhstan's mining industry lost some of its traditional markets with the break-up of the Soviet Union and it is a relative novice in the international marketplace. At the same time, the mining and metallurgical sectors confront problems related to the high energy consumption of the technologies in use, obsolete equipment, the deteriorating quality of extracted ores and the lack of new mine development. The dependence on Russia for transport links to international markets also has an influence.

**Table 9: Selected Minerals Production, 1999**

| Commodity | Volume | Value (million Tenge) | Value (million US$) |
|---|---|---|---|
| Bauxite | 3.6 million tonnes | 2,349 | 19.6 |
| Refined gold | 9,655 kilograms | 7,740 | 64.7 |
| Alumina | 1,157,692 tonnes | 13,074 | 109.3 |
| Lead metal | 158,890 tonnes | 6,714 | 56.1 |
| Zinc metal | 248,754 tonnes | 23,833 | 199.1 |
| Refined copper | 361,890 tonnes | 62,931 | 526.0 |

Source: Author's calculation; Kazakhstan National Statistical Agency, 2000.

[57] World Bank, 2001b.
[58] Ibid.
[59] Levine, 1998.

Copper production in Kazakhstan declined steadily from 1991 to mid-1995. By then production was half that in 1991. The situation began to reverse when foreign companies acquired management rights to the country's copper-producing firms. The largest copper-ore manufacturer and processor in Kazakhstan is Kazakhmys (40% shareholding by Samsung Deutschland, an affiliate of Samsung of South Korea), which incorporated Zhezkazgantsvetmet, Balkhashmys, the Eastern Kazakhstan Copper and Chemical Plant and the Zhezkent Mining and Processing Plant.[60] Box 4 presents further information on this enterprise.

**Box 4: FDI in Copper Manufacturing**

Kazakhstan's major copper manufacturer is Kazakhmys, located in Zhezkazgan in central Kazakhstan. Samsung has a 40% stake in the operation. Kazakhmys is the umbrella company for the country's copper enterprises, the Karaganda opencast coal mines, three power stations and six refining plants. In 1999, the company produced 362,000 tonnes of refined copper, 96,000 tonnes of zinc concentrate, 410 tonnes of silver and 2.3 tonnes of gold. According to the Kazakhstan stock exchange (KASE), Kazakhmys controls 12 underground and opencast mines in total.

Since Samsung became involved in Kazakhmys, it "has made large investments in the industry, including equipping the Zhezkazgan mine with state-of-the-art technology at a cost of over US$120 million to turn it from a start-up mine into a producer" according to the EBRD's 2001 Kazakhstan Investment Profile.

In comparison, KASE reports total industrial investment in Kazakhmys during the last five years at US$300 million. As part of this, Kazakhmys launched an environmental management programme costing US$15 million. The programme includes the installation of dust filters in all of the company's production plants and a water recycling and re-use system that saves over 20 million cubic metres of water.

Chromium production fell to 55% of the level attained in Soviet times. KazChrome, the country's largest chromium company, was taken over by Japan Chrome in 1995. The latter owns 55.2% of the company. KazChrome is located in Aktubinsk and owns two ferro-chromium alloys plants, Ermak and Asku. The Eurasia Bank Group manages the operations.[61]

Kazakhstan has also developed important niche areas with the assistance of FDI. They include the lead-zinc industry (Kazzink company and Shymkent lead plant), the bauxite and aluminium industry (Aluminium Kazakhstan, which owns two bauxite mines and the Pavlodar alumina plant) and the manganese and manganese-titanium industries (Kazakmanganese and Urst-Kamenogorsk metallurgical plant).[62]

Table 10 identifies the umbrella companies for selected mineral commodities and the relevant domestic and foreign investors involved.

[60] OECD, 1998.
[61] World Bank, 2001b.
[62] WVB, 2001b.

Apart from the TransWorldGroup's investment and subsequent dispute in Kazakhstan, discussed elsewhere,[63] the Samsung and Kazzink cases represent important examples of the involvement of foreign companies in the country's privatisation programme for the mining sector. Interviews with officials of both companies revealed that each adopts "best practice" in the mining industry through investing in the modernisation of outdated technologies. There are also several sources describing their efforts to improve their environmental management approach. For example, a press release by a manufacturer of extracting machines provides information about investment in the latest technology for recovering gold from zinc tailings (see also Box. 3).[64] The general approach of both companies is clear: to reduce overheads and production costs. This catalyses demand for improved facilities, rationalisation of operations, process integration and capital investment. There is also a focus on new, or improved, technologies. Benefits include cost efficiencies and improved environmental performance.

**Table 10: Selected Investments in the Non-ferrous Metals Sector, 2000**[65]

| **Mineral** | **Company**[66] | **State shareholding (%)** | **Private shareholder** |
|---|---|---|---|
| Alumina | Aluminium of Kazakhstan | 31.68 | Eurasian Bank[67] |
| Copper | Kazakhmys | 35 | Samsung Deutschland |
| Chromite, Ferroalloys | Kazchrome | 32.37 | Eurasian Bank51 |
| Lead/ Zinc | Kazzink | 27.64 | Glencore |
| Titanium/ Magnesium | UKS-Kamenogorsk TMK | 15 | Specialty Metals Co. |

Sources: State Property and Privatisation Committee, Ministry of Finance, Kazakhstan, 2000.

### *(iii) Environmental Implications*

There has been a convergence between the policy objectives of Kazakhstan's mineral sector and the interests of foreign investors. Increasing investment in the mining industry has given impetus to the transfer of advanced technologies and management in the last decade. Recent FDI inflows to the non-ferrous metals sector do not significantly contribute to any positive environmental impact at the national level. At the local level, the environmental effects are scattered rather than pervasive. They focus on the implementation of innovative technologies and activities to promote the more efficient use of natural resources.

Mining remains inherently problematic from an environmental point of view. Although there seems to be a good understanding of its direct environmental impacts, the relevant authorities do not always establish appropriate environmental regulations or assure robust enforcement. The environmental issues facing the Kazakh mining industry are the result of poor implementation and enforcement of environmental legislation over many years. Other priorities also play a role.

When Kazakhstan became independent, it inherited a mining industry that was typical of the former Soviet Union. Historically, greater attention was paid to the provision of social services than to

[63] Dahlheimer and Ellmies, 2000; Anon, 1999.
[64] Falcon Concentrators, 2000.
[65] Figures provided by the Business Information Service for the Newly Independent States (BISNIS).
[66] All companies have participated in the Blue Chip privatisation programme initiated by the Government of Kazakhstan.
[67] Property rights were not yet final after repossession of Trans World Group in 2000. Eurasian Bank has been appointed as the exclusive agent for financial brokering of the shares of the seized companies.

environmental management. With enterprises facing mounting economic pressure, pollution prevention received lower priority. Site contamination problems appear widespread while ambient environmental baseline data for mining sites is often not publicly available.[68]

At present, the non-ferrous mining and metallurgical sector accounts for 26% of Kazakhstan's industrial waste load. Tailings from the mining and enrichment of non-ferrous metals total 5.1 billion tonnes and take up an area of 14,000 ha. By contrast, about 105 million tonnes of metallurgical processing tailings are spread over 500 ha. of land. The low level of ore recovery and higher residual waste in the former operation compared to the latter account for the difference in the volume of tailings. In addition, inefficient mining operations and tailing management strategies have affected local environments.

Little information is publicly available on current environmental issues and problems at mining enterprises. One exception concerns Ispat Karmet.[69] As part of the privatisation process, a comprehensive environmental audit of this enterprise was undertaken and the results were made available to the public.[70] In negotiating environmental requirements with the purchasers the government made several concessions.[71] During the next decade, no new national environmental laws will apply to the enterprise. In addition, there is a cap on the annual cost of compliance with existing legislation. The purchaser is also exempt from liability for past environmental damage.

In general, few enterprises have established an environmental management system that conforms to ISO 14001 or similar international standards.[72] Regulations applying to the mining sector are not in step with international standards. In addition, there are deficiencies in enforcing existing legislation. For example, the contract system provides for the establishment of a fund to finance activities associated with mine closure. However, no guidance is provided on how this should be implemented. A different issue concerns a loophole in the country's mineral legislation. The liability of parties in cases of environmental damage by mineral exploration and exploitation operations is unspecified, as is the procedure for evaluating such damage. Broad environmental strategies for the mining and mineral sector are set out in the National Environmental Action Plan (NEAP), the Caspian Environmental Programme and the *Environment and Natural Resources* strategic plan to 2030. These documents describe projects for the sustainable management and protection of the country's mineral resources. The strategic plan provides general policy directions. Among the priorities identified are the improvement of the monitoring system in oil and gas-producing regions, the development of a new approach for monitoring the status of underground resources and new measures to reduce air pollution from the non-ferrous metals industry. Other priorities are the introduction of cleaner technologies in the mining industry and the development of sustainable techniques for minerals exploitation

### *(iv) Summing Up*

Kazakhstan has made little progress in improving policy conditions to stimulate new investments in the non-ferrous mining sector. This is also the case for environmental performance in this sector. No particular initiatives were introduced within the process to promote the greater use of cleaner technologies and practices. Foreign investors have introduced measures to improve resource efficiencies and cleaner production technologies. The wider challenge, however, is to broaden and deepen the uptake of such initiatives to all enterprises.

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[68] Levine, 1998.
[69] UN Economic Commission for Europe, 2000; Dalheimer and Ellmies, 2000.
[70] World Bank, 2001b.
[71] UN Economic Commission for Europe, 2000; World Bank, 2001b.
[72] UN Economic Commission for Europe, 2000.

**Conclusions**

FDI inflows to the non-ferrous metals sector in NIS countries have been low in comparison to other regions of the world. Several reasons might account for this. From an economic perspective, there was a significant inflow of FDI from 1993 until the financial crisis that hit Russia in 1998. This event had a ripple affect on all the NIS countries. In 2001, most of these countries received less FDI than in 1997. This underscores the continued difficulties they face in attracting investment funds compared to other transition countries or emerging markets.

The slow implementation of political reforms and administrative deficiencies has made foreign investors reluctant to commit themselves to the NIS. Relatively low environmental standards have not helped but it is unclear whether voluntary approaches or better-defined environmental regulations are the solution. Improved enforcement of existing environmental regulations would be a useful first step.

At a sector level, the failure of the NIS to attract foreign investment is obvious. The policy conditions in Latin America, especially in Peru and Chile, are more favourable for foreign investors. In the NIS a combination of slow progress in the privatisation process and domestic markets dominated by former large state-owned enterprises are not attractive to foreign investors.

The case studies reported here show that three out of the four companies indicated that foreign investment has generated direct environmental benefits. It was also found that the companies believed environmental measures could not have been implemented under domestic ownership. In sum, the main findings of the case studies were:

- foreign investment encouraged to a certain extent the transfer of environmentally beneficial management practices and technologies;
- domestic investors probably lack the long-term vision and financial resources to secure the international competitiveness of the companies. This includes improving environmental performance; and
- mining companies in NIS place high priority on reducing overhead and production costs. The introduction of new, or improved, technologies has a role to play but a barrier is affordability and accessibility.

The unfavourable investment climate in Russia and Kazakhstan may attract undesirable foreign or domestic investors seeking quick returns and injecting high-risk capital. This may have a negative impact on environmental quality because investments in upgrading technologies and processes may be considered too expensive.

In the last decade, extensive efforts have been made to establish enabling policy frameworks for minerals investment, particularly in developing countries. This has resulted in a substantial flow of investment, creating new opportunities as well as challenges. The opportunities include hard currency earnings in economies where they are scarce, increased government revenues, improved education and capacity building and the development of infrastructure such as roads, electricity and telecommunications. Many countries in the NIS have failed to capitalise on the opportunities associated with FDI in mining, however. The ability to manage mineral wealth effectively has lagged behind the ability to attract investment. A key challenge for NIS countries is to develop robust policy frameworks to ensure that mineral wealth is not lost but generates lasting benefits for local communities and the broader population. This framework should recognise that mine production has a

finite life span. Revenue generated by royalties and taxes during the mine's operation should be used transparently to improve human and other forms of capital in society.

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# PART II

# THE INTEGRATION OF ENVIRONMENTAL AND INVESTMENT POLICY GOALS: POLICY AND INSTITUTIONAL FRAMEWORKS

# An Asset for Competitiveness: Sound Environmental Management in Mining Countries[1]

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## Why Sound Environmental Management is Increasingly Important in Mining Countries

Mining operations across the world are easily recognisable. By the very nature of what mining means - digging, removing soil and overburden, and separating out ores and non-metal minerals - these operations leave behind environmental "footprints." Such "footprints" can have a number of different effects. At worst, they seriously limit the ability of surrounding communities to earn and sustain their livelihood, particularly in areas where the natural environment is relied upon to provide food, shelter, transport and other opportunities.

At the same time, more and more new mining operations take place in developing countries where institutions and systems vary immensely in their ability to regulate, manage and monitor the environmental impact of mining operations. At times, large mining companies have been suspected of seeking "pollution havens" to conduct their business. In reality, however, there is no evidence to substantiate such claims.[2] In fact, in an increasing number of cases large mining companies have been the driving forces behind the strengthening of environmental management systems in developing countries. In Chile in the early 1990s for instance, while the country was still developing its legal and institutional frameworks large mining companies committed themselves to substantive voluntary agreements regarding environmental performance. These agreements set standards for and provided inputs to the development of the national system of environmental management in the sector.

Indeed, the quality of a country's environmental management system is becoming a key asset in the competition for foreign direct investment, mostly because large mining firms are learning that the social and political consequences of environmental damage caused by careless operations or by accidents or spills can be extremely costly for their business. They have seen the financial performance of mining projects affected by a plethora of such events, and by the subsequent problems with adjunct communities. In managing the environmental dimension of their mining projects, these firms increasingly look for competent regulators and efficient institutions that understand the importance of clear, stable and transparent environmental frameworks.

The costs of not establishing well-designed legal frameworks for environmental management, and functioning institutions to implement them, can be high, as mining operations leave behind larger

[1] The conclusions and judgments contained in this paper should not be attributed to, and do not necessarily reflect the views of, the World Bank Group, its Executive Directors or the countries they represent. The authors thank Peter van der Veen, David Hanrahan, Didier Fohlen, and John N. Middleton of the World Bank for their comments on the paper. Contributions were also made by Clive Armstrong, Christopher Sheldon, and Ramanie Kunagayam. The original version of the paper appeared in the "Mining and Development" series published by the World Bank Group's Mining Department. The aim of the papers in this series is to share some of the experience and knowledge gained through daily work with developing country policymakers, the mining industry and mining communities and their organisations. Over the coming years, as the sector expands, governments, businesses and communities in many developing countries will face more and more complex issues and difficult trade-offs. Papers published under the "Mining and Development" series inform a wide range of interested parties about the opportunities, as well as the risks, presented by the sector.

[2] See Remy and MacMahon, 2002.

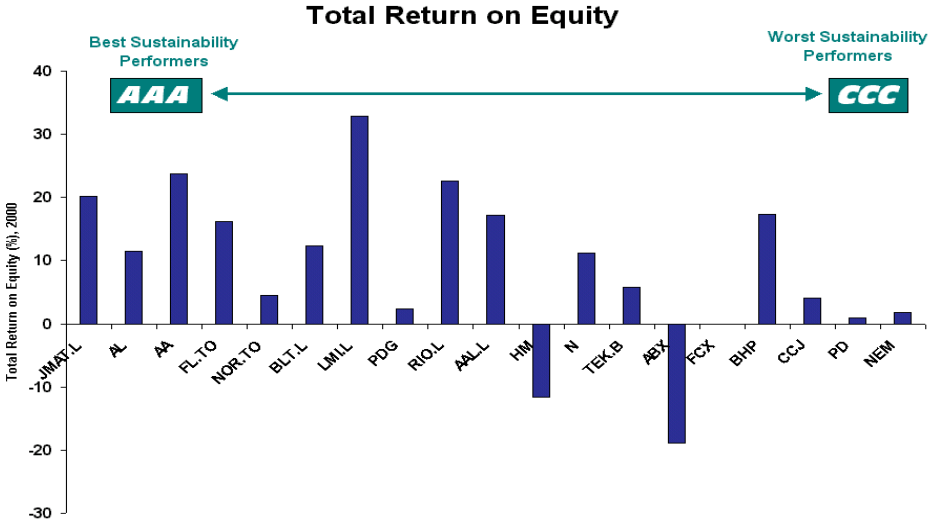
environmental legacies than they otherwise would have, with no responsibilities attached. Examples can be found in Ukraine and Romania in Eastern Europe, Zambia and South Africa in southern Africa, and amongst others, the Dominican Republic in Central America. Malfunctioning environmental regulations and institutions can also be a source of serious corruption and fraud. They can also work contrary to the desired policy outcomes, increasing environmental risks and decreasing significantly the sector's attractiveness to foreign investors.

**Financial Success for Mining Firms: The Linkage to Environmental Performance**

Few other sectors face similar challenges in terms of historical environmental liabilities, rapidly evolving global environmental conventions and treaties and ever-shifting compliance requirements and obligations with regard to local communities (for example, concerning land tenure issues, information and consultation, and local economic development) compared to mining. Not only are the targets moving, but the substance is also becoming more complex as environmental, social and economic issues in the mining sector become increasingly interlinked.

It is thus not surprising that mining firms find that their financial performance can be significantly improved through competent environmental management of their operations, by ensuring smooth processes, avoiding accidents, saving energy and conserving the use of raw materials. The top environmental performers in Innovest Strategic Value Advisors' annual survey of the global metals and mining industry posted accumulated returns that were over 60% higher than those of environmental laggards over a three-year period, and 10% higher over one year.[3] Total per share returns on equity and earnings growth correlated positively with environmental leadership (see Figure 1).

**Figure 1: Financial Performance and Environmental Performance of Mining Companies**




Source: Innovest Strategic Value Advisors, 2001.

[3] Innovest's annual survey assesses the performance of 21 of the world's leading minerals and metal companies in such areas as environmental management, resource usage, climate change, mine decommissioning and sustainability-related opportunities in new markets.

According to Innovest's report, what makes the relationship between environmental and financial performance stand out in the metals and mining industry is the influence of environmental and social issues on the bottom line. Expenditures relating to energy consumption, mine closure, waste management and spoil mitigation are becoming increasingly relevant to company profitability.

**Environmental Risks and the Influence of "Watchdogs"**

Not only have environmental issues become more complex and substantive over the past decade or so, but they also receive more attention at the international level. Progress in information technology and greater access to communication systems has resulted in an unprecedented degree of networking among civil society groups in developing and developed countries. Increasingly, and with unprecedented speed, many of the latter have become advocates of the former's interests. Nothing can produce the same negative impact on a mining firm's reputation as news of an environmental disaster, incident or accident publicised in real time and in detail by the developed world's media, irrespective of where it took place.

The increased interest also spurs ever-changing expectations about standards and performance. The expectations of local communities, governments and others about the effectiveness of the industry in addressing environmental concerns have risen significantly over the last decade, reflected in changing policies, regulations and best practices. Mining companies are experiencing increasing uncertainty regarding the planning and implementation of their projects. Currently required measures and steps on environmental performance can change tomorrow. What is acceptable today might incur high penalties tomorrow.

The stakes for mining firms are getting higher. Ultimately, they risk losing their social and political "license to operate": the unspoken agreement and understanding with civil society, both on the ground and in the realm of international politics, that a particular operation is desirable and should be supported rather than actively opposed. Losing this license to operate can have dire financial consequences, ranging from falling share prices to restricted access to capital.

Many companies have reacted to uncertainties evolving from rapidly changing environmental standards by committing themselves, on their own initiative, to higher standards than might currently be required by the host country. Stability of rules is becoming critical. A country that demonstrates its commitment and ability to set and monitor credibly appropriate and reliable environmental rules consistent with accepted international standards will stand out to investors, providing a stable framework that permits the management and planning of risks associated with the operation.

**Mining Companies: Only a Limited Role by Themselves**

The environmental risks of mining operations are well documented and include removal of soil and forest canopy; soil, air, and water pollution, including impacts on global warming;[4] and the destruction of fragile ecosystems and diminished biodiversity.

In the past, mining operations have sometimes wreaked significant damage to the environment, leaving unfortunate legacies that may need extensive programs to remedy, if they are reversible. Over the past 20 years, however, the industry has increasingly recognised the need and obligation to identify and mitigate the adverse environmental consequences of its activities.

[4] Methane seepage from coal mines can not only cause local environmental damage but also contributes to global warming.

The technology and knowledge needed to minimise or eliminate adverse impacts exists and are used in many cases. Most of the major companies today recognise the need to adhere to available standards, and in most cases successfully apply them (see Box 1). Remaining challenges for the private sector relate to:

- limited capacity, mainly among smaller mining firms, to apply and continuously update evolving environmental best-practice;
- an increasing tendency among mining firms to outsource significant parts of their operation and the often slow follow-up in obliging sub-contractors to adhere to environmental performance standards;
- the need to internally enforce and update environmental performance standards throughout the many years of a project's life. Enthusiasm and diligence of even the most dedicated staff can dwindle the longer a project is under operation.
- the need to gain and maintain the trust of the local community. Particular efforts are required to help people understand risks that they often can not see, smell or feel using non-technical language.

**Box 1: Methods Mining Firms can use to Curb Environmental Risks**

Mining firms have a variety of instruments and processes they can use to manage, minimise and mitigate environmental risks, including:

- establishing clear guidelines for operations;
- completing thorough environmental impact assessments (EIAs) and associated action plans;
- consulting with stakeholders at all phases of operations;
- following procedures for identifying liability and appropriate compensation in cases of harm;
- jointly preparing with relevant stakeholders an initial closure plan at the time of project approval and updating it on a regular basis during the life of the project;
- providing the necessary resources to fully implement the closure plan;
- clarifying and establishing, in partnership with communities and government agencies, post-closure monitoring and supervision procedures, as needed.

**The Challenges of Designing the Right Environmental Laws and Regulations**

When governments examine and possibly re-design laws, regulations and direct agreements with mining companies, as well as proactive policy interventions regarding environmental issues, it is important that they take the realities of their specific context into account. Although good models for regulatory frameworks exist in a number of industrialised countries with large mining sectors, it must be remembered that these have typically developed over many decades. Developing and transition countries often face a very different starting point because of weak legal systems, poorly functioning or non-existent institutions and limits in the availability of skills and human resources. In addition, the environmental and ecological conditions may differ from those in which many mining frameworks evolved, particularly in relation to working in areas with high rainfall and/or tropical conditions or specific biodiversity issues.

In order to avoid setting the wrong incentives, environmental administration of the mineral sector should be part of a wider national environmental management system, with established policies, legislation and enforcement procedures. Mining-specific issues can then, if necessary, be integrated into special laws and regulations (see Box 2). The main elements of such a system are:

- development of an environmental policy, including the establishment of goals and the formulation of strategies for achieving them;
- elaboration of a national environmental action plan (NEAP) for all business sectors, promulgation of an "umbrella" environmental law and enactment of sector-specific laws and regulations;
- establishment of goals for the environmental quality of different ecosystems, and standards for industrial emissions to the air, effluents to water bodies and solids discharges;
- establishment of public institutions responsible for environmental management and law enforcement;
- adequate training of personnel in environmental management;
- promoting the dissemination of environmental knowledge and information, particular among public agencies and institutions; and
- encouraging public participation in environmental matters, in particular among local communities, by providing opportunities for involvement tailored to needs and capacities.

**Box 2: Argentina - From Hodgepodge to Streamlined Process**

In 1997, the federal government of Argentina, supported by the World Bank, streamlined its previous mix of federal and provincial laws and regulations applicable to mining by passing a National Mining Environment Law. The law requires full and complete environmental impact statements and mitigation plans before permits are issued. The importance of uniform requirements for environmental permitting of mining projects cannot be understated. At the time the law was passed, Argentina was undergoing a boom in both exploration and mining development. The new national law helped companies by streamlining the permitting process, thereby removing some of the discretionary behaviour on the part of provincial authorities that had delayed projects. This also eliminated discriminatory treatment of operations depending on their location. At the same time, the federal government undertook an innovative environmental data management project that collected and synthesised air, soil and water baseline information in prospective mining areas. This provided companies with reference information and, more importantly, set baseline ambient standards against which a mining project could be monitored.

All these elements have a bearing on the mining industry, although to different degrees and with large differences between countries. The methods employed for achieving the goals will vary considerably and will depend on local, natural, socio-economic and cultural conditions.

Under all circumstances, however, it is essential to implement a process that gradually establishes:

- the legal basis for environmental control;
- basic institutional responsibilities and resources;

- a regulatory framework;
- monitoring and enforcement procedures, including public disclosure; and
- adequate operating resources (staff and budget) to address priority issues/areas.

The foundation of a successful system is to achieve some clear results early on. This will assure the public and investors that the most critical problems are being addressed. Much of the success of environmental legislation and corresponding regulatory frameworks depends on the details and the appropriateness with respect to a given country. In some Central Asian countries, for example, the long legacy of environmental damage stands in stark contrast to the body of very strict environmental legislation, which fails to take into account the given situation by differentiating appropriately between pollution stocks and pollution flows (see Box 3). Further complications arise where regulations tend to measure "end of pipe" pollution rather than the actual impact on the environment. In the absence of appropriate capacity for monitoring and enforcement, the contrast between the demands of legislation and the reality of business has given rise to corruption and embezzlement.

In many cases there is a need for a more structured approach to discussing and understanding some of these complex issues. The focus of interest for most parties is the specific mining operations or investment opportunities. Unfortunately, lesser attention is given to the context and to the institutional framework that govern the final shape of such operations. There is frequently a need for independent analysis and advice on legal and regulatory issues and for structured review of the environmental and social issues in the sector at large or in a specific region. A variety of tools is available for such work, including analytical studies, various types of consultative approaches and strategic environmental analysis. Such work, however, requires both the commitment of the decision-makers in the sector and the allocation of resources, both of which can be difficult to obtain.

Essentially all developing countries have now developed national environmental action plans (NEAPs) or related or equivalent country strategies, and have pursued follow-up activities to establish legal frameworks and related institutional mechanisms. The challenge is to ensure the availability of human and financial resources for the implementation of these strategies and frameworks, and to find pragmatic solutions that take into account limitations in resources and capacity.

**Implementation: Building Institutions Is the Key Challenge**

Drafting and passing appropriate environmental legislation is not easy. Yet there is a bigger challenge: establishing and staffing institutions that can draft practical regulations and that are able to implement, monitor and enforce laws and regulations. In this context, one of the most important issues for a country to decide is whether to pursue a sectoral approach to environmental management or an integrated one. Usually, the integrated approach is preferred, establishing an environmental governance institution (EGI) that is not tied to a specific sector and that forms part of the overall development planning process. However, in countries that have yet to develop an EGI, the sectoral approach, with an environmental office within the Ministry of Mines, provides a practical solution for the initiation of environmental work because it allows easy access to technical expertise and a better understanding of the issues involved. Once the basic instruments and procedures are in place, however, the country should move toward an integrated or mixed approach, where sectoral offices are coordinated by a designated central authority.

**Box 3: Central Asia - Regulations that are too Stringent Can Lead to Corruption**

In Kazakhstan and the Kyrgyz Republic, many mining operations bear extensive legacies of past environmental abuse. The eventual cost of clean-up and rehabilitation of these operations will be substantial. To complicate matters, the mining industry in existing and new operations alike is subject to environmental regulation, norms and standards that are neither internationally competitive nor compatible with the actual conditions of mining in the country. The basic norms and regulations were derived from those in use in the former Soviet Union and are typically based on "end-of-pipe" measurements. These standards are sometimes so strict (in fact, in many instances stricter than West European standards) that they are unattainable for enterprises operating with antiquated machinery. It thus makes economic sense for enterprises to pay fines or bribe inspection officials to continue to exceed pollution standards and avoid investing in new equipment. In addition, the legislation does not incorporate the notion of "sustainability." Concepts common in other countries, such as partnership, transparency, disclosure and revenue sharing among different levels of government are not well developed in Central Asia.

Another very difficult practical issue relates to the level at which the responsibility should be located: federal or provincial. These decisions are heavily influenced by the particular national circumstances and by trade-offs such as federal institutional capabilities versus local knowledge of the mine and surroundings, and national appropriation of revenues as opposed to decentralised fiscal systems. Often, availability of staff and resources at the different administrative levels decides the outcome of these discussions.

In Latin America, for example, no single conceptual model for managing environmental issues in the mining sector has emerged. Instead, a variety of pragmatic approaches has evolved.[5] In Peru, a country with a strong mining tradition and relatively weak environmental capability, much of the environmental responsibility is located in the Mining Ministry, where there is considerable relevant expertise. This ensures a knowledgeable and pragmatic approach to environmental issues, but there remain concerns about the country's capabilities for independent monitoring and enforcement (see Box 4). In a country with a strong federal structure, such as Argentina, the provinces have significant responsibility. To develop capacity at the provincial level, Argentina, supported by a World Bank loan, embarked on a program that provided training, instituted specific procedures and business processes and increased logistical support to environmental agencies, all based on the premise that each province must monitor its own area.

[5] World Bank 1996.

**Box 4: Peru - The Need for Institutions that are Competent and Independent**

In Peru, the mining sector in general has complied better than other sectors with environmental impact assessment (EIA) requirements as well as with environmental compliance and management programs and the territorial environmental assessments. However, there are several instances of potential conflict of interest within Peru's environmental management system. One such case occurs between core technical groups within the Ministry of Mines and Energy (MEM). Groups within the same ministry are responsible for promoting the mining sector while others have the mandate to prevent environmental damage in the sector. The only entity resembling a national environmental authority, the National Environmental Council, is limited to a very weak, co-ordinating intersectoral role. This has resulted in a perception by local communities of a conflict of interest within the MEM. A major concern is that environmental control is too lax, at the expense of the health of local communities. Consequently, social and political conflicts, such as spills or resettlement issues, could not be resolved by government agencies and have threatened mining companies' ability to implement mining permits or to continue to run existing operations.

Countries have developed different ways of dealing with capacity weaknesses in their institutions. An interesting example is South Africa, which has introduced extensive public consultation processes. To some degree this has mitigated the government's own capacity limitations in monitoring by extending the involvement of the general public. However, in general, it remains an open question as to what extent governments and government agencies can rely on third-party involvement in monitoring, for example, through local organisations and/or accredited independent consultants.

As these examples illustrate, environmental institutions and systems must be designed to work with local structures, not against them. Some level of reform or reorganisation may be needed.

An emerging and potentially very important dimension of the institutional challenge is the commitment of many major international mining firms to sound environmental and social performance, even where the local regulatory system is weak. Such companies accept that some environmental standards should be adopted as a matter of good corporate behaviour. Given that these companies often have more expertise and resources than the regulators with whom they are dealing, a co-operative approach can greatly benefit the efforts of local regulators. Where such corporate initiative is combined with the genuine involvement of local communities, there is a much higher probability of finding broadly acceptable solutions to mining-related environmental and social issues.

Such trilateral approaches to managing concerns in the context of mining operations are currently being developed in a number of sites and countries. An interesting pilot program is the "Business Partners for Development," supported by a number of companies, NGOs, governments and the World Bank. The program has supported a number of mining companies, governments and communities as they set up trilateral arrangements for managing a variety of concerns. These processes were studied and analysed in order to understand better the most promising approaches.

Meeting the challenge of implementation through trilateral co-operation is complicated by huge differences, not only between countries and local communities but also among the various corporate actors. Most major multinational firms are attempting to work seriously toward improved performance, even where regulation is weak. However, some companies are inclined to take advantage of weaknesses in the policy framework. This can lead to public distrust of the sector as a whole.

**Box 5: Papua New Guinea - A Streamlined Approach to Environmental Management**

Papua New Guinea is a small country with excellent mineral potential. It has a new best practice set of environmental laws and regulations that apply to all sectors. In addition, the government has specific environmental protection requirements and monitoring procedures for mining projects. These are contained in project development agreements negotiated between the project sponsor and the government. The project licensing and approval process also includes a decision-making "forum" involving the developer, impacted communities ("land owners") and all relevant government departments. The process results in a high degree of information disclosure and consultation between the developer and the people affected by the project. Effectively, the country has created a "one-stop" approval process convenient not only for the developer but also more manageable for government departments, which typically have very modest budgets and resources for addressing the impacts of large projects. The process enables social and environmental issues to be integrated at the approval stage. A review of the mining sector conducted by independent consultants indicates that mining projects subject to these arrangements have a generally satisfactory environmental performance. (The exception is the Ok Tedi project, which was developed before these procedures were established.)

**Specific Issues for Environmental Laws and Regulations in the Mining Sector**

Laws and regulations, as well as institutions monitoring and enforcing them need to be designed with the entire cycle of a mining project in mind. This includes exploration, construction, operation, closure and post-mine management. Six issues are particularly important:

- land and water use;
- waste management;
- treatment and control of chemicals and pollutants;
- tailings disposal;
- air pollution; and
- noise control and abatement.

Governments should monitor whether and how these impacts are addressed and managed with regard to potential risks to human health and the environment, and what plans and actions are taken to mitigate risks. If mining companies have agreed to follow voluntary codes of practice and to establish related management systems several questions need to be considered. Do these have international acceptance? Do they go beyond legal requirements? If so, are there any enforcement mechanisms built into the voluntary agreement? Are the different types of safeguards (laws, regulations, policy interventions, voluntary agreements) adequate and can they be respected, implemented and monitored? Is there independent monitoring by third parties or participatory monitoring involving representatives of local communities? Can safeguard mechanisms, once established, be used to market the sector to potential investors (for example, by emphasising the reduced investment risks and greater operational ease)? If the system of laws and regulations is deemed inadequate, can a process be established that will result in the creation of a system balancing national and regional priorities and local circumstances with the need to conform to international best practice?

Often, special regulatory provisions must be made in the case of mine closure. Otherwise, governments might be left with huge bills to be paid concerning environmental legacies left behind by eventually insolvent mining companies (see Box 6). A number of questions are relevant. Are environmental responsibilities defined for orphaned sites and for land decontamination? How is closure, reclamation and clean-up defined? What is the definition of rehabilitation, for example, returning disturbed land to a predevelopment state or finding alternative uses of the land? What agreements can be reached about the use of land after mine closure, in particular for land rehabilitation? Are safety issues in the post-mine context, such as tailings and dam spills, taken into account in the mine closure plan? Do taxation law and regulations encourage or discourage mining companies to set aside funds for mine-closure? What are the arrangements for post-closure monitoring, site stability and environmental protection?

Ensuring that these issues are included in the legal and regulatory framework will reduce risks for mining companies insecure about potential liabilities that they might have to provide for in the future.

**Box 6: Romania - The Cost of Previous Neglect of the Environment**

In Romania nearly 400 mines were developed between the 1950s and 1989 under its centrally planned system, often with little regard for economic viability or environmental protection. In 1990, Romania began the transition to a more market-based and environmentally responsible system. In the 1990s, production was terminated at about half the mines and subsidies are being progressively shifted from covering operational losses to helping with the environmental and social requirements of mine closure. Environmental policy and legislation are the responsibility of the Ministry of Waters and Environmental Protection (MOWEP). Today Romania has a sound environmental legislative framework with clearly specified compliance standards. Environmental permitting, monitoring and enforcement is undertaken by the MOWEP territorial inspectorates. This provides a modern environmental framework for the existing operations of both state-owned and private sector companies, as well as for the development of new private sector mining operations. The government is undertaking a mine closure program for nearly 200 mines in an environmentally responsible manner (including four groups of mines being closed with assistance from the World Bank). So far, about 60 mines have closed. A sector environmental assessment has identified a large legacy of closed tailing facilities, which the government is addressing. In addition, amendments to the mining law were submitted to the Parliament in early 2002 to address the mining-specific environmental requirements relating to mine closure, post-mine closure monitoring and mining social impacts (not covered under current legislation).

**Biodiversity and Global Warming: What Role Should Governments Play?**

Remedies for global impacts, such as global warming and biodiversity loss, present a special challenge for governments. The decisions about the options involved (notably, development versus conservation) and the costs of actions needed are local issues. However, the benefits may be largely global. In some cases, it may be possible to obtain the desired results by establishing mechanisms supported by parties willing to pay the local costs needed to gain the global benefits.

In the case of global warming, for example, the Global Environmental Facility (GEF) and the Kyoto Protocol framework are attempts to address this issue. The latter envisages the creation of global markets for carbon emissions that would provide investors (including investors in developing countries) with extra revenues for investments that reduce emissions beyond what narrow commercial or national self-interest might dictate. Carbon-trading mechanisms could become highly relevant for coal mining, especially concerning coal-bed methane recovery. Governments will have to play a key role in facilitating such arrangements.

Increasingly, large-scale mining is reaching some of the most remote and biodiversity-rich ecosystems on earth, driven by growing global demand for minerals and rapidly changing technologies and economics in the mining sector. Until recently, many of these areas were closed to foreign investment and were largely unexplored and undeveloped for minerals and other natural resources. Now, economic liberalisation, privatisation of resource extraction and general improvement in the business climate for investment in developing countries are beginning to open these areas to an unprecedented level of industrial development. Governments must play a key role in managing this process, but work by a number of international organisations and civil society groups to define "international biodiversity hot-spots" provides a very interesting context. This work can help governments designate and safeguard areas that they wish to preserve. Still unclear is the question of whether and to what extent the preservation of "biodiversity hot-spots," if defined globally, should involve payments by the global community to compensate developing countries for a loss in potential economic development if they choose to preserve those spots rather than to develop them. Already, governments are beginning to negotiate with investors about mitigation measures and/or offset investments that can finance support for biodiversity areas that would replace or mitigate some of the biodiversity losses elsewhere.

**Defining Responsibilities: The Task for the Future of Environmental Management in Developing Countries**

In establishing frameworks and institutions for environmental management, governments should keep the "bigger picture" in mind. Environmental rules and regulations need to be integrated into a vision of a vibrant mining sector that, by attracting private investment, can create a foundation for environmentally, socially and economically sustainable well-being for local communities and the population at large. In fact, many countries feel that they need to assess the environmental risks of any given mining project against its potential economic benefits in the surrounding region. Such trade-offs may be present through the entire life of the project: from exploration, development, operation, to closure and beyond. These trade-offs need to be understood and "owned" by all relevant parties, including communities and local governments.

In the past decade, there has been a growing appreciation among stakeholders of the need to work together on environmental issues in the mining sector. This recognises that no one group can deal fully with all the issues. During this period, however, the appropriate boundaries of each stakeholder group's contribution blurred and became a source of confusion and tension. Even the definition of "stakeholders" is still not without controversy; the relative interests, responsibilities, and direct exposure to risk of the various groups covered by this umbrella term vary hugely. Nonetheless, a consensus, albeit incomplete, seems to be emerging regarding potential roles and responsibilities.

***Governments***

Governments are ultimately in charge of setting the rules by which mining takes place in a given jurisdiction, and their actions will be critical to achieving sustainable benefits for the national economy from the mining sector. Governments must provide strategic direction: the requisite legal, regulatory and institutional frameworks to pursue social and environmental goals; promote accountability, openness and inclusion; and achieve widespread and tangible benefits for the country's citizens.

***Local Communities***

Local communities are the most directly affected by the environmental impacts of mining operations. Communities' rights can be safeguarded if their concerns are listened to and respected and if they are able to take an active role in understanding and influencing extractive operations. Sometimes, assistance may be needed to increase the capacity of local communities to allow them to participate effectively in consultations and in monitoring operations. Increasingly, communities see environmental issues in the overall context of the distribution of the risks and benefits from mining. The sharing of benefits, fiscal and otherwise, through the various levels of government down to the local community is a way to accommodate such concerns.

***The Private Sector***

The private sector is expected to provide the capital, technology and managerial expertise to run mining operations. It must also comply with all local laws, regulations and contracts, including those that deal with social and environmental topics. The expectation is that it will go beyond local requirements where home-country standards, operations in other countries or internal guidelines set higher standards. Sometimes the private sector is asked to address a whole range of issues outside its traditional mandate. This is particularly the case when local or national governance structures are inadequate. In considering the private sector, the range of potential investors needs to be kept in mind: from the largest international companies to small local companies and even artisanal miners. Capacities, incentives and priorities may vary hugely and present particular issues.

***Civil Society***

Members of civil society, including local and community-based organisations, have been effective monitors of the impact of mining operations and successful advocates for change effected by government, industry and international development agencies. They have, at times, won praise for advancing the development agenda and for drawing attention to issues that might have been overlooked or downplayed. Many civil society organisations, including local community-based ones, are active in implementing policies and programs designed to promote sustainable development and reduce poverty. In the case of mining, non-governmental organizations (NGOs) and community-based organisations (CBOs) may sometimes be able to play a role in the delivery of social services and the administration of project trusts and infrastructure or capacity building with regard to social and environmental monitoring.

***International Development Agencies***

International development agencies such as the World Bank Group are well placed to support both government and the private sector by assisting in sector reforms and the preparation of investment frameworks; by providing loans, equity finance or political risk insurance to investors; and by advising on governance, social and environmental reforms. International agencies have a unique ability to operate at the interface of governments, investors and civil society groups. The leverage of their

development funding can be persuasive in securing the enactment and implementation of sector reform; effective management and mitigation of risks; and evolution toward socially acceptable and environmentally sustainable development. Their objectivity and global experience can also give these agencies credibility that enables them to play a useful role locally or internationally at the request of governments and other stakeholders. Such agencies can use their convening power to bring a variety of groups together in a way that facilitates constructive dialogue and paves the way for participatory processes, especially those that transcend national boundaries.

***Bilateral Donors***

Bilateral donors are often partners in projects financed by the World Bank Group or other international agencies. This is also the case in the mining sector where governments might co-finance public policy projects directly or where they are involved in private sector projects through their export credit agencies, trust funds or similar arrangements. The partnerships may take various forms, ranging from co-financing or parallel-financing to complementing World Bank Group activities with grant resources, particularly for capacity building and for specific environmental and social activities related to the project.

***Partnerships***

Over the past decade, governments and investors alike have come to recognise that they can no longer "do it alone" and that partnerships are needed to successfully develop mining projects. Civil society in general, and affected communities in particular, need to be fully consulted and supportive if mining is to take place in a satisfactory and sustainable manner. Trust among stakeholders, developed over time through joint undertakings, while respecting one another's role, interests and comparative advantages has become a prerequisite to sustainable development based on mineral resources.

***Codes and Guidelines***

A growing body of mostly voluntary agreements, codes and inventories of best practice is shaping performance in the mining sector in a positive way. A good example is the recently developed international cyanide management code (http://www.cyanidecode.org) Effective consultation and partnerships can lay the basis for development and implementation of such codes and guidelines, which can be applicable at both the sector level and to individual projects. To be effective, codes and guidelines require stakeholder groups to have the capacity and motivation to fulfill effectively their respective roles.

**The World Bank Group: Working toward Enhancing Environmental Performance in the Mining Sector**

The World Bank Group's mandate is to fight poverty and help improve people's lives in developing countries. In working toward this objective, the Bank is aware that the mining sector for many countries is a large and often only source of government revenues and foreign direct investment, providing opportunities for sustained economic growth and the reduction of poverty. At the same time, the poor are among those most exposed to risks associated with mining operations. They often do not share in the economic opportunities of mining. However, they bear many of the costs as well as the risks that result from the introduction of a mine into an undeveloped area. The environmental damage incurred during a mine's operation (or left behind after mine closure) can seriously impact people's well-being and livelihoods. A key element of the World Bank Group's work in the mining sector is therefore supporting governments in shaping regulatory frameworks and institutions such that their mining sectors can contribute to sustainable development. At the same time, the Group works through

its private sector arm, the International Finance Corporation, to encourage responsible private investments in mining projects in developing countries.

The World Bank Group has developed safeguard policies for environmental and social issues. These policies and guidelines are key elements of its projects in the mining sector. During the appraisal process, policies are identified that will be applicable to the project. After an investment decision, the project's performance is monitored against these policies. Compliance is expected. The Bank's safeguard policies are based on 45 years of experience developing projects around the world. They give governments as well as mining firms a powerful instrument for avoiding mistakes, reducing development risk and improving project sustainability. They cover:

- environmental assessment;
- natural habitats ;
- pest management;
- indigenous peoples;
- cultural property;
- involuntary resettlement;
- forestry;
- safety of dams;
- projects on international waterways;
- projects in disputed areas; and
- public consultation and disclosure.

**Final Remarks: Investment, Competitiveness, Environmental Protection and Beyond**

As our knowledge of the scientific and operational issues has increased, the emphasis of environmental management has shifted from avoidance and mitigation of harm to the generation of environmental and other benefits that create a more favourable net impact from development. For example, new investors might undertake the remediation of past bad practices by others. Or, in addition to applying best practices to their own operations, investors might support the safeguarding of other areas of possibly greater importance that might be threatened (referred to as "offset areas") or fund or participate in environmental research, such as biodiversity surveys or experimental research. These areas, rather than questions of minimum legal and regulatory compliance, are likely to dominate the discussion about environmental issues in mining in developing countries in the next decades.

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## FURTHER READING

World Bank Group Mining Department: <<http://www.ifc.org./mining>>; <<www.worldbank.org/mining>>

World Bank Group Guidelines on the Environment (IBRD/IDA, IFC, MIGA): <<http://www.worldbank.org/environment/op_policies.htm>>

The World Bank Group's Environmental Agenda: <<http://www.worldbank.org/environment>>

Experiences with Partnerships between Governments, Mining Firms, and Local Communities: <<http://www.bpd-naturalresources.org/>>

Poverty Reduction Strategy Sourcebook – Mining: <<http://www.worldbank.org/poverty/strategies/chapters/mining/mining.htm>>

The Pollution Prevention and Abatement Handbook: <<http://wbln0018.worldbank.org/essd/essd.nsf/Docs/PPAH>>

Background Paper: World Bank Group Activities in the Extractive Industries: <<http://www.eireview.org>>

# Financial Institutions and the "Greening" of FDI in the Mining Sector

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## Introduction

This paper examines the role that public and private sector financial institutions can play in "greening" FDI in the mining sector. It considers the following issues:

- the different ways in which financial institutions have a stake in mining FDI;
- motivations for financial institutions to address environmental issues;
- approaches of financial institutions to environmental issues and experience so far in the mining sector;
- levers and instruments available to financial institutions; and
- strengths and weaknesses of existing approaches.

The focus on environmental issues associated with FDI, while social issues are considered only where they are linked to the environment, for example the effect of river pollution on local livelihoods. The paper does not address the role of financial institutions in relation to purely social issues in the mining sector such as forced labour or the spread of AIDS. Although clearly important, these are not necessarily linked to environmental issues.

The paper is primarily a desk study based on available literature and is not intended to be a rigorous survey of financial institutions' practice in relation to the mining sector. It draws heavily on research carried out under the Mining, Minerals and Sustainable Development project (MMSD), a joint initiative of the International Institute for Environment and Development (IIED) and the World Business Council for Sustainable Development (WBCSD).

## The Role of Financial Institutions in FDI in Mining

Most corporate decisions on investing overseas involve the participation of a financial institution either directly through project finance or indirectly in the form of insurance. Financial institutions have a key role in any productive activity but in mining, given the huge amounts of initial investment required, they are particularly important. A typical FDI mining project requires an investment of US$700 million to $1 billion and is unlikely to go ahead without financial backing from a syndicate of financial institutions as well as political risk insurance and other types of insurance. Equity used to be the only way to finance projects in countries with high political risk, where mineral resources are often located. Liberalisation of investment and financial regimes and technical support from multilateral and bilateral agencies has extended the range of finance available for mining FDI.[1]

Mining FDI is often financed through project finance where funds are repaid from the cash flow of the project and the assets of the project are used as security. There is limited recourse to the assets of the sponsoring companies involved. This is typical of large projects requiring substantial amounts of investment and where the risks are high.

[1] N. Hughes and A. Warhurst, 1998: *Financing the Global Mining Industry: Project Finance*, Mining and Energy Research Network, Corporate Citizenship Unit, Warwick Business School.

Both public and private sector financial institutions have a role in mining FDI. Their specific involvement depends on the stage in the mining cycle, whether the company is a junior or major miner and the type of finance involved. The following typology is observed in practice:

*Public institutions:*
- multilateral and bilateral development finance institutions;
- export credit agencies.

*Private institutions:*
- commercial banks;
- equity investors, including asset management institutions and venture capital;
- insurance institutions.

***The Role of Public Financial Institutions***

***(i) Development Finance Institutions***

Given the magnitude of mining projects, their development and revenue-generating potential and the fact that they are often located in remote regions of developing countries, multilateral and bilateral development finance institutions take a keen interest in the sector. The International Finance Corporation (IFC), the private sector arm of the World Bank Group, is a significant financier for mining projects in developing countries, providing both debt and equity finance. It also catalyses other debt and equity funds from private sector sources as well as other official institutions. IFC invests in both small and large-scale projects and in both greenfield projects and expansions. It does not normally finance exploration activities.[2] Oil, gas and mining constituted about 7% of IFC's committed portfolio in 2001, worth about US$1 billion in total.[3] Over the period 1993 to 2001 the IFC financed 61 mining projects (including expansions), providing US$1.53 billion worth of equity and debt financing. This equated to an average investment of 35% in these projects.[4]

Other agencies within the World Bank Group such as the International Bank for Reconstruction and Development/International Development Association do not work directly with the private sector, unlike the IFC, but do play an important facilitating role for mining FDI. By providing assistance to governments in mining sector policy reforms, they help set a framework within which FDI can take place. The Multilateral Investment Guarantee Agency (MIGA) plays a role in promoting FDI in developing countries through its political risk insurance programme under which it insures project sponsors and/or project lenders against non-commercial risks such as expropriation, breach of contract, or war and civil disturbance. Its outstanding gross coverage for the mining sector is US$524 million, or 13% of its portfolio. Since 1990, it has offered more than 50 guarantees in the mining sector, in some cases in conjunction with other agencies.[5] One of its largest transactions in this sector has been for the Bulyanhulu mine in Tanzania involving a US$115 million guarantee to a syndicate of

[2] <<http://www.worldbank.org/mining/investment>>
[3] M. Weber-Fahr, 2001: Presentation to the Extractive Industries Consultative Review Planning Workshop, Brussels, 29-30 October 2001.
[4] A. Zemek, 2002: "The role of financial institutions in the mining finance process", Background paper prepared for Conference on Finance, Mining and Sustainability: Exploring Sound Investment Decision Processes, 14-15 January 2002, UNEP/World Bank/MMSD, Paris.
[5] MIGA Political Risk Insurance Project Highlights by Sector, <<http://www.miga.org>>

banks for their loan to Kahama Mining, a wholly owned subsidiary of Barrick Gold Corporation and one of US$56 million to Barrick.[6]

At a regional level the most important player in terms of volume is the European Bank for Reconstruction and Development (EBRD), which has provided US$300 million to the mining sector in Eastern Europe and Central Asia. Mining is the second largest loan sector after oil and gas. The European Investment Bank (EIB), which has a specific mandate to promote private sector activity, also has a limited involvement in the mining sector. The regional development banks such as the Asian Development Bank (ADB), the Inter-American Development Bank (IADB) are relatively minor players.

A number of bilateral development finance institutions such as the Commonwealth Development Corporation (CDC), the Netherlands Development Finance Company (FMO), the German Investment and Development Company (DEG), la Société de promotion et de participation pour la coopération économique (Proparco, France) support mining through loans and equity. For example, CDC Capital Partners (formerly the Commonwealth Development Corporation) has targeted the oil, gas and mining sector as a priority and established a dedicated team to work in this area. It currently has over US$130 million invested in the mining sector in Asia, the Americas and Africa. In 2000 it took a US$30 million equity stake in Konkola Copper Mines in Zambia, which had acquired the privatised Zambia Consolidated Copper Mines.

In a number of cases both multilateral and bilateral institutions are involved. For example, the Sadiola gold mine in Mali involved a US$250 million investment, of which US$160 million was in the form of loans provided by the IFC ($60 million), EIB ($40 million), DEG, FMO, Proparco and others.[7]

Development finance institutions within developing countries also play a role. The prime example is the Industrial Development Corporation of South Africa, which in 1996 extended its mandate from South Africa to all member countries of the Southern Africa Development Community and again in 2000 to the whole of Africa. It has invested in mining projects in Botswana, Namibia, Zimbabwe and Zambia amongst others.[8] Similarly, Corporación Andino de Fomento (CAF) which is a multilateral financing institution owned primarily by the five member countries of the Andean region has invested in mining projects in these countries. Examples of CAF's involvement in Bolivia include a US$6 million loan to Comsur (an affiliate of Hemlo Gold and Battle Mountain) in 1991 and a US$15 million loan to Inti Raymi (an affiliate of RTZ, now Rio Tinto) in 1992.[9]

### *(ii) Export Credit Agencies (ECAs)*

ECAs were originally set up to promote trade by providing government-backed cover to companies for the risks involved in exporting or by assisting buyers with finance. Today their functions are much broader and extend to investment guarantees, political risk insurance and in some cases project finance. They provide finance or insurance cover for situations too risky for the private sector to get involved. Unlike the development finance institutions, the mandate of the ECAs is to promote exports and industry of the home country. For this reason they are usually regulated by the government

[6] MIGA Statement on Bulyanhulu Mine in Tanzania, <<http://www.miga.org/screens/news/press/092601>>

[7] G. Armstrong, 1999: Financing Mining Projects in Africa, Presentation to the Inaugural Australian African Mining Exploration and Investment Opportunities Conference, November 1999

[8] J. Coetzee, 2001: "South Africa: Project Finance and the Identification and Allocation of Risks", Presentation to the Minerals Finance Seminar, Copthorne Tara Hotel, London, 28 November 2001.

[9] F. Loayza and JC de la Fuente, 1998: *Financial Drivers of Environmental and Social Performance: The Bolivian Case*, Mining and Energy Research Network, Corporate Citizenship Unit, Warwick Business School.

department concerned with trade and/or industry rather than the development assistance agency. The characteristics and range of functions of ECAs varies considerably. The UK's Export Credit Guarantee Department (ECGD) is a separate department of the British government, reporting to the Secretary of State for Trade and Industry. Similarly, Canada's Export Development Corporation (EDC) is a crown corporation. Others, like Coface of France and Hermes of Germany are private companies that manage these functions on behalf of their respective governments. The government-backed component of their activities is small in relation to the rest of their activities. In the case of Coface, state-backed activities accounted for about 8% of its sales in 1999-2000.[10]

Information on the projects supported by ECAs is considered by some of the agencies to be commercially sensitive. For this reason it is not possible to estimate their total support to mining FDI projects specifically. More generally, the NGO campaign group, ECA Watch, estimates that ECAs are the largest source of public international finance in the world, exceeding development assistance and accounting for 24% of all developing country debt.[11] Examples from specific projects illustrate clearly the importance of the ECAs to mining FDI. The Antamina zinc and copper project in Peru involved a total investment of US$2.27 billion ($1.339 billion as debt and $935 million as equity). It received project finance from the Export-Import Bank of Japan (JEXIM) totalling US$245 million, EDC (US$135 million), Germany's Kreditanstalt für Wiederaufbau (KfW) US$200 million) and Leonia Bank (US$55 million). In total, these contributions accounted for 47% of total debt financing for the project. Political risk insurance cover was provided by from Finnvera (US$54 million) JEXIM (US$105 million) and a syndicate of official and private institutions led by EDC (US$335 million).[12] Another example is the issuance of political risk insurance valued at C$163 million to Cambior Inc. to cover its investment in Omai Gold Mines Ltd. Omai Gold Mines Ltd is jointly owned by two Canadian companies, Cambior (65%) and Golden Star (35%), and the Guyanese Government (5%). A third example concerns the 1997 loan agreement approved by JEXIM totaling US$450 million for the Los Pelambres Copper Mine Project in Chile. Co-financers of the loan were the Industrial Bank of Japan and the Bank of Tokyo-Mitsubishi, Ltd., both serving as lead banks, ABN-AMRO Bank, Credit Lyonnais and Union Bank of Switzerland.

ECAs in countries with a significant mining sector have targeted that industry in their activities. In 2000, the mining sector as a whole constituted 15% of the commercial exposure of Australia's Export Finance and Insurance Corporation (EFIC), mainly as political risk insurance.[13] It approved one mining project (a feasibility study) that year, constituting less than 4% of the funds disbursed.

***The Role of Private Financial Institutions***

The type of finance involved depends on the stage of the mining project cycle. Financing for prospecting and exploration activities includes equity from private investors or venture capital funds or from funds raised on junior stock exchanges in Canada, the UK and US. One estimate is that throughout the 1980s and 1990s almost half of the finance raised for exploration activities in the world was raised on the Vancouver and Toronto stock exchanges.[14] Official financial institutions do not generally get involved at this stage.

[10] <<http://www.coface.fr>>
[11] Jakarta Declaration for the Reform of Official Export Credit and Investment Insurance Agencies, see www.eca-watch.org.
[12] Zemek, op. cit.
[13] EFIC Annual Report 2000, <<http://www.efic.gov.au>>
[14] Environmental Mining Council of British Columbia, 2000: *Follow the Mining Money: An Activist Toolkit for Direct Corporate Campaigning*.

### *(i) Lending Institutions*

Project finance is the main instrument used at the construction stage. Banks are important providers of debt finance at this stage, sometimes in conjunction with official institutions. A rule of thumb is that lenders do not usually accept a project with a debt to equity ratio higher than 70:30.[15] Commercial banks provided the bulk of the finance for some 160 mining projects in developing countries worth over US$50 billion between 1996 and 2001.[16] Commercial banks are therefore important drivers of FDI in the mining sector.

Banks also play a role as advisers to act on behalf of the owners to locate sources of equity and debt finance and negotiate lending terms without lending any money themselves, or as arrangers where they both lend and find other banks to form a consortium.[17] For example, in 2001 Apex Silver Mines appointed Barclays Capital and Deutsche Bank Securities as lead arrangers for the project financing of its silver zinc mining project in Southern Bolivia.[18]

### *(ii) Asset Management Institutions*

Private investors and institutions managing funds on behalf of others hold shares in mining companies listed on major stock exchanges such as London and New York. Anglo American, BHP Billiton and Rio Tinto are included in the Financial Times Share Index (FTSE) 100 as well as indices of other stock exchanges and are therefore likely to be part of institutional portfolios and index tracker funds. There are also specialist mining funds, for example the Merrill Lynch World Mining Trust. In most cases, institutional investors hold only a small proportion of the shares of each company. Individually they have little influence but collectively their involvement is significant. There are exceptions. For example, the insurance groups Old Mutual and the Butterfield Trust are both substantial shareholders (i.e. more than 3%) in Anglo American. Institutional investors have an indirect role and interest in the financing of FDI, insofar as this affects their perceptions of the overall performance of the company. More directly, new share issues may finance acquisitions of companies overseas or the equity contribution to new mining projects.

The mining industry is very small, however, constituting only 0.7% of the MSCI. Returns to shareholders over the long-term have been poor relative to other sectors. Mining companies are not an obvious choice for pension funds with a long-term focus. Some institutions like Storebrand take only short-term positions in mining to take advantage of fluctuations in metal prices and exchange rates.[19]

### *(iii) Insurance Companies*

Mining FDI projects often require various types of insurance to cover both risks associated with the construction and operation of the mine, and political risk. Cover includes loss or damage to property and third party liability. Specialised environmental cover for progressive environmental problems is

[15] Hughes and Warhurst, op. cit.
[16] Zemek, op. cit.
[17] Ibid.
[18] Apex Silver Mines Company News on Call: "International Finance Corporation and Corporación Andina de Fomento Evaluating Financing Options for Apex Silver Mines Limited's San Cristobal Project", 10 May 2001, <<http://www.prnewswire.com>>
[19] A. Skanke, 2002: "Strengths and Weaknesses of the Mining Industry - Information Required by Investors", Presentation to Conference on Finance Mining and Sustainability: Exploring Sound Investment Decision Processes, 14-15 January 2002, UNEP/World Bank/MMSD, Paris.

available but rarely taken up.[20] Reinsurance companies such as Munich Re and Swiss Re, which provide cover to primary insurance companies, are also important players. However, many of the larger mining companies prefer to self-insure their mining projects so the involvement of insurers is limited.[21]

Insurance companies also have a role as investors as they hold significant amounts of assets to meet their potential liabilities.

**Motivations for Financial Institutions to Address Environmental Issues**

Vertical integration to include manufacturing of final products is rare among mining companies. Mineral product or supply chains are highly complex and there is little connection between mining companies and the final consumer. In this context, consumer pressure is unlikely to drive environmental improvements in the mining sector except in niche markets. Governments in host countries are often not in a position to ensure improvements in environmental performance because of lack of resources for enforcement and concerns about competition from other countries as investment destinations. Increasingly, financial institutions are a driver of environmental improvement in the mining industry. It is important to be clear on the reasons why they should take on such a role, however.

Three different types of motivation are identifiable:

- coherence with government or international policy initiatives and sustainable development goals;
- the belief that addressing environmental issues makes good business sense; and
- ethical reasons or the belief that financial institutions should be responsible for their financing decisions

The relative importance of these different motivations depends on the type of institution. There are also different views amongst the various stakeholders as to how important these motivations are. We consider each in turn below.

***Coherence with Wider Government Objectives***

The first type of motivation clearly applies more to official institutions than to private institutions. Most, if not all, multilateral and bilateral development finance institutions have a mandate to promote development in the host countries where their investment activities are located. Increasingly the concept of development used by these institutions is broadening from the economic domain to encompass environmental and social equity issues, i.e. sustainable development. It would be incompatible with this goal to finance projects that adversely affected the local environment.

Traditionally, the mandate of export credit agencies has not been concerned with overseas development but rather with the industrial development of the home country. Only since the mid-1990s has the need for these agencies to be in step with other government policy objectives such as sustainable development been highlighted, first by NGOs and more recently by government

[20] Zemek, op. cit.
[21] R. Sandbrook and G. Elliot, 2001: Intervention at the Conference on Mining, Finance and Sustainability, 8-9 April 2001, World Bank/UNEP/MMSD, Washington D.C. See meeting report on:
<<http://www.iied.org/mmsd/mmsd_pdfs/finance_meeting_report_9April.pdf>>

departments. In a foreword to a review of the mission and purpose of the UK's Export Credit Guarantee Department the Secretary of State for Trade and Industry noted that "[i]n addition to its trade facilitation role, ECGD should take account of the Government's wider international policies to promote sustainable development, human rights and good governance throughout the world, while still helping UK firms to compete effectively for business internationally."[22]

While most NGOs argue the need for coherence with sustainable development objectives, some believe that this is not possible to achieve in the mining sector. This group calls for a moratorium on public funding and support to mining and fossil fuel projects because they consider them unsustainable.[23]

***The Business Case***

For private financial institutions whose primary objective is profit maximisation, the idea that addressing environmental issues can make good business sense is a potentially powerful motivation. Given the low returns to shareholders in mining over the last 15 years [24], this is particularly important as it appears to offer a way of increasing shareholder value through environmental management rather than damage.

Increasingly, lending institutions recognize environmental issues as an important element of risk assessment. Environmental and social risk for financial institutions includes:

- direct implications, where the financial institution finds itself liable for clean up costs or third party claims for pollution damages. This may occur where a bank forecloses on a loan and takes possession of land offered as collateral;
- indirect effects, where stricter environmental regulation or liability claims affects a company's cash flow, ability to repay loans or generate a return on investment;
- risk to reputation, where failure on the financial institution's part to consider the environmental impacts of a project can result in bad publicity for both the institution and the company concerned.[25]

Some commentators argue that the way a company deals with environmental issues provides a good indication of its management capability. This capability is one of the most important factors in any financial decision, whether concerning debt or equity finance. Effectiveness in dealing with complex environmental challenges implies an ability to handle other management issues competently as well.[26]

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[22] Rt. Hon. Stephen Byers MP, Secretary of State for Trade and Industry, 2000: "Foreword" in *Review of ECGD's Mission and Status*, HMSO, London.

[23] Friends of the Earth International, 2002: *Phasing out International Financial Institution Financing for Fossil Fuel and Mining Projects. Demanding Local Community Self-Determination*, <<http://www.foei.org/publications/financial/Ffmeng.pdf>>.

[24] G. Elliot, 2001: "Better Linkages for the Financial Sector – understanding mining operations' sustainability performance", Panel presentation at the Conference on Mining, Finance and Sustainability, 8-9 April 2001, World Bank/UNEP/MMSD, Washington D.C. See meeting report on: <<http://www.iied.org/mmsd/mmsd_pdfs/finance_meeting_report_9April.pdf>>

[25] Based on UNEP Financial Institutions Initiative Fact Sheet No. 3, *The Environment and Credit Risk*, << http://www.unep/ch/etu/finserv/finserv/Fact-Sheet-3.htm>>

[26] P. Trevet, 2000: "Maximising Environmental and Financial Performance", Presentation to the Forest Trends Conference, Vancouver, 4 October 2000.

For equity investors, the benefits associated with sound environmental management include the ability of companies to use environmental or sustainability strategies to differentiate themselves in the market place, build new markets, reduce costs and increase competitive advantage.[27]

Mining accidents such as the cyanide spill at Baia Mare in Romania illustrate the importance of environmental risk for financial institutions. Both lending institutions involved in this project wrote off their loans to Aurul, the company concerned.[28] One of the banks, Dresdner, became a target of an NGO campaign.[29]

UNEP has used the business case to persuade public and private financial institutions to join its Financial Institutions Initiative. National and international institutions also use this argument to stress that financial actors can be both in step with domestic and global policy objectives and operate on a fully commercial basis. This applies to development finance institutions, for example. In the case of CDC Capital Partners, it has committed itself to implement social, environmental and ethical good practice in its investment activities because it considers this will contribute in the longer run to the financial performance of its portfolio.[30] Export credit agencies use similar arguments. Coface is an example:

"Coface's environmental project review is consistent with the French government policy to foster sustainable development. Environmental project review reflects the principle that environmental risk is an integral part of the financial risk insured by Coface. In developing its methodology, Coface's goal is to promote a win/win approach for all interested parties including the Host Countries in a logic of co-operation."[31]

Nevertheless, opinions remain divided on the extent to which business case arguments apply, particularly for longer term environmental issues and the less tangible social issues associated with them. A 1998 UNEP survey found that one of the barriers to financial institutions addressing environmental issues was a perception that these were not material to profitability.[32] On the other hand, the reputational risk to financial institutions of environmental accidents may be an important motivating factor. [33]

Empirical evidence is inconclusive and mostly concerns equity markets. Studies of the link between financial performance and environmental performance have produced varying results. In addition, the research relates principally to the US and to US operations only. This limits their relevancy to the environmental challenges facing mining companies in developing countries. The results also appear to reflect the regulatory context and investors' perception of it. In a strong regulatory environment, it

[27] Aspen Institute, 1998: "Uncovering Value: Integrating Environmental and Financial Performance", The Aspen Institute, Program on Energy, the Environment and the Economy, Washington DC.
[28] Zemek, op. cit.
[29] CEE BankWatch, 2000: Letter to Executive Board, Dresdner Bank 8th May 2000, <<http://www.bankwatch.org>>
[30] CDC Capital Partners, 2001: *Business Principles Report in CDC Report and Accounts 2000*, <<http://www.cdcgroup.com>>
[31] See <<http://www.coface.fr>>
[32] UNEP, 1998: *Survey of Financial Institutions*, Geneva.
[33] Discussion at the UNEP Conference on Finance Mining and Sustainability: Exploring Sound Investment Decision Processes, 14-15 January 2002, Paris.

is more likely that there will be a link between environmental performance and financial performance.[34]

***Responsibility for Financing Decisions***

The third type of argument implies that public and private financial institutions should take an interest in the environmental impacts of their financing decisions for ethical reasons. That is, they should take responsibility for the external environmental costs associated with their financing decisions.

For governmental and inter-governmental agencies, this relates to the argument that the activities of financial institutions should be coherent with wider national and international policy objectives. For private institutions, it is important to distinguish between the socially responsible investment (SRI) segment of the finance sector and the mainstream. In the case of SRI funds, taking responsibility for external impacts is not controversial. It reflects the values of the investor clients that choose this type of investment. For other types of private financial institutions, this argument is contestable. Some suggest this implies financial institutions taking on a global policing role. Moreover, while financial institutions are good at assessing health, safety and environment risks associated with mining, they appear ill-equipped to decide whether a mining project contributes to sustainable development. Because they are essentially unaccountable and undemocratic institutions, it is also not clear that they are appropriate agents for this role.[35] The fact that there is debate on this issue highlights the limitations of the business case argument.

**Approaches of Financial Institutions towards Environmental Issues in the Mining Sector**

***Focus on Environmental Issues***

Different types of institutions approach environmental issues in various ways, reflecting to some extent the different arguments above.

***(i) National and International Institutions***

Multilateral development finance institutions, given their development mandate, have given the most attention to environmental issues. Nevertheless, some have lagged their counterpart development assistance agencies, in particular bilateral aid organisations. In 1996, the OECD Development Assistance Task Force noted that with a few exceptions the environmental assessment requirements imposed on the bilateral aid agencies did not apply to their commercial arms.[36]

Export credit agencies have given little attention to environmental issues in the past. The exceptions are the Overseas Private Investment Corporation (OPIC) and the Export-Import Bank, both of the US, which have followed approaches similar to those of the World Bank Group. More ECAs have introduced environmental policies and procedures as part of their operations, including the ECGD (UK), EFIC (Australia) and Coface (France). Moreover, the OECD has been working with the ECAs

[34] M. Grieg-Gran, 2001: "Financial Incentives for Sustainability: the Business Case and the Sustainability Dividend", Presentation to UNEP Conference on Finance Mining and Sustainability: Exploring Sound Investment Decision Processes, 14-15 January 2002, Paris.
[35] S. Thompson, 2002: "Finance, Mining and Sustainability: an insider's view", Conference on Finance Mining and Sustainability: Exploring Sound Investment Decision Processes, 14-15 January 2002, UNEP/World Bank/MMSD, Paris.
[36] OECD Development Assistance Task Force Report, 1996: *Coherence in Environmental Assessment Practical Guidance on Environmental Assessment for Development Cooperation Projects*, Paris.

of member countries to develop common environmental guidelines. In December 2001, 24 of the 26 OECD export credit agencies adopted an agreement on common approaches on the environment and officially supported export credits. It came into force in January 2002.[37] The expectation is that this instrument will address concerns about competition and inconsistency between institutions (see Box 1).

**Box 1: Lihir Gold Mine, Papua New Guinea**

The operator of the mine is Lihir Gold Ltd, owned by Rio Tinto (16%), Niugini Mining, local landowners and the Papua New Guinea government. In 1995 OPIC declined to provide political risk insurance for the project because of concerns about its environmental impacts, in particular the ocean discharge of waste. The project uses the open pit cyanide leaching process. While tailings are treated, the treatment water is discharged to a deep submarine outfall. Other official agencies supported the project, however: MIGA and EFIC provided US$76.6 million and US$250 million respectively of political risk insurance cover. [38] In 1996, the European Investment Bank (EIB) agreed to lend ECU46 million. The NGO CEE BankWatch questioned why the EIB was willing to give its support when other international financial institutions had declined on financial grounds. Questions were raised in the European Parliament about the environmental standards applied by the EIB when considering this project. The EIB's response was that the bank's normal environmental standards had been applied and that the project met all relevant national and international requirements, in particular those of the environment agencies of Australia and the US.[39]

### *(ii) Private Sector Financial Institutions*

Surveys of private financial institutions have shown that many have established environmental policies and procedures for corporate credit and project finance assessment. Indeed, 60% of responding organisations to a 1998 UNEP survey had taken steps to integrate environmental risk into credit decisions. Asset managers showed less interest in environmental issues: only 20% of responding organisations had taken steps to integrate environmental risk into strategic credit or investment portfolio management. This profile is reflected in the mining sector. Commercial banks such as Barclays that lend to the sector have started to examine environmental issues closely, but equity investors in mining companies are primarily interested in financial indicators of performance [40].

Insurance companies were amongst the first in the finance sector to address the financial implications of environmental issues. Institutions such as Swiss Re are incorporating sustainability issues into their

[37] "ECGD UK at the heart of ground-breaking environmental agreement for exports", 3 December 2001, <<http://www.ecgd.gov.uk>>

[38] Minerals Policy Institute of Australia, 1999: *Putting the ETHIC into E.F.I.C.* A discussion paper on accountability and social and environmental standards within the Export Finance and Insurance Corporation of Australia, Mineral Policy Institute and AID/Watch, Sydney

[39] CEE Bankwatch Network, 1999: *The European Investment Bank: Accountable Only to the Market?*, EU Policy Paper No.1, December 1999, Heinrich Böll Foundation, Brussels.

[40] G. Holden, 2001: "Costs and Return of Sustainability", Panel presentation at the Conference on Finance, Mining and Sustainability, 8-9 April 2001, World Bank/UNEP/MMSD, Washington D.C. See meeting report on: <<http://www.iied.org/mmsd/mmsd_pdfs/finance_meeting_report_9April.pdf>>

risk management process to address liability, operational and reputational risk.[41] Unlike other financial institutions the involvement of insurers in a mining project is usually long-term, which is important in relation to environmental issues. Insurance companies are also taking an interest in environmental and social responsibility issues in their capacity as investors. The Association of British Insurers recently issued guidelines on social responsibility, encouraging companies to include in their annual reports discussion of significant social, environmental and ethical risks they confront and their approach to managing them.

Asset management institutions that invest in mining do not appear to pay much attention to environmental
issues. NGOs such as the Environmental Mining Council of British Columbia assert that "most of the stock exchanges, brokerage houses and industry analysts in Canada have yet to register environment or social issues on their radar."[42] Concerning asset management institutions, "[m]ost investors – including Storebrand – generally assume that the companies' environmental, social and political risks are managed (and are reflected in the stocks' prices)."[43]

Investment analysis companies such as Innovest have been set up specifically to address this gap. Innovest summarises its approach as follows: "Innovest's EcoValue 21 TM environmental ratings (ranging from AAA to CCC) identify environmental risks, management quality and profit opportunity differentials typically not identified by traditional equity analysis. As a result EcoValue 21 ratings uncover hidden value potential for investors."[44]

While the socially responsible investment (SRI) segment of the market is growing rapidly, there has been little involvement of SRI in the mining sector. Some of the larger players like the UK's NPI Global Care exclude mining as an investment activity despite shifts within the sector on environmental or social issues. Some institutions that invest in mining employ best-of-sector approaches. Examples include Westpac in Australia, which invests in BHP Billiton, Normandy Mining, Alcan and Placer Dome amongst others. Similarly, Canada's YMG Capital Management has invested in Noranda and Falconbridge.[45] Storebrand, a Norwegian institution, also operates a best-of-sector approach but its involvement in mining is relatively minor and often short-term.[46]

### *Approaches to Assessing Environmental Issues*

#### *(i) Project Level Assessment*

The approach adopted by the IFC provides a model that has been used or adapted by public and private institutions.[47] Environmental and social impact assessment at project level is central to this model, complemented by sectoral guidelines and policies to provide a reference point for monitoring. Screening techniques concentrate resources on the most contentious projects. Box 2 describes the basic elements of the model.

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[41] D. Hoffman, 2001: "Sustainability - a different world for risk management", Panel presentation to Conference on Finance, Mining and Sustainability, 8-9 April 2001, World Bank/UNEP/MMSD, Washington D.C. <<http://www.iied.org/mmsd/mmsd_pdfs/finance_meeting_report_9April.pdf>>

[42] Environmental Mining Council of British Columbia, undated: *Follow the Mining Money: An Activist Toolkit for Direct Corporate Campaigning*. Vancouver. Available on:
<<http://www.miningwatch.org/embc/publications/toolkit/3.htm>>

[43] A. Skanke, op. cit.

[44] <<http://www.innovest.org>>

[45] <<http://www.ymg.ca>>

[46] Skanke, op. cit.

[47] <<http://www.ifc.org/enviro>>

MIGA, as a member of the World Bank Group, follows the same environmental and social review procedure. Other development finance institutions follow similar procedures, in some cases using the same sectoral guidelines. DEG, Germany's development finance agency, requires both environmental and social assessments and uses standards developed by the World Bank, IFC and European Union.[48]

Export credit agencies have adopted or are in the process of introducing similar screening processes as that of the IFC. The Recommendation on Common Approaches on Environment and Officially Supported Export Credits of the OECD's Working Party on Export Credit and Credit Guarantees follows the same approach. To determine the extent of environmental review required, projects are divided into one of three categories. Category A denotes projects with significant adverse impacts or in sensitive sectors or sensitive locations. Category B refers to projects where potential adverse environmental impacts are less severe and more site-specific while projects in category C are considered to have minimal adverse environmental impacts. Mining and other extractive industries are included in an illustrative list of sensitive sectors and sensitive areas and as such are likely to be classed as category A. This may mean a change in approach for some of the export credit agencies. For example, the Japan Bank for International Cooperation (JBIC) currently classifies mining projects as category B. However, where mining projects are located in environmentally sensitive areas, such as primary forests and protected areas or areas where ethnic minorities or indigenous people reside, they would be classified category A.[49] In practice, the difference may be insignificant.

Whether local or international environment standards are applied as the benchmark is another contentious issue. Different views are evident on this issue. The IFC expects compliance with its own sectoral guidelines, widely considered as the de facto benchmark in the mining sector. Finland's export credit agency Finnvera uses international standards while JBIC emphasises local standards but urges that where these do not exist or diverge significantly from Japanese or internationally accepted standards the latter apply.[50] The OECD's Recommendation on Common Approaches on Environment and Officially Supported Export Credits requires compliance with the standards of the host country but does not obligate compliance with international standards. OECD Member country agencies are to report on reasons for applying standards that are below international standards in their annual reports to the Working Party.[51]

For private sector lenders, environmental risks are one of a number of different risks (technical, political, social, economic, etc.) they evaluate to inform their lending decision and to assess whether the return is commensurate with the risk. Like the official institutions, they rely heavily on environmental impact assessment and environmental audit processes. Larger players in the sector follow World Bank and IFC procedures and standards. For example, Barclays Capital expects adherence to the World Bank guidelines on mining as a minimum.[52]

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[48] R. Krut and A. Moretz, 1999: *Home Country Measures for Encouraging Sustainable FDI*, Report for UNCTAD/CBS Project on Cross Border Environmental Management, Geneva.

[49] *Environmental Guidelines: Japan Bank for International Cooperation*, <<http://www.jbic.gov.jp>>

[50] Ibid.

[51] OECD, 2001: Draft Recommendation on Common Approaches on Environment and Officially Supported Export Credits, 6 December 2001.

[52] G. Holden, 2001: *Costs and Returns of Sustainability*, Panel presentation at the Conference on Finance, Mining and Sustainability, 8-9 April 2001, World Bank/UNEP/MMSD, Washington D.C. See Meeting Report on: <<http://www.iied.org/mmsd/mmsd_pdfs/finance_meeting_report_9April.pdf>>

**Box 2: The IFC's Environmental and Social Review Procedure**

- Safeguard policies for environmental and social issues, for example environmental assessment, natural habitats and child and forced labour. Project sponsors must review these before they proceed to assessment. These policies set out standards and indicate which types of activity will not be supported by the IFC, for example projects using harmful child labour or logging in tropical forests (currently under review). Projects are monitored against these standards.
- Sectoral guidelines specific to particular industries, sectors or types of project. A project's performance is monitored against these guidelines. Compliance with relevant local, national or international legislation is also required.

- Screening and categorisation of projects according to their potential impact in order to determine the appropriate extent and type of environmental assessment required. Category A projects are likely to have significant adverse environmental impacts both on- and off-site and therefore require a detailed environmental assessment. Category B projects have less significant, site-specific environmental impacts and require a less detailed environmental assessment. Category C projects require no further environmental assessment beyond initial screening. Mining projects normally fall into category A.

- The project sponsor conducts the environmental assessment (including social aspects) for Category A and B projects. This usually involves an EIA for a greenfield project, an environmental audit for plant expansions and modernisations and privatisation. In the case of Category A projects, an environmental action plan is required.

- For highly contentious or risky projects the project sponsor is required to engage an advisory panel of independent environmental specialists to advise on all aspects of the project, including during implementation.

- For all Category A projects and certain types of Category B projects, such as those involving resettlement, the project sponsor is required to consult with relevant stakeholders and consider their views. For Category A projects consultation must take place at least twice: once before the terms of reference for the environmental assessment are finalised and then when the draft assessment report is prepared.

- Project appraisal involves IFC staff evaluating the project in terms of business potential, environmental, social and technical concerns; reviewing information provided by the project sponsor (including the environmental assessment); and undertaking stakeholder consultation where applicable.

### *(ii) Company Level Assessment*

Asset management institutions normally focus on the environmental performance of the company as a whole but the amount of time and resources spent on assessment is often limited. Some have an in-house research team, others draw on the services of specialised environmental or SRI research organisations. As noted earlier, very few are likely to examine such issues for the mining sector.

Storebrand, which has the best-of-sector approach and invests in companies among the top 30% in terms of environmental and social criteria relies on information from:

- the target company, using a customised questionnaire, dialogue with management, company visits and published environmental and social corporate reports; and
- outside sources such as NGOs, consulting firms, SRI research organisations, industry organisations, media and others.

It uses this information to derive a score for each company against a set of indicators. A weighted rating/score is then calculated. The weights for each indicator are determined on a sectoral basis. This provides a pool of companies from which the investment analysts/fund managers can choose based on financial considerations.

Other best-of-sector funds follow broadly similar approaches, e.g. Canadian-based YMG Capital Management. A similar approach is used in the development of rating systems and sustainability indices, e.g. the Dow Jones Sustainability Index and FTSE4Good Index. Innovest's EcoVALUE 21 model analyses and gives scores to over 60 variables in the following categories:

- historical contingent liabilities;
- operating risk exposure, e.g. toxic emissions and hazardous waste disposal;
- eco-efficiency and sustainability risk, e.g. energy use intensity and efficiency;
- managerial risk efficiency capacity, e.g. the robustness of environmental management systems; and
- strategic profit opportunities, e.g. ability to profit from environmentally driven market trends.

Assigned weights and comparisons with companies in the same sector produce a final score. An alphabetical rating similar to those used by credit rating agencies is then derived. The rating system produces results quite different from those of conventional rating systems. For example, in Innovest's report on metals and mining companies, Newmont and Noranda were given scores of 687 and 1226 respectively, yet both had the same Standard and Poor Bond rating of BBB. According to Innovest's analysis, companies receiving above average EcoValue21 ratings outperformed companies with below average ratings by in excess of 50% over the past three years.[53]

***Finance-related Instruments to Influence Company Behaviour***

Financial institutions can influence directly or indirectly company behaviour in relation to the environmental performance of FDI. The particular approach depends on the type of institution and type of transaction.

***(i) Project Finance***

*Access*

Projects that fail to meet specified environmental requirements will not get access to finance from multilateral or bilateral financial development institutions, and in instances from private financiers. For example, it is unlikely that the IFC will approve funding for mining projects in which tailings are disposed to rivers. Funds from the development finance institutions form only a small proportion of

[53] Innovest, 2001: *Global Metals and Mining Industry - Executive Summary*, New York.

total mining finance. For example, in the last five years the IFC provided US$0.9 billion[54] out of a global total of US$34 billion to developing countries.[55] Nevertheless, the development finance institutions can leverage additional finance from the private sector. The participation of multilateral development institutions is attractive both to a project sponsor and to private financial institutions because it reduces some of the political risk. Failure to repay debt to these institutions will usually trigger suspension of assistance by these and related organisations.[56]

If a project is unable to get finance from the development finance institutions, it may still locate funding from other sources. For example, even though the EBRD declined to provide a loan for the Baia Mare gold project in Romania, the developers were able to secure the necessary funds from two private banks.[57]

Nevertheless, it appears that the need to address an increasing range of environmental and social issues in risk evaluation and the reputational risks associated with large mining projects are factors prompting some banks to withdraw from the mining sector. While there are no precise statistics on this trend, an estimate from one of the leading financial institutions involved in mining is that the number of institutions capable of leading a syndication for a major mining projects has fallen over the last ten years from around 10-15 banks to 6-8 today.[58] Similarly, the World Bank Group has come under pressure from NGOs to reconsider its role in the mining sector and other extractive industries. In response it has launched the Extractive Industries Review in which it will discuss its future role in these sectors with concerned stakeholders.[59]

*Pricing*

The pricing of risk and the overall risk profile of a mining company is affected by whether and how it addressing environmental issues. This can influence the terms and conditions of a loan. For example, finance for the expansion of the Cerro Mateos Billiton project in Colombia was provided despite concerns about the political risks of operating in the country. One reason was the company's good record of relations with the local community, which reduced the overall risk profile. Similarly, Barrick Gold obtained a nine-year loan for a project in Tanzania because of its good environmental and social record.[60]

*Conditionality*

International financial institutions typically impose conditions on the design of projects or require that environmental plans and management systems be developed. The World Bank guidelines, for example, require and erosion and sediment control plans and a mining reclamation plan. More generally, the IFC and others require that there be a legal framework in place in the host country to regulate the mining industry.

A study of foreign-owned mining projects in Bolivia involving loans from the IFC and other international financial institutions found that the associated environmental conditions had been an

[54] <<http://www.worldbank.org/mining/investment>>
[55] Zemek, op. cit.
[56] Coetzee, op. cit.
[57] Zemek, op. cit.
[58] MMSD, 2002: "Breaking New Ground". The Report of the Mining, Minerals and Sustainable Development Project. Available online at <<http://www.iied.org/mmsd>> and forthcoming Earthscan, London.
[59] Ibid and <<http://www.eireview.org>>.
[60] Holden, op. cit.

important driver of environmental performance, and more significant than the existing regulatory framework.[61]

Some private financial institutions impose environmental conditions on their loans but usually not as a routine requirement. For example, in the wake of the Baia Mare cyanide spill Dresdner Bank insisted on the installation of a cyanide detoxification plant for a project it financed in Tanzania.[62]

### *(ii) Equity Investors*

*Selection of a SRI Fund, Sustainability Fund or Index*

Few SRI/best-of-sector funds invest in mining companies; if they do, the holding is minimal. Consequently, there is little impact on the share price of these companies. Interestingly, the exclusion of mining companies like Rio Tinto from the FTSE4Good Index has attracted media interest.

*Shareholder Engagement*

Shareholder engagement on environmental and social issues may be more effective as a means of influencing company performance. There is, however, little concrete evidence of its impact. It is typically associated with Sustainable and SRI funds but some institutions such as Friends Provident are beginning to apply "responsible engagement" to other mainstream funds under their management. In this context, they may discuss environmental and social issues with companies in sectors such as mining and tobacco. The rationale is that encouraging these companies to manage their environmental and social risks better will have positive effects on financial performance. In the case of mining, however, because best-of-sector investors such as Storebrand only hold their shares for a few weeks at a time the scope for shareholder engagement may be limited.

Where there has been an attempt at shareholder engagement, it does not seem to have affected the behaviour of the company concerned. In 1999, Battle Mountain Gold, (now a wholly owned subsidiary of Newmont) was delisted from the Domini Social Index, which is composed of 400 US corporations meeting specified environmental and social screening criteria. The reason was concerns over the environmental impact of its proposed Crown Jewel Mine in Washington State and other environmental controversies in which it had allegedly been involved. Kinder Lydenberg and Domini (KLD) which operates the index does not automatically remove companies when controversies arise but searches for evidence of a company's ability to address problems, to work in co-operation with other stakeholders and to communicate openly. Battle Mountain Gold refused to provide a detailed response to KLD about its concerns, precipitating its delisting from the index.[63]

*Shareholder Resolutions*

Shareholder resolutions, in which shareholders submit proposals on specific issues for voting at company annual general meetings, are commonly employed in the US to raise awareness about environmental and social issues. In 2001, 226 shareholder resolutions were submitted to 160 companies in the US. [64] This approach is less common in the UK and other countries, reflecting stricter rules about the level of shareholding required for shareholders to be eligible to bring a resolution.

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[61] Loayza and de la Fuente, op. cit.
[62] Zemek, op. cit.
[63] Environmental Mining Council of British Columbia, op. cit.
[64] Interfaith Center on Corporate Responsibility, <<http://www.iccr.org>>

Resolutions on environmental issues filed to date in the US have not focused on the mining sector. Resolutions in the Interfaith Center on Corporate Responsibility listing for 2001 relating to environmental issues were mainly addressed to oil companies, with only one company involved in mining (Alcoa). The resolution filed requested Alcoa to review and amend, if necessary, its code for its international operations relating to environmental, health and safety, labour and human rights issues.[65] Only 10.6% of shareholders voted in favour.

### *(iii) Company Reporting Requirements*

Since mainstream equity investors often consider only whether a company is listed, the company reporting requirements of stock exchanges and/or financial regulatory authorities may be an instrument for influencing the environmental performance of companies. The general principle is that companies should provide information that is necessary for investors to make decisions, that is, information that is material to profitability. The extent to which details of environmental issues should be included varies. In the UK, companies wishing to list on the London Stock Exchange must comply with a code of practice produced by the Institute of Chartered Accountants. This requires them to take account of all significant risks, including environmental and social, and to report on their approach to managing such risks in their annual report.[66]

The effectiveness of such approaches depends ultimately on the level of regulatory scrutiny. Requirements for environmental disclosure in company reports are relatively extensive in the US. Nevertheless, a recent study by the World Resources Institute noted significant discrepancies between the exposure to environmental risks reported by companies to the Securities and Exchange Commission (SEC) and the estimates made independently in the study. Moreover, the SEC has only once instituted court proceedings over non-compliance.[67]

### *Key Concerns*

There are limits to the effectiveness or appropriateness of financial institutions attempting to influence the environmental performance of mining companies, as described below.

### *(i) Lack of Attention to Long-Term Impacts*

Project finance typically places considerable emphasis on the initial design of the project and less on long-term monitoring. Lending institutions usually devote less attention to aspects such as mine closure and post-closure liabilities, e.g. associated with acid rock drainage. In part, this is because of the difficulties of predicting long-term impacts.[68] However, the short time horizon of lending institutions also plays a role. This relates back to the motivations for addressing environmental issues. If it is primarily for business benefits then once a loan is repaid, banks often are unconcerned about environmental performance unless there are reputational issues at stake.

### *(ii) Distinguishing between "Good" and "Bad" Company Environmental Performance*

Both lenders and equity investors struggle to differentiate projects and companies based on environmental and social performance. This invokes two issues: the ability to obtain sufficient

[65] Domini Social Investments Shareholder Resolution database, <<http://www.domini.com>>
[66] Association of British Insurers, 2001: *Investing in Social Responsibility. Risks and Opportunities*. London.
[67] R. Repetto R. and D. Austin, 2000: *Coming Clean*, Corporate Disclosure of Financially Significant Environmental Risks, World Resources Institute, Washington D.C.
[68] MMSD, 2002, op. cit.

information on project and company performance; and standards against which to compare performance and make an evaluation.

While project finance involves detailed assessment of environmental impacts and risk, there are concerns about the poor quality of environmental impact assessments and other evaluative tools. Partly this is because of the limited capacity of governments and financial institutions to assess the quality of reports produced and to demand better analysis.[69] The additional costs involved in assessing the environmental and social risks of mining also create disincentives for financial institutions.

SRI fund managers are reliant on information supplied by the companies themselves. One problem they face is obtaining reliable information about the overseas subsidiaries of multinational companies before events hit the media spotlight.[70] While some mining companies are considered by SRI investors to produce satisfactory environmental reports, few show trends in quantitative data.[71] SRI investors seek approaches to differentiate quickly companies with good and bad environmental performance. In this context, they have highlighted the need for metrics and reliable criteria against which companies can report.[72]

### *(iii) Transparency*

Where financial institutions are primarily concerned about their reputation, their incentive for demanding greater transparency about environmental performance reporting by the mining sector is higher. In the case of national and international agencies, significant differences exist about disclosure. Multilateral and regional, and some bilateral, development finance institutions provide listings of their projects. In contrast, export credit agencies typically do not disclose details of their transactions for reasons of commercial sensitivity. The exceptions are OPIC and the Export-Import Bank of the United States (US Ex-Im Bank), both of which are subject to the provisions of the US Freedom of Information Act. Canada's EDC is exempt from that country's Access to Information Act and so not legally required to disclose which companies it finances.[73] However, in response to a government review recommending increased disclosure EDC is now developing a disclosure policy.[74] Other export credit agencies such as the UK's ECGD and Australia's EFIC have begun to provide details in their annual reports about their transactions.

Private sector institutions have generally cited concerns over commercial sensitivity as a reason for not publicising their involvement in certain projects.

## Moving Forward

Strengthening the role of financial institutions in driving environmental improvement requires action from a range of stakeholders, not just the finance sector itself.

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[69] Ibid.
[70] N. Robins, Director of Research, NPI Global Care, Henderson Global Investors, Personal communication, 22 January 2002.
[71] Skanke, op. cit.
[72] S. Mays, 2001: "Costs and Returns of Sustainability", Panel presentation to Conference on Finance, Mining and Sustainability, 8-9 April 2001, World Bank/UNEP/MMSD, Washington D.C. See Meeting Report on: <<http://www.iied.org/mmsd/mmsd_pdfs/finance_meeting_report_9April.pdf>>
[73] Environmental Mining Council of British Columbia, op. cit.
[74] Export Development Corporation, Canada, Draft disclosure policy, <<http://www.edc.ca/ca/corpinfo/csr/disclosure>>

### *Agreement on Minimum Standards and Certification Schemes*

It is widely believed that development of a set of acceptable standards in mining would facilitate environmental due diligence and ultimately reduce the cost of capital. To ensure credibility and wide acceptability such standards should be based on multi-stakeholder consultation, combine global principles with criteria that take account of local differences and performance reporting independently verified. This takes account of lessons from certification schemes in other sectors.[75] The challenge will be to ensure that there are incentives for compliance and clear consequences of non-compliance. Financial institutions do not wish to be responsible for enforcing compliance. One suggestion is to link compliance to stock exchange listing authorities or competition authorities or permitting procedures.[76] The development of an effective system of standards requires an international organisation or an NGO to launch a consultation process and act as facilitator of their design. Source and host country governments need to develop appropriate compliance mechanisms.

### *Improved Environmental Reporting*

Any introduction of standards needs to be accompanied by company reporting to follow performance over time. This requires agreement on indicators that are representative of the mining sector and the diversity within it, and that are meaningful to different stakeholders. A number of initiatives exist, such as the global reporting initiative to improve company reporting on the economic, environmental and social dimensions of their activities.[77] However, there are doubts whether these "off the shelf" approaches can capture the diversity existing within the mining sector. Indicators need to be customised to the sector and to different stakeholder groups. This implies a commitment of time and resources to identify the priority issues of different groups.[78]

### *Long-term Impacts*

International financing institutions and export credit agencies typically give insufficient emphasis to mine closure. The MMSD project recommends that these organisations and private sector institutions that use their policies revise their requirements to include a detailed, fully costed mine closure plan and to earmark adequate finance to cover these costs.[79] Financial institutions have a role in the development of trust funds and other mechanisms to ensure that sufficient revenue is reserved for implementing the mine closure plan.

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[75] R. Nussbaum, 2002: "Lessons Learnt from governance structures of other industrial sectors: options for the mining sector", Presentation to Conference on Finance, Mining and Sustainability: Exploring Sound Investment Decision Processes, 14-15 January 2002, UNEP/World Bank/MMSD, Paris.

[76] M. Carver, 2002: "What financial institutions would find useful: a Banker's view of Codes, Standards, Agreement and Independent Verification", Presentation to Conference on Finance, Mining and Sustainability: Exploring Sound Investment Decision Processes, 14-15 January 2002, UNEP/World Bank/MMSD, Paris.

[77] See <<http://www.globalreporting.org>>

[78] A. Warhurst, 2002: "Sustainability Indicators and Sustainability Performance Management", Presentation to Conference on Finance, Mining and Sustainability: Exploring Sound Investment Decision Processes, 14-15 January 2002, UNEP/World Bank/MMSD, Paris.

[79] Mining, Minerals and Sustainable Development Project, op. cit.

***Strengthening the Business Case***

Better understanding is needed of the relationship between financial performance and environmental performance and the conditions under which a positive linkage between the two can be developed. Stronger regulatory enforcement and greater transparency play an important role.

# FDI in Mining: Discrimination and Non-Discrimination

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## Introduction

Fully documented cases of discrimination in foreign investment are rare, even though it must be assumed that cases of discrimination are in fact numerous. To understand the underlying issues and dynamics it is important to recognise that discrimination in foreign investment involves a number of factors that distinguish it from discrimination in trade in goods:

- the theory of comparative advantage does not apply to the liberalisation of foreign direct investment;
- discrimination typically involves a single private investor on the one hand and a state on the other. This impacts not only the dynamics of the relationship but also the willingness of either party to document the outcome;
- investors acquire continuing rights in the host country, becoming economic citizens. This further affects the relationship between investor and host country authorities;
- productive investments are dynamic over long periods of time; and
- discrimination can occur at the time of an initial investment or later.

These complexities are particularly pronounced with respect to extractive investments, in which the natural environment is by definition a factor of production.

This paper discusses a documented case of discrimination against foreign investors in the mining sector in Chile. It identifies a number of factors that may affect the investment under conditions of discrimination and some of the factors that may come into play in response. It then identifies the environmental issues that may need to be taken into account. Based on this discussion the paper suggests that a high degree of institutional capability is needed to balance private rights against public goods

## Discrimination and Non-Discrimination in Investment

### *Theory and Practice of Non-Discrimination in Investment*

The promotion of "non-discrimination", the treatment of foreign investors like domestic investors under like circumstances, is one of the fundamental goals of any international investment regime. This would suggest that cases of discrimination are well documented and have been shown to produce results that are undesirable from the perspective of public policy. In practice, this is not the case. Attempts to document discrimination and to assess the benefits of "non-discrimination" encounter difficulties in both theory and practice.

Presumably a government that is discriminating against a foreign investor has little interest in advertising that fact. Similarly, the individual investor is more likely to maintain confidentiality about negotiations with a particular government. The incentives to do so are numerous. Future relations with the government are at stake. Competitors may derive useful information from such disclosure. Measures adopted to overcome discrimination may not bear public scrutiny, for example because of corruption. And in the end the very fact that an investment has been made suggests that it will be

profitable so the investor is unlikely to have an interest in disclosure and has no grounds for complaint. Documenting investments that have not been made is, however, problematic since disclosure is rare and disclosure that does occur is partial and partisan in nature.

In the trade regime it is possible to rely on the negotiations between governments that typically accompany claims of discriminatory behaviour, and ultimately on the dispute settlement process, to generate information concerning the issues that are postulated. No such negotiations occur in relation to individual investments, certainly not in the public domain.[1] The dispute settlement process rarely provides the necessary documentation about discriminatory behavior. The International Center for the Settlement of Investment Disputes (ICSID) now lists disputes on its website but provides no further information. Disputes under UNCITRAL are not publicly listed.[2] A number of disputes have become public knowledge within the context of the North American Free Trade Agreement (NAFTA), and then only over the vigorous resistance of the parties, and despite the failure of the governments to create the institutional mechanisms provided by NAFTA to permit rudimentary information about such disputes.[3] The NAFTA disputes raise numerous important issues concerning foreign direct investment agreements but they do not provide useful information concerning discriminatory behavior in relation to mining.[4]

"Discrimination" is a well-defined concept in relation to trade in goods. It is underpinned by the concept of "comparative advantage", which postulates that the removal of discrimination will tend to benefit all parties concerned. This creates a solid theoretical foundation for the liberalisation of trade in goods. Attempts to critique this foundation, in particular from an environmental perspective, have not succeeded in undermining it.[5] Starting from this foundation, the economic consequences of discrimination can be calculated and the economic advantages of non-discrimination unambiguously established.

The theory of comparative advantage does not apply in the same manner with respect to foreign direct investment where capital is committed in exchange for certain rights. Some countries have a surplus of capital and some do not, and there is no reason to assume that the relationship will be reversed by the process of foreign direct investment. The justification for eliminating discrimination with respect to investment lies in the increased efficiency of the allocation of a scarce resource, capital, and in making risk and return more reliably calculable, subject to market forces. This does not provide a reliable guide to the distribution of benefits associated with a liberalised international investment regime. Ideally both parties - the investor and the host country - will benefit, but this outcome can generally only be achieved by a process of negotiation as the specific circumstances of an individual investment are balanced against its potential costs and benefits from the perspective of the public good.

It seems almost self-evident that non-discrimination in foreign investment is a desirable goal of public policy. Nevertheless, defining and implementing non-discrimination is a complex task, and more

[1] This has even been the case with regard to one of the most visible cases of discrimination against FDI, the treatment of Enron by a state government in India.

[2] International Institute for Sustainable Development, 2001: *Private Rights, Public Problems. A Guide to NAFTA's Controversial Chapter on Investor Rights*. Winnipeg, pp. 42-44. Report available at <<http://www.iisd.ca>>

[3] Ibid. Pages 69-110 of the report provides a list of known disputes.

[4] The judgment in the one case concerning forestry - Pope and Talbot vs. Canada - has recently been released. The case concerned the allocation of export quotas and the conclusion was that the discriminatory behaviour was traceable to an individual official.

[5] Herman Daly, 1993: "The Problems with Free Trade: Neoclassical and Steady-State Perspectives" in Durwood Zaelke et al., *Trade and the Environment. Law, Economics, and Policy*, Island Press, Washington D.C., pp. 147-158.

difficult than ensuring non-discrimination with respect to trade in goods.[6] Extractive investments often involve several interdependent elements, each of which can present significant technology choices. Foreign investors enter into private contracts with host country private actors, whether these are other investors, employees or suppliers. They also acquire rights and obligations in the host country, which gives the relationship of the investor to host country public parties a quasi-contractual character. All of these factors must be taken into consideration when constructing a regime to promote non-discrimination in investment.

Extractive investments pose a particular set of problems. By definition, they occur in the natural environment, which becomes a necessary factor of production even while it retains its character of public good. Extractive investments are typically medium to long term in nature. This introduces a significant temporal dimension. To achieve non-discrimination it is necessary to address issues that arise at the time of the initial investment but equally issues that may arise over the lifetime of the investment. The resultant relationships can be decades long and involve the modification of virtually every aspect of the initial investment and its legal structure.

When public goods are affected by foreign direct investments, as they generally are when long-term productive investments are being made, it is necessary to weigh these against the private interests of investors. Most countries maintain an elaborate institutional structure (involving, *inter alia*, constitutional safeguards, administrative rules of procedure, transparency and public participation provisions, and the judiciary) to ensure an acceptable level of non-discrimination between competing domestic investors and to secure the appropriate balance of private rights and public goods. The first and most obvious step towards an international investment regime based on non-discrimination is to ensure that this institutional structure is available in a non-discriminatory manner to foreign investors.

The second, equally obvious, step in constructing such a regime is to promote the development of institutions within participating countries and to ensure that international rules do not undermine domestic institutions when these function in a legitimate manner consistent with the goals of the international regime.

The entire domestic institutional structure to ensure non-discrimination is affected by the introduction of new international investment rules. This imposes a demanding standard of institutional capability and legitimacy on the international regime if its decisions affect a balance of interests that has been struck domestically.

Taken in this perspective, non-discrimination in relation to foreign direct investment means that the interests of a foreign investor and the public interest in an investment will be weighed in a manner that is legitimate, transparent and accountable and in accordance with the same rules, criteria and procedures that apply to domestic investors.

It is hard to argue that “discrimination” provides economic benefits or represents an acceptable basis for public policy. However, the making of legitimate distinctions in a manner that is transparent and accountable is a central function of public policy when faced with alternative uses of scarce resources and it is not a simple matter to distinguish between the legitimate exercise of government authority and discrimination. Not all investors are treated the same way, even under comparable circumstances. A 1984 study of environmental permits for coal fired power plants in Germany and the Netherlands, one of the most mature technologies so that facilities are widely presumed to be comparable, found

[6] Similar difficulties exist with respect to trade in services, which involve several variables not found in trade in goods. See International Institute for Sustainable Development, op. cit.

that virtually none of the licences was directly comparable to the others. Numerous factors intruded to make each facility and its environmental licence unique.[7]

The problem is that "discrimination" and "non-discrimination" are not opposites in a static system. Most long-term foreign direct investment will involve certain forms of behaviour that can be characterised as "discriminatory" even though it is perfectly legitimate.

Trade in goods, trade in services and foreign direct investment are distinct forms of economic activity. All are liable to benefit from creating an environment that is "non-discriminatory." However, there are differences in the theory underpinning efforts to achieve non-discrimination, in the nature and distribution of the benefits and in the institutions required to achieve this goal. It is reasonable to assume that discriminatory behaviour in trade in services and foreign direct investment will have undesirable economic effects, as will discrimination in relation to trade in goods. Yet the theory underpinning the process of liberalisation in the services area[8] and in relation to investment is significantly less robust. It rests on the inefficient allocation of scarce resources and opportunities for the creation and capture of rents. The hypothesis is that a non-discriminatory investment regime will promote a more efficient allocation of a scarce resource, capital, and reduce opportunities for the creation and capture of rents.

In the absence of a framework as robust as that created by the theory of comparative advantage, discrimination in foreign direct investment raises significantly more complex issues concerning the balance of advantages and disadvantages. In particular, the balance of private gains and public costs. One implication is that the definition and application of the concept of non-discrimination involves a range of policy considerations that do not arise when considering trade in goods. These considerations are heightened by the long-term nature of productive investment and by the fact that foreign investors acquire continuing rights, essentially becoming economic citizens of the host country.

In practice, many investments exhibit a number of specific features relating to the investor, the investment, the economic, social and environmental conditions, and to the regulatory environment that exists at the time of first investment and throughout the subsequent life of the investment. Case studies can document this diversity, as well as demonstrating certain general principles of economic policy. This is particularly true in relation to extractive activities - mining, agriculture, forestry and fishery - that occur in the natural environment.

The environmental consequences and the specific circumstances of commodity production have been lost from view. Thus for each bushel of corn produced in Iowa at least one bushel of topsoil is lost. No mechanism exists to reflect such costs, or other factors that do not have a market price, in the determination of corn prices. The challenge facing policy makers (and the trading system) is to protect the allocative functions of international commodity markets while providing adequate safeguards for

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[7] Konrad von Moltke, et al.,1985: *Rechtsvergleich deutsch-niederländischer Emissionsnormen zur Vermeidung von Luftverunreinigungen Teil 1: Bundesrepublik Deutschland; Teil 2: Niederlande; Teil 3: Tabellen.* (Teil 1 also in Dutch: Rechtsvergelijking van duits-nederlandse emissienormen ter bestrijding van luchtverontreiniging), Institute for European Environmental Policy, Bonn.

[8] Bernard Hoekman notes that "The nonexistence of tariffs as a restraint to trade greatly complicates analysis of or negotiations on incremental reductions in barriers to services trade. Analysis requires an estimation of tariff equivalent of a given set of measures and regulations pertaining to a service activity. Little work has been done in this connection." See Bernard Hoekman, 1997: "Assessing the General Agreement on Trade in Services," in Will Martin and L. Alan Winters, eds., *The Uruguay Round and the Developing Countries*, The World Bank, Washington, D.C., p. 92.

the environment. In the meantime, many varieties of crops are no longer grown because there is no market for them, and risk being lost.

Many commodity markets are characterised by their ability to eliminate rents. From the perspective of an individual actor, however, rents permit the generation of excess profits. Much economic policy is indirectly concerned with permitting or repressing the creation of such rents. Intellectual property rights have become the source of large monopoly rents, justified at least to a certain extent by the need to promote innovation. Striking a balance between creating incentives for innovation and maintaining essential goals of public policy, such as access to health care or environmental protection, is difficult and conflict-ridden, however. At present, those who exploit intellectual property have an economic advantage over those who exploit natural resources.

***The Circumstances of Extractive Investments***

Industrial production involves the control of the production process to render it replicable irrespective of location. This has been the central principle underlying the industrialisation process since the early 19th century. Frequently this involves an enclosed location that shields the process from the vagaries of environmental influences. Environmental factors such as raw materials, air, and water are inputs. Wastes, disposed in the form of emissions or as an unwanted residue of the production process, are outputs to the environment. Strategies to minimise inputs and outputs can decrease the environmental impacts of industrial production dramatically. In general, industrial facilities are comparable to determine which are "like", provided variations in technology and the environmental impact of waste disposal are taken into account.

The circumstances of production in the natural environment, generally of commodities, vary. Efforts to replicate the industrial process in commodity production began almost at the same time as industrialisation itself. There are limits to this process, however, because the environment itself is a key factor of production and the success as well as the comparative advantage of a production unit depends vitally on environmental conditions. These may be modified, for example through fertilisation and pest management techniques, or through industrialised livestock operations. At the extreme, agricultural production has moved to greenhouses and holding pens that are more comparable to industrial facilities than to traditional farms.

In an extractive investment, environmental factors affect the activity itself, not only its inputs and waste outputs. Mining, farming, forestry and fisheries have environmental requirements that are inescapable and consequently have environmental impacts that reflect the specific environment in which they operate. The location of a mine is determined almost entirely by the location of commercially viable ores. Presumably operators would not choose to locate mines in environmentally sensitive areas, or where water is scarce, but ultimately they must recognise that useable ores are only found in specific locations.

Variations in environmental conditions can affect the circumstances of production dramatically, even when the resulting products are "like." Governments must consider the range of these variations in determining what constitutes "like circumstances" where investments in commodity production are concerned.

The complex relationship between extractive activities and the natural environment also has implications for public authorities at all levels. Protecting public goods such as public health or the environment is a central task of public authorities. Any activity that affects the environment will attract the attention of public authorities, who find themselves confronted by the need to balance the

private rights of investors against the public goods that they are responsible for. In this context, the opportunities for "discrimination" multiply.

**Mining and the Environment**

Mining has attracted a great deal of attention because of its environmental impacts, which can be obvious locally. In addition, the hazards associated with some of its products can be widespread and insidious.

The mining industry involves approximately 150 distinct extraction activities, ranging from coal to copper, from iron ore to cobalt and from talcum to titanium. Each of these activities exhibits particular circumstances concerning the process involved, the distribution of extraction and processing and the relationship of mines to international markets. Each of these in turn has a range of environmental implications.

The non-ferrous metals mining industry is characterised by its international structure. Foreign direct investment has been an integral part of the industry for more than a century. On the other hand, the coal industry was long regarded by countries as a strategic national asset. It was essentially closed to foreigners, and the resulting structures of discrimination have been dismantled slowly. It is consequently difficult to generalise about discrimination in the mining industry. The introduction of rules to promote non-discrimination are liable to have widely differing impacts, depending on the particular activity involved.

Generally, the extraction of ores is the first step in a process of transformation that is essentially industrial in character, but it would be artificial to separate operations that cannot exist without one another. Through thermal, physical, chemical or even biological processes the ore may be concentrated and purified until a useable commodity is produced. In most mining product chains the distribution of the resultant activities is determined by a combination of environmental, geographic and economic factors. Thus Chile exports copper ore, intermediates, unrefined and refined copper because transport is accessible (at least in some locations) and energy costs are relatively high. At the other extreme, Zambia exports only refined copper because transport is difficult and expensive.

Mining rights themselves are subject to widely differing legal regimes, ranging from full private control under private land and free private access under public land and to public control of all minerals in the soil, whether under public or private land. These differences are historically determined. While the principle of non-discrimination can be applied irrespective of the legal regime, this requires lesser or greater adjustment depending on the prior position. In a free access regime, the public interest is limited to avoiding ancillary costs such as environmental degradation. In a regime based on public ownership of mineral rights there is a need to compensate for that public ownership interest, creating complex opportunities for discrimination, corruption or other forms of rent appropriation, in addition to the distribution of ancillary costs.

Large mines are typically integrated into international product chains. The development of a large mine requires substantial amounts of capital. It may take many years to obtain a return on the initial investment. Such investments are not made without some assurance that the resulting output will find buyers at prices that cover costs. Marginal output may be sold at variable prices, often providing a major contribution to ultimate profitability. Consequently, the ability to integrate a mining operation into international product chains represents a critical source of competitive advantage. It is largely restricted to multinational corporations that undertake foreign direct investment.

Small mines on the other hand represent a special challenge from the perspective of sustainability.[9] They can play a role on the expanding fringe of mining. In some instances, prospecting and initial development is undertaken by small enterprises that seek large returns on high-risk ventures. Once a viable operation has been proven, larger corporations that are experienced in working in international markets take over. The problems associated with controlling small exploratory mining operations are particularly acute and their impacts locally can be devastating.

There have been several approaches to the development of a code of good conduct in mining. The earliest attempts were sponsored by the United Nations Environment Programme.[10] Subsequently several leading mining companies that were participating in the UNEP effort founded the International Council on Metals and the Environment (ICME), which has generated a significant body of research and opinion.[11] Most recently an initiative on Mining, Minerals and Sustainable Development (MMSD) has been commissioned by the World Business Council for Sustainable Development and is being implemented by the International Institute for Environment and Development.[12]

It is difficult to separate mining from the subsequent processing, use and disposal of minerals, some of which involve serious environmental problems. Once mined and processed, the fate of minerals can involve highly complex environmental processes but ultimately all minerals entail a continuing risk of release to the environment where they can represent hazards that are difficult or impossible to control. These hazards are linked to the physical properties of the mineral in question and its ability to migrate, accumulate or be transformed in the natural environment. Thus the environmental hazards of lead are related to its low mobility and the resultant risk of accumulation[13] while the hazards of cadmium arise from its high degree of mobility that can lead to its presence in locations far removed from even incidental emissions of the substance.[14] Many metals entail significant environmental and human health hazards, and these can only be adequately controlled by an integrated approach that addresses all phases of the metal product cycle, from mining to disposal.

The mining phase itself generally presents primarily local or regional environmental impacts, but at that level they can be highly significant.

Environmental issues related to mining present a potential risk of discriminatory actions by public authorities. These issues represent a complex system of interactions between the (private) mining operation and the environment, which represents a public good. Actual practice in a specific mining operation will range from largely uncontrolled environmental impacts to largely controlled impacts that hardly extend beyond the boundary line of the mining operation. The determination of where a mining operation is situated on this continuum depends on a large number of factors. They include the characteristics of the mine, local environmental conditions, technological variables concerning the availability of control strategies, the economics of environmental control, market incentives from the product chain and the desire and ability of the relevant public authorities at several levels to impose

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[9] Eduardo Chaparro, 2000: *La llamada pequeña minería: un renovado enfoque empresarial. (recursos naturales e inraestructura 9*), CEPAL, Santiago.

[10] <<http://mineralresourcesforum.unep.ch/>>

[11] <<http://www.icme.com>>

[12] <<http://www.iied.org>>

[13] Konrad von Moltke, 1987: *Possibilities for the Development of a Community Strategy for the Control of Lead*, Institute for European Environmental Policy, Bonn.

[14] Konrad von Moltke, 1985: *The Regulation of Existing Chemicals in the European Community--Possibilities for the Development of a Community Strategy for the Control of Cadmium*. Institute for European Environmental Policy, Bonn (Published: Commission of the European Communities, Brussels, 1986); Konrad von Moltke, 1987: *Cross-media Pollution by Cadmium*, Organization for Economic Co-operation and Development, Paris.

controls and to ensure compliance. Many of these variables are liable to change over time, again reflecting several independent factors such as prior demands on environmental resources, changing perceptions of environmental risks, development of institutional capabilities in the private and public sector and market conditions.

The central process determining the operational conditions of a mining operation involve a balancing of private rights and public goods that has to be continuous, legitimate, accountable and transparent. Each of the factors that come into play in relation to mining investment may offer opportunities, real or perceived, for discrimination. Determination of the reality of discrimination must reflect all of the factors that have to be taken into account, as well as the need for public authorities at all levels to be able to exercise reasonable discretion in protecting the public interest. While discriminatory intent may be real, as evidenced by the example described below, actual discrimination may prove more difficult to prove.

**Discrimination in Mining Investment: A Chilean Case**[15]

When two foreign companies purchased El Indio[16] and Disputada[17] in the late 1970s, pursuant to newly established policies opening up the Chilean economy, they were confronted by a strong bias against foreign mining companies operating in the country. A widely held view, equally prevalent in the bureaucracy and civil society, was that foreign mining companies had failed to leave an adequate portion of the available rents in Chile, transferring them to subsidiaries located further downstream in the copper processing chain. The result was an environment in which a range of discriminatory practices took hold.

While changing the legal framework the new investment policies of the military government had not shifted these attitudes. The bias still existed and affected not only the formal regulations imposed on copper mining enterprises but also their enforcement. For example, environmental organisations and the public tended to systematically question environmental impact statements produced by foreign-owned companies while Chilean companies typically were not subjected to such scrutiny.

The pervasive bias also expressed itself in more stringent environmental requirements imposed on foreign owned mining operations, especially the smelters. A special decree in 1985 compelled the Chagres smelter, owned by Disputada, to comply with air-quality regulations while the five remaining copper smelters in Chile, belonging to two state-owned companies, CODELCO and ENAMI, did not have to comply.

An analysis of the practices of foreign-owned Disputada and El Indio indicates that they implemented stricter environmental measures than were required by Chilean legislation in the 1980s. These practices were initially not adopted by the state-owned corporations. Nevertheless, the practices served

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[15] Gustavo Lagos and Patricio Velasco, 2000: "Environmental Policies and Practices in Chilean Mining," in Alyson Warhurst (ed.), *Mining and the Environment. Case Studies from the Americas*, International Development Research Centre, Ottawa, pp. 131-132.

[16] A gold mine, currently owned by Barrick Gold Ltd, El Indio is located at high altitude. It is one of the first mines worldwide to recover epithermal deposits. See <<http://194.209.197.198>>, accessed 25 February 2001. "The El Indio mine was originally scheduled for closure in mid 1998 but has remained in production by reducing costs substantially. The Mine will remain open as long as it generates positive cash flow against the spot price of gold." <<http://www.barrick.com/operations/other>>, accessed 25 February 2001.

[17] A copper mine (Los Brancos) and processing center. The mine is located at an altitude of 3,500 m, an area of extreme annual snowfall. The ore is transported 56 km in an underground conduit to a processing center that is 70 km northeast of Santiago at an altitude of 500m. Danilo F. Torres, "El Proyecto Expansión Los Brances de Disputada," See <<http://www.sonami.cl/boletin/bol1140>>.

to demonstrate how to approach these matters and ultimately influenced the development of new laws and regulations.

Disputada and El Indio openly discussed environmental issues with the public at a time when such a practice was taboo at CODELCO and ENAMI. Indeed, the latter companies did not adopt this practice until the 1990s.

***Factors of Discrimination***

Discriminatory behaviour expressed itself in a number of different ways that were mutually reinforcing. The most open form of discrimination was the imposition of particular environmental requirements on the foreign invested firms that were not required of other firms in Chile. Presumably the expectation was that this would limit the profitability of the foreign investment. In practice that appears not to have happened, highlighting the complex relationships that exist between environmental requirements and the economic performance of an enterprise.

***(i) Environmental Factors Requiring Regulation***

No known differences in regulatory environmental requirements exist for the four mines. Two of the mines lie in the arid northern region and two in the more temperate zone closer to the capital, Santiago. The differentiation between the mines occurred with respect to the smelting and processing operations rather than the actual mines themselves.

Few measures are available to mitigate the environmental impacts of mines.[18] Dust control requires the regular application of water on exposed surfaces, and where water is scarce dust control is not practicable. Open cast mining produces large amounts of overburden and spoil which can be handled with greater or lesser environmental sensitivity but which must still be handled. And once the mining operation has ceased or moved on there are options for the rehabilitation of the landscape. None of these measures are very costly, but none of them promise much in the way of an economic return. Dust control can reduce worker health problems and prolong the useful life of equipment, but only if the general health status of workers is satisfactory and equipment is well maintained.[19] All of the mines are located at some distance from population centers and their environmental performance has been determined by the needs of the mining operations themselves.

Frequently infrastructure associated with a mining operation, such as roads, railroads and settlements, will have significant environmental impacts. These impacts do not appear to have been considered in the Chilean case: the infrastructure for Disputada existed already; El Indio required limited infrastructure.

In Chile, environmental differentiation occurred with respect to the industrial phase of mining: smelting and processing. These have large potential impacts on air, water and soil and indirectly on wildlife and biodiversity so that local conditions need to be taken into account in imposing requirements. Only a limited number of processes are used worldwide, however, and their environmental consequences are well known and predictable. Measures to mitigate these impacts are also well known and can have both positive and negative effects on the economics of the operation.

[18] See below.

[19] Gordon L. Clark: 1993: "Global Competition and the Environmental Performance of Australian Mineral Companies: Is the "Race to the Bottom" Inevitable?", *International Environmental Affairs 5(3),* pp. 147-172.

### *(ii) Technology Factors*

The technology of extraction has evolved incrementally. As equipment has become larger and more powerful, fewer people have been able to extract more ore. The Disputada mine relies on a large diameter pipeline to transport ore 50km to the processing facility, located at an altitude almost 3000m below the mine. The underground pipeline does not appear to have notable environmental problems.

The situation is quite different with regard to smelting and processing. Several distinct technologies exist and they have specific environmental and economic advantages and limitations. For each, there have been significant technological developments with environmental consequences, or vice versa: the need to meet environmental requirements has opened up new approaches to old problems. As a result, environmentally sound newer processes are frequently no less efficient in terms of product recovered in relation to operating costs. Consequently, the decision to move to new technologies can yield both economic and environmental benefits, in particular for a start-up operation.

Both Disputada and El Indio involved significant additional investments beyond the initial cost of acquisition. In the course of implementing these investments, both operations adopted newer technology in comparison to existing Chilean operations and were able to achieve environmental improvements at a modest cost. This confirms the general hypothesis that facilities that are in a process of dynamic investment and development are also in a better position to address environmental issues than facilities that receive no new investment, requiring management to find solutions within existing constraints. This may argue in favor of foreign direct investment, which involves a review of the entire investment and management structure of an operation, often with the expectation that significant improvements in the economics of the operation are possible. Yet these advantages will only be realised if the foreign investor is willing to make financial commitments that go beyond the initial investment, and is willing to invest in a strengthening of management.

### *(iii) Public Perception and Social Values*

The foreign investors faced strong public bias when entering Chile in the 1980s. This bias was not related to environmental values but was expressed through the imposition of more stringent environmental standards and the more rigorous scrutiny of environmental reporting and performance. While it may be an exaggeration to state that the enterprises benefited from these standards and this scrutiny there is certainly no evidence to the contrary. Moreover, the demonstration that improved environmental performance could be achieved without sacrificing economic performance brought about some change in public perception and social values as domestic competitors were increasingly forced to meet comparable standards.

There are clear differences between public attitudes in the northern region, whose economy is almost exclusively devoted to mining and support services for mining, and the central area where urban populations and agriculture compete for land and the environment is burdened by the impacts of urbanisation. This demonstrates the importance of prior demands on environmental services as a factor in determining the appropriate environmental requirements that need to be imposed. These will need to be more stringent in the central region of the country than in the north.

### *(iv) Institutional Factors*

When the investments in El Indio and Disputada were made, Chile’s environmental authorities were still in a rudimentary state. CONAMA, the Chilean environmental agency, was not established until after the end of the dictatorship. It took several years to develop the institutional capacity to manage

the permitting, monitoring and review activities associated with a major mining operation. There is no direct evidence about the consequences of the absence of institutional capacity. It certainly implied that the imposition of comparable environmental requirements on all mining and smelting operations in the country was well beyond the capacity of the environmental administration of the time. The only options were to impose stringent requirements on the new investors, creating an element of discrimination, or to let the new investors operate under the same lack of supervision that had applied to the mining operations in the country until then.

### *(v) "Measures Equivalent to Expropriation"*

There is no evidence that the more stringent environmental requirements had a negative impact on foreign investment in mining. The requirements were fully integrated into the operations of the companies and consequently contributed both to the quality of management and to the overall efficiency of the operations. Indeed, as the state-owned companies were forced to apply similar practices the foreign-owned companies presumably reaped some competitive benefits from having them in place early.

This intuitively surprising outcome, although consistent with experience elsewhere, highlights the complex relationships between environmental performance and economic viability of an enterprise. It raises questions about applying concepts such as "performance requirements" or "takings" to specific environmental requirements without careful consideration of the circumstances surrounding an investment.

### *Responding to Discrimination*

Discrimination in relation to an investment generally concerns individual projects and investors and occurs in a dynamic environment, in which public authorities respond to changing demands and perceptions, market conditions fluctuate and investors can take measures to mitigate the economic impact of environmental requirements. An investment, certainly a productive investment such as a mine, as opposed to portfolio investment in the shares of a mining operation, occurs over a period of time, bringing into play both management and time factors.

### *(i) Management Factors*

The environmental impact of a mining operation depends critically on the quality of on-site management and the willingness of off-site management to support environmentally responsible behaviour. In some instances, the quality of management can be the most important factor in determining the actual environmental performance of a mine.

The new investors in Chile brought management skills acquired in the process of adapting to progressively more stringent environmental requirements in other, primarily developed countries. There is no direct evidence to support the view that the ability to successfully manage environmental affairs in the mining operation improved the companies' management performance in general. The literature suggests, however, that this should have been the case. Certainly, the willingness to engage in public debate about the environmental issues, in particular concerning the Disputada complex located within 100km of the capital city and consequently impacting the regional environment, is an indication of management confidence in its ability to address environmental concerns and to articulate its position in public, even in adversarial conditions.

### *(ii) Time Factors*

One foreign owned mine, El Indio, was a start-up and could consequently incorporate environmental measures from the outset. Disputada was created in 1916. From 1952 it was controlled by French interests who were bought out in 1972 by the national mining enterprise. Six years later it was taken over by Exxon Minerals International.[20] This repeated change in ownership would normally imply unstable management and consequent environmental problems. Yet Disputada has continued to invest and expand, and to address environmental issues in a forward-looking manner. In this instance the foreign investor has greatly expanded the business and has been able to incorporate environmental improvements in the process of expansion.

### *Conclusion*

The most striking aspect of the Chilean mining example is that clearly discriminatory intent did not have a visible deterrent effect on the mining operations that were launched. It is conceivable that other investors were deterred by the existence of de facto discrimination in the application of the law, but it is in the nature of such discrimination that little or nothing is ever known about it. Investors presumably used their capital elsewhere and have no strong interest in discussing the impacts of discrimination on their investment decision. This reflects the fact that investments are case-by-case decisions on the part of the investors and on the part of the public authorities involved.

At the same time, some investments were made in the face of this de facto discrimination, but the information about discrimination is not very systematic. Again, the circumstances of the investment process play a critical role: initial investors were presumably able to factor the costs of discrimination into their calculations and decided that the projects remained economically attractive. Once these costs have been accepted there is not much interest in protesting them: the project is presumed profitable and the investors need to remain concerned about their continuing relationship with the public authorities. After all, investors become owners and owners have complex interests when it comes to their relationship with public authorities. They may need further licences for the construction and maintenance of infrastructure, have a good understanding of their tax obligations, etc.

In the absence of internationally recognised criteria for good practice in mining it is virtually impossible to distinguish legitimate acts of government action from ones that are discriminatory. It becomes necessary to undertake a specific evaluation of each project, an undertaking that requires remarkable institutional capabilities in the adjudicatory structure that may be envisioned.

## Institutional Demands for the Attainment of Non-Discrimination

One of the secrets of the success of trade regimes is that the institutional demands for the attainment of non-discrimination are quite modest.[21] Embedded within a theoretical structure governed by comparative advantage, trade regimes achieve non-discrimination by means of most-favoured nation treatment, national treatment, requirements concerning the transparency of domestic measures, and dispute settlement. Investment regimes, however, deal with economic phenomena that are significantly more complex without the benefit of the same powerful theoretical framework. Consequently, the institutional demands on international investment regimes are different, and more complex, than those for trade in goods.

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[20] Danilo F. Torres, "El Proyecto Expansión Los Brancos de Disputada," <<http://www.sonami.cl/boletin/bol140/art6.html>>

[21] The term "institution" as used here refers to the "rules of the game." It is not a synonym for "organisation."

Any discussion of discrimination and non-discrimination in international investment regimes must include all measures that treat foreign investors differently than domestic investors under "like circumstances." Performance requirements certainly fall into this category, since by definition they concern requirements that are imposed on foreign investors only. As far as expropriation is concerned, no country may be expected to sign an agreement that contains disciplines on expropriation if comparable disciplines are not in place domestically. Experience with Chapter 11 of NAFTA indicates, however, that transposing the issue of expropriation into the international arena effectively reopens debates about "takings" that have been considered relatively settled in most countries.[22] Some international investment agreements do not include requirements that domestic avenues of redress must be exhausted before international redress is sought, effectively replacing the domestic jurisdiction by an international one for foreign investors. In other words, while they are certainly relevant to the broader problem of discriminatory actions they go much further in their reach by establishing an absolute standard that is applicable irrespective of discriminatory effect or the existence of domestic avenues of redress.

The conventional definition of "non-discrimination" draws on the institutions of the trade regime that establish a relative standard: "like" goods must be treated alike, and no worse than "like" domestic goods. The transition from "like goods" to "like investments" entails a dramatic change in scope. One sign of this change is that investment agreements increasingly replace the concept of "like" with that of "like circumstances," recognising the wider range of factors that need to be taken into account in relation to investments. In the case of extractive activities, the concept of "like circumstances" includes consideration of a significant number of highly specific environmental factors before any determination can be made. It is not sufficient that the output of a productive facility be "like" to establish that the facilities themselves are operating under "like circumstances." Examples abound: pond fisheries versus fish ranches versus open sea fisheries; chicken or pig factories versus more "natural" forms of production; plantations versus trees harvested from natural forests; shade grown coffee versus tree coffee; ranched wildlife versus free wildlife; surface mines versus subsurface mines.

The additional institutions found in investment agreements establish absolute standards, prohibitions against certain performance requirements and against expropriation without due compensation, including indirect expropriation. In reality, these provisions are as much a part of the structure to ensure non-discrimination in investment as are the standards that are traditionally identified with the principle of non-discrimination. They establish an absolute standard: government's party to these agreements promise to refrain from engaging in such practices, whether they apply to domestic investors or not. This adds yet another layer of complexity.

The greater complexity of addressing discrimination and non-discrimination in investment implies a significant degree of procedural safeguards to ensure that private interests and public goods are properly balanced. Decisions must be reviewed by independent, publicly accountable bodies, courts or similar institutions to ensure that outcomes are appropriate.

This discussion suggests that the attainment of non-discrimination in investment requires a significantly more elaborate institutional structure than, for example, for trade in goods. It also signals that cases of discrimination in foreign direct investment will be both more numerous and less readily discovered. Discrimination may occur with regard to certain sectors, and such practices are typically covered by exceptions and reservations to treaties.[23] In practice, discrimination against foreign

[22] International Institute for Sustainable Development, op. cit.

[23] During the negotiations for the Multilateral Agreement on Investment (MAI) such reservations and exceptions proliferated.

investors in entire sectors in a manner that is not covered by the law is extremely rare. Discrimination with respect to foreign direct investment typically occurs with respect to individual investments. This feature makes an investor-state dispute process a necessity for any meaningful investment agreement.

Extractive investments are significantly distinctive even while their products are essentially alike. They usually involve environmental values that are of public concern. Balancing individual investor rights and the public good requires the identification of factors that influence both economic output and public goods, many of which are liable to occur in unique patterns and combinations.

Most OECD countries have developed complex institutional mechanisms to ensure that these factors are applied appropriately and legitimately to individual decisions and regulatory measures of general coverage. They include rights of standing, environmental assessment procedures, the use of expert advisory groups to interpret scientific evidence, notification and transparency requirements, rights of participation and judicial review (frequently at several levels). In most countries the full panoply of legislative, administrative and judicial institutions may be required to resolve matters of major significance. In some instances specific legislative acts may be needed.

Few developing countries have comparable institutional structures. Even when the corresponding institutions exist they may lack resources and experience, and the necessary institutional co-operation may prove difficult or impossible to achieve.

The challenge facing international society is to determine what institutions will be needed at the international level. These must serve as a last recourse for foreign investors who may have been treated in a discriminatory manner by any or all of the domestic institutions. At the same time a support structure is needed to ensure that essential procedures and safeguards are in place in countries that have a less developed institutional system.

This discussion of mining and international investment regimes has identified a large number of factors that need to be considered in determining whether there has been discrimination in relation to a mining investment. In particular, a balance needs to be struck in a manner that is legitimate, transparent and accountable between investor rights and public goods that are affected by the investment. An international investment regime that is capable of determining whether the balance that has been struck is discriminatory or represents the legitimate exercise of regulatory authority will need to meet stringent standards that presumably can only be achieved through a substantial institutional endowment.

This discussion has not addressed issues associated with international public goods, such as climate change, biodiversity or the emission of persistent organic pollutants into the environment. These considerations add a further layer of complexity.

# PART III

# THE ROLE OF VOLUNTARY APPROACHES

# Voluntary Approaches to Environmental Protection: Lessons from the Mining and Forestry Sectors

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## Introduction

Foreign direct investment (FDI) has increased dramatically in recent years. While this has brought economic and social benefits to many regions of the world, some also argue that it threatens environmental quality in host countries, for example by producing pollution havens and generating a "race to the bottom" in environmental standards. However, a counter-view suggests that large corporations most frequently involved in FDI will promote the establishment of higher environmental standards through technology transfer or via their environmental practices. Preliminary investigations suggest that the truth is more complex than either of these views would suggest, and that different sectors are subject to different pressures and respond in different ways.

What is clear is that FDI is continuing to expand and with it the reach of large multinational corporations into developing countries. This trend has important environmental implications, and commonly involves large-scale investment projects in environmentally and resource sensitive industries such as mining and forestry. The behaviour of corporations involved in FDI has important indirect as well as direct implications, for those corporations commonly act as models (both positive and negative) for the behaviour of local enterprises. From a public policy perspective, it is vital that companies involved in FDI are encouraged and rewarded for becoming environmental leaders rather than laggards. Yet in an increasingly globalised economy in which the capacities of host countries may well be outstripped by the pace and scale of FDI, the policy options for nurturing such leadership are limited.

One increasingly popular option is to use voluntary initiatives to supplement, complement or replace direct government regulation as the main means of curbing the environmental excesses of private enterprise. The reasons for this new-found interest in voluntarism are many[2], but include the limits of command and control regulation, the need to fill the vacuum left by the retreat of the regulatory state and, as the European Union's Fifth Action Plan points out, "the growing realisation in industry and in the business world that not only is industry a significant part of the (environmental) problem but it must also be part of the solution".[3]

Initially, industry viewed voluntary initiatives either as a means of achieving (at best) a flexible, cost-effective and more autonomous alternative to direct regulation, or (at worst) simply a means of avoiding the imposition of binding standards altogether. Increasingly, however, such initiatives fulfill

[1] We are grateful to members of the OECD Environment Directorate for their insightful comments on earlier drafts and in particular to Peter Börkey and Kathryn Gordon for their detailed comments, many of which are incorporated in this paper. However, the views and conclusions are entirely the authors' responsibility and are not endorsed by the OECD Environment Directorate.

[2] For a detailed analysis, see J. Moffet and F. Bregha, 1999: "An Overview of Issues with Respect to Voluntary Environmental Agreements", Concerted Action on Voluntary Approaches (CAVA) Working Paper No 98/11/3, <<http://www.ensmp.fr/FR/CERNA/CERNA/Progeurpeens/CAVA/index.html>>

[3] European Commission Communication from the Commission to the Council and the European Parliament on Environmental Agreements, 1996: COM (96) 561, European Commission, Brussels.

a number of other objectives, such as risk management (including protecting themselves from potential litigation) and reputation assurance. This last factor has become of critical importance to large, highly visible transnational corporations, who increasingly recognise the need to manage their relationships and maintain their credibility not only with governments but also with a broader range of stakeholders, including communities, NGOs and workers. While the dynamics of reputation assurance may vary with the industry sector and context, it is apparent that from an industry perspective, "voluntary" initiatives may owe far more to a calculated response to external (and internal) pressures than they do to any spontaneous wish to become more socially or environmentally responsible.

Intensified interest in voluntary initiatives has resulted in their proliferation across a range of issues and in a variety of countries. However, we still know very little about their effectiveness or about how best to design them to achieve optimum efficiency and effectiveness. The empirical literature is very limited, due largely to the recent introduction of this approach and the lack of data collection and reporting requirements in many such initiatives. Indeed, one of the few things upon which almost all analysts of voluntary initiatives seem to agree is that far too little attention has so far been given to evaluating either their economic or environmental benefits.[4]

The evaluation that has occurred is of doubtful credibility. For example, as Kathryn Harrison has demonstrated evaluations of some of the early initiatives suggesting that they have been very successful are highly problematic. From her broader review of voluntary codes, Harrison reasonably concludes that:

> although policy evaluation is never straightforward, it is especially challenging with respect to voluntary programs for several reasons. Since participation is voluntary, claims of benefits beyond "business as usual" can be viewed with less confidence since firms may be selectively signing on only to do what they would have done anyway. In addition, measures of rates of compliance and environmental benefits can be more difficult since voluntary initiatives are seldom backed by legal mechanisms to compel disclosure. Finally, the potential for strategic behavior presents a special problem for voluntary initiatives. To the extent that participation in voluntary programs is motivated by a desire to avoid regulations, firms have incentives to exaggerate the economic and environmental benefits of voluntary programs.[5]

Against this backdrop of a paucity of reliable empirical evidence, this paper examines the experience of voluntary initiatives in relation to two industry sectors which have been prominent in FDI and whose activities can have profound environmental and resource implications: the mining and forestry industries. An industry-specific approach is valuable because the appropriateness of voluntary initiatives, and the design features necessary to maximise their chances of success, are context specific. A "one-size-fits-all" approach is unhelpful. In this context, the forestry and mining sectors

[4] T. Davies and J. Mazurek, 1997: *Industry Incentives for Environmental Improvement: Evaluation of US Federal Initiatives,* Global Environment Management Initiative, Washington D.C.; National Research Council, 1997: *Fostering Industry-Initiated Environmental Protection Efforts*, National Academy Press, Washington D.C.; D. Beardsley, 1996: *Incentives for Environmental Improvement: An Assessment of Selected Innovative Programs in the United States and Europe*, Global Environmental Management Initiative, Washington D.C.; European Environment Agency Environmental Agreements; K Harrison, forthcoming: "Voluntarism and Environmental Governance" in E. Parsons (ed.), *Governing the Environment*; OECD, 2000a: *Voluntary Approaches to Environmental Policy: An Assessment*, Paris.

[5] Harrison, op. cit. It should be noted that Harrison's criticism also holds for other instruments. Firms will always tend to overestimate the costs of environmental regulations in order to lower the regulatory requirements that are applied to them.

offer useful contrasts for this exercise, having very different characteristics and lending themselves to very different approaches to voluntarism.

While a number of important distinctions between the types of voluntary agreement embraced by these two sectors will become apparent in the paper, it is useful at this stage to highlight the crucial differences between them, according to the taxonomy developed by the OECD[6] (see text box).

**Box 1: Voluntary Approaches - A Taxonomy**[7]

Voluntary approaches are schemes whereby firms make commitments to improve their environmental performance beyond legal requirements. They can be divided into four categories:

- public voluntary schemes involve commitments devised by a public body (e.g. a government agency or an NGO) and in which individual firms are invited to participate. Since participation in voluntary programs is a choice left to the individual company, they can be seen as "optional regulations". Examples are the US program 33/50 or the Eco-Audit and Auditing Scheme (EMAS) implemented by the European Union;
- negotiated agreements involve commitments of environmental protection developed through bargaining between a public authority and industry. They are frequently signed at the national level between an industry sector and a public authority, although agreements with individual firms are also possible;
- unilateral commitments are set by the industry acting independently without any involvement of a public authority. The Responsible Care program is a well known example of a unilateral commitment made by the chemical industry in many countries;
- private agreements reached through direct bargaining between stakeholders. For instance, the Canadian Automotive Workers Union has negotiated cleaner production provisions into collective agreements with the motor industry involving 50,000 workers in 30 plants, as well as suppliers and part manufacturers.

In terms of the above taxonomy it should be noted that certification schemes such as have evolved in the forestry industry can be either public voluntary schemes (if they are designed by governments or by third parties), or they can be unilateral commitments when designed by business itself.[8] In contrast, voluntary codes such as have evolved in the mining industry are examples of unilateral commitments, as they do not normally involve either governments or third parties in the design phase.

It should also be noted that some voluntary initiatives are misnamed. As an OECD research paper has pointed out, "although the initiatives are referred to as 'voluntary', some firms are often under strong pressures to adopt them. Such pressures stem from legal and regulatory arrangements, from employees, from the need to protect brand or reputation capital and from civil society."[9] The experience with the forest certification scheme, for example, is that it has been a response to NGO and consumer pressure; government mandates have simply been replaced by commercial mandates.

[6] OECD, op. cit., pp 15-18.
[7] Ibid.
[8] The Forest Stewardship Council is an example of third party design, while the Pan European Forest Council is an example of business taking the initiative. There are no examples of government taking this role. Indeed, forestry certification was largely an NGO strategic response to what was perceived to be widespread government and regulatory failure in this area.
[9] OECD, op. cit.

Accordingly, this paper recognises that voluntarism is a question of degree, not an absolute, and embraces within it initiatives which in significant part may be a response to external forces.

The remainder of the paper is organised as follows. We first provide a context by (i) elaborating on what we believe to be the centrally important concept of social licence as a driver of corporate voluntarism; and (ii) identifying the main differences between the mining and forestry sectors and analysing why different forms of voluntarism have evolved. We then explore the experiences of the mining and forest products industries, comparing them to the similar but empirically more advanced experience of the chemicals industry. We then draw some broader lessons about the design and appropriateness of voluntary approaches as a policy instrument and some general conclusions.

**Setting the Context: The Importance of Social Licence**

A better understanding of the role of voluntary approaches can be gained by first asking why industry is increasingly attracted to the use of such instruments, and what purpose(s) they would serve. The main impetus for the introduction of such approaches (mainly in the form of industry codes of practice) is the need for industry, or at least reputation-sensitive industry, to maintain its environmental credibility. For example, in the case of the mining industry it has been suggested that:

> worldwide, mining is faced with a pattern of low credibility and social opposition, which derives from a general perception that mining is a dirty business. Mining is seen as inherently destructive, in that it destroys the environment, and leaves nothing positive behind when it packs up and goes. The image of abandoned mines, tailings dumps, waste-rock piles, and abandoned communities has significant resonance with the public.[10]

The problems are usually greatest in developing countries (recipients of much FDI in extractive industries) where mining companies commonly confront a legacy of conflict, struggles over the distribution of the benefits of mining, legislative inconsistencies generated by a variety of different reform processes, and a perceived lack of legitimacy in the laws and regulations on which foreign companies rely.[11] This last problem may be particularly serious given that there are commonly unresolved problems of legitimacy and transparency related to the entire process of mineral resource development and that a transitional company may be seen as aligned with a government that lacks legitimacy in rural areas. And even where there is the political will to regulate the environmental impact of the mining sector, governments and regulators often lack the capacity to do so.

As a result, the mining industry faces an urgent need to gain and maintain legitimacy and social acceptance, and cannot rely merely on the fact it claims to comply with local environmental laws to achieve this. It is particularly vulnerable to criticisms from a combination of local and international non- government organizations (NGOs). These groups, benefiting from the global revolution in communications and information technology, not only have far greater knowledge of mining operations than previously, but also can disseminate that information rapidly and in forms (e.g. digital photography and the internet) that facilitate highly sophisticated media campaigns directed to individual corporations or to the industry at large. The Brent Spar saga, albeit in another resource sector, is a dramatic illustration of the impact that sophisticated NGO media campaigns can have on corporate reputation and profits. The environmental and social damage caused by the Ok Tedi mine in Papua New Guinea at one stage threatened to become a comparable media disaster for its owners, at least at the regional level.

[10] Focus and Comment: "Earning a Social Licence", *The Mining Journal*, 11 June 1999, p. 441.
[11] See S. Joyee and I. Thomson "Earning a Social Licence to Operate: Social Acceptability and Resource Development in Latin America" cited in *The Mining Journal*, 11 June 1999.

Within the forestry sector, Greenpeace in collaboration with local environmental groups succeeded in turning the issue of clear felling within the old growth forests of British Columbia into a highly volatile and high profile media issue. There, NGO and public pressure prompted British Columbia's largest forest products company, MacMillan Bloedel, to reverse its long-term policy and to announce its intention to cease all clear felling in the province. Its chairman, whose previous experience in the asbestos industry left him in no doubt as to the severe consequences of the loss of social licence, was adamant that it had no choice but to acquiesce to public demands irrespective of the short term economic cost.

A corporation that builds its reputation capital and social licence (as perhaps McMillan Bloedel intends) can also turn this into a competitive advantage. "Reputation capital represents a communications bridge which predisposes NGOs, communities and other groups to enter into open discussion rather than hostile opposition. Reputation capital carries with it credibility, such that the up-front costs and risk associated with gaining social acceptability are reduced".[12] Those with reputational capital will be those who benefit from greater access to government and planning approvals, community acceptance and preferred access to prospective areas and projects.

Against this background, how can industry convince society that it is acting responsibly in the way it exploits resources, and that it is doing so in a manner that is compatible with the concept of sustainable development? How can individual company's demonstrate that they are responsible environmental actors who can be trusted to mine or conduct forestry operations in a particular area in a developing country without poisoning the local rivers, irreparably damaging the local environment and destroying the culture of indigenous peoples? How can companies avoid, for example, more serious accidents involving cyanide such as the Baia Mare disaster in Romania, the Kumtor incident in Kyrgyzstan and at the Ok Tedi mine in Papua New Guinea? Put more broadly, how can a company and the industry as a whole protect its "social licence to operate"?

An important distinction here is between action that is required to protect the reputation of an individual company, and action that is needed to protect the reputation of an industry as a whole. Clearly, there is nothing to prevent individual companies from improving their own environmental performance without adopting a particular code of practice, although they may gain greater credibility by doing so (to the extent that such a code is respected by external stakeholders). Incentives for such individual action include not only the protection of reputational capital but also competitive advantage and increased profitability, to the extent that they can identify "win-win' solutions which, for example, enable them to save substantial sums of money through more efficient use of resources.

However, it is clear that individual initiatives will not be sufficient to protect the reputation of an industry as a whole, and that unless the industry is trusted then the prospects of individual company's within it may be threatened. This is because a major environmental incident involving an individual company commonly tarnishes the reputation of the entire industry, exposing it to the risk of tougher regulatory requirements, obstacles to development and community backlash. As one industry spokesperson put it, "[b]usinesses can only survive whilst they have society's acceptance for their activities. Once that acceptance is lost, there is only one way to go."[13]

What this means in practical terms is that each company in an environmentally sensitive industry must act as its brother's keeper. Thus a mechanism must be found, nationally and internationally, which

[12] Ibid.
[13] C. E. Holmes, 1992: Address to Hazardous Waste Conference, Australian Chemical Industry Association (ACIC), Melbourne, p. 3.

enables the industry to continuously improve the environmental performance of all companies, large and small. Such a mechanism must be capable of improving the industry's poor public image,[14] restoring public faith in the industry's integrity and de-escalating demands for stricter government regulation.[15] One such mechanism is to invoke voluntary initiatives, in particular industry codes of practice, to achieve these goals. However, the precise mechanism invoked and how it will function is likely to vary from sector to sector. As we will see, this mechanism is particularly apposite to the circumstances of the mining industry but less so for forestry.

***Differences between the Mining and Forestry Sectors and their Implications***

The mining industry and the forestry industry have taken very different approaches to voluntarism, explained in large part by the differences between the two sectors.

Perhaps the over-riding distinction is that in the case of forest products, it has been possible for international environmental groups and their allies to sensitise consumers to the environmentally damaging consequences of certain forest practices and to persuade substantial numbers of them to exercise a purchasing preference for timber harvested from "sustainably managed" sources. A certification scheme (and subsequently a proliferation of certification schemes), usually but not always with independent third party audit, has been the mechanism enabling sustainably harvested timber to be distinguished from that which has been unsustainably harvested. The final link facilitating this particular form of market pressure has been the willingness of forest product retailers, especially in Europe, to promote and buy certified timber.

Voluntarism in relation to forestry has been largely a reaction by forest companies to this form of market pressure. That is, forestry certification was neither initiated nor promoted by the industry but various forest products companies have chosen to embrace it both because of the market advantages it may bring and because they see broader credibility gains (e.g. social licence benefits) from doing so.

In the mining industry, the large majority of the factors that facilitated the evolution of third party certification are absent. In principle, it might be possible to distinguish say, iron ore extracted from one source where mining techniques were environmentally sensitive from iron ore extracted from another where they were not. However, this would be far more complex than in the case of timber products, which remain in their original form much further down the production chain than do most extracted minerals. It is, for example, far easier for a consumer to identify the source of the wood that goes into a chair than for a consumer to identify the source of copper making up components of a computer. This distinction may be a crucial variable facilitating or inhibiting the certification approach.

WWF and others have actively sought to expand and apply the forest certification model to other industries (e.g. the Marine Stewardship Council) but the conventional wisdom is that industries such as mining are less suited to this approach because there is little or no capacity to harness consumer pressure. Rather, NGO campaigns against mining in the past have primarily targeted local communities and regulators. It may also be that the emotional appeal of trees is much stronger than that of minerals even when extraction of the latter can be demonstrated to cause substantial localised

[14] This was acknowledged by ACIC former Chief Executive, Frank Phillips, who said that the plan was developed in response to the industry's poor public image. See R. Smithers, "Chemical Firms Adopt Code to Clean Up the Industry", *The Age*, 27 September 1989, p 5.

[15] As former Canadian Chemical Producers Association President Jean Belanger put it, "if we could figure out a way of becoming proactive, then we could lessen demands for that degree of regulation". R. Mullin, "Canadian Deadline Approaches: Contemplating continuous improvement", *Chemical Week*, 17 June 1992, p. 128.

damage, facilitating greater NGO leverage. And possibly the price elasticities and capacity for value added are substantially greater in relation to forest products, facilitating greater consumer power.

In an innovative new initiative, WWF is working with Placer Dome to evaluate whether mining could be included under a similar certification model to the Forest Stewardship Council (FSC).[16] WWF takes the view that consumers "constitute more than individuals going into stores for our personal consumption. WWF views the 'market' for certification of the mining industry to include…investors, financiers, insurers, employees, regulators, suppliers, and consumers".[17] While certification might offer benefits to the mining sector, albeit in different ways to those offered by the FSC to forestry companies, this initiative is still at an early stage. It is not yet clear, whether, to what extent or in what circumstances it will achieve its objectives.

At the same time, the mining industry is experiencing increasing public and NGO criticism of its environmental practices and performance, and feels itself particularly vulnerable to that pressure and its consequences (in terms of permission to open new mines, community backlash and tougher legislation) for the reasons described in the previous section. Because action by individual companies is unlikely in itself to bring about an overall improvement in industry standards or to curb the activities of free-riders, some form of collective response is necessary. Since the industry does not wish to lose its autonomy and is distrustful of direct government intervention in its affairs, the establishment of a voluntary code seemed a logical step forward. A model for the introduction of such a code already existed in the form of the chemical industry's Responsible Care program. To date the main mining industry initiatives have been substantially modelled on this. We explore the implications of adopting this model in the next section.

**Experience in the Mining and Forestry Industries**

***The Mining Industry***

The task of protecting a social licence is multidimensional, involves operating at several levels and engaging in dialogue with a variety of stakeholders in order to gain credibility and legitimacy. One partial but important strategy for gaining a social licence at an industry level is the development and implementation of industry codes of practice and other voluntary approaches that establish industry standards of environmental performance.

Industry groups in a number of countries (most notably Canada and Australia) have contemplated or introduced such codes. The International Council on Mining has adopted an Environmental Charter and an Environment code, reproduced in Appendix 3. This includes product stewardship, environmental stewardship and community responsibility principles. Amongst the obligations specified are to "meet all applicable environmental laws and regulations and, in jurisdictions where these are absent or inadequate, apply cost-benefit management practices to advance environmental protection and to minimize environmental risks." However, as Dee has pointed out, there are no significant incentives to join and neither is there independent monitoring nor sanctions for non-compliance[18]. In addition, the principles are not drafted in sufficiently tight language to strongly induce good environmental behaviour. The International Council on Metals and the Environment is also in the process of developing a code at the time of writing.

[16] "Mining Certification Evaluation Project", WWF-Placer Dome Asia Pacific Discussion Paper, WWF Australia Resource Conservation Program, Mineral Resources Unit, January 2001.
[17] Michael Rae, WWF Australia, Personal communication.
[18] Bill Dee, Australian Competition and Consumer Commission, Canberra, personal communication.

The Global Mining Initiative is another approach. A number of major mining companies have commissioned a study seeking to analyse the factors that could help the mining sector better contribute to sustainable development. The aim is to reach an understanding with all stakeholders and the industry's critics on the role that mining should play in the transition to sustainable development. Its report will be available in 2002.[19]

A particularly advanced example of what a mining industry code might involve is the Australian Minerals Industry Code for Environmental Management, launched in 1996 and substantially revised in February 2000 This has been described by the United Nations Environment Program as being "one of the most comprehensive voluntary codes yet devised for the mining industry, and the only code to require the disclosure of environmental performance".[20]

While the precise motivations of the industry in establishing the code remain a matter of speculation[21], they certainly included a concern to protect the reputation of the Australian mining sector as a whole, that of individual companies and their capacity to gain access to markets in a number of developing countries. Signatories to the code commit themselves to:

- integration of environmental, social and economic considerations into decision-making and management, consistent with the objectives of sustainable development;
- openness, transparency and improved accountability through public environmental reporting and engagement with the community;
- compliance with statutory requirements as a minimum;
- a continually-improving standard of environmental performance and, through leadership, the pursuit of environmental excellence throughout the Australian minerals industry.

Obligations under the code include progressive implementation; production of a publicly available annual environment report within two years of registration; completion of an annual code implementation survey to assess progress against implementation of code principles; and verification of the survey results by an accredited auditor at least once every three years. The code also requires implementation of an environmental management system. In January 2001 there were 36 signatories to the code, representing approximately 90% of the industry's mineral production. While this figure, supplied by the Australian Minerals Council, suggests that the code has been widely adopted, it may disguise the extent to which smaller companies have so far declined to participate.[22] Further details about the code are found in Appendix 2.

The performance of the Australian code and other mining industry initiatives is of too recent origin to be evaluated. However, we do have much greater empirical experience of other, similar codes of

[19] See Mining, Minerals and Sustainable Development project at <<http://www.iied.org/mmsd/ >>. See also the UN sponsored guidelines on mining and environment at <<http;//www.natural –resources.org/environment>>.
[20] I. Gould, 2000: "Opinion - The Code – Driving Change", *Groundwork 4(*3), <<http://www.ameef.com.au/publicat/gw/grnd900/gopinion.htm>>
[21] The Australian Minerals Council has stated that the code was developed "to demonstrate its commitment to continual improvement in environmental management, and to be open and transparent in its dealings with the community". Australian Minerals Council, 2000: *Code for Environmental Management: Backgrounder*, Canberra.
[22] The figures were provided by the Australian Minerals Council. They did not supply the number of non-participants.

practice.[23] In particular, since the code bears considerable similarities to, and was modelled substantially on, the chemical industry's much more developed Responsible Care program, we can extrapolate from the experience of Responsible Care to evaluate the minerals industry code in terms of key criteria such as its coverage and ambitiousness, monitoring, sanctions for non-compliance, transparency and credibility. The two industry sectors have considerable similarities. Both have a substantial and high profile environmental impact, both have had a very poor public environmental image and both need to protect their reputation capital in order to maintain access to development opportunities across a diverse range of countries, to ward off more interventionist government regulation and to maintain credibility with external stakeholders.[24]

Responsible Care evolved in the aftermath of the chemical industry disaster at Bhopal, India in 1984, at a time when the chemical industry internationally faced a serious credibility problem and feared draconian government regulation and serious public opposition to many of its activities. Responsible Care is a self- regulatory program intended to reduce chemical accidents and pollution, to build industry credibility through improved performance and increased communication and to involve the community in decision making. It is based on a series of industry codes of practice and greater levels of public disclosure and participation. Chemical industry associations at the national level are responsible for its administration. The relevant associations rely largely on promulgating norms of industrial conduct, peer pressure, technical assistance and transfer, data collection and self-reporting by members to institutionalise responsibility and ensure compliance. Expulsion of a member for non-compliance is extremely rare.

Over 15 years since its inception, Responsible Care has achieved very modest success. In the USA, there is no publicly accessible aggregate data on firm compliance with industry standards, and informal estimates are that some 30% of members have been "recalcitrant' in adopting the Program.[25] One recent evaluation found that firms that are highly influenced by the industry's reputation will more frequently participate in Responsible Care; companies with weaker environmental performance relative to their sectors were more likely to participate in Responsible Care; there is no evidence that Responsible Care has positively influenced the rate of improvement among its members; and there is

[23] The evidence suggests that such codes are rarely effective in achieving compliance (i.e. adherence by the target population/s with regulation/s), at least if used as a "stand alone" strategy without sanctions. This is because self-regulatory standards are often weak, enforcement is commonly ineffective and punishment is secret and mild. Moreover, self-regulation commonly lacks many of the virtues of typically conventional state regulation, "in terms of visibility, credibility, accountability, compulsory application to all, greater likelihood of rigorous standards being developed, cost spreading, and availability of a range of sanctions." K. Webb and A. Morrison, 1996: "The Legal Aspects of Voluntary Codes", Draft paper presented to the Exploring Voluntary Codes in the Marketplace Symposium, Office of Consumer Affairs, Industry Canada and Regulatory Affairs, Treasury Board, Ottawa. For a recent and comprehensive survey see M. Priest, 1997-98 "The Privatization of Regulation: Five Models of Self-Regulation", *Ottawa Law Review 29(2)*, pp. 233-302.

[24] However, there are also some significant differences. For example, the chemical manufacturers associations are in a stronger position than other bodies to exert pressure for environmental improvement, in part because the industry's characteristics facilitate the development of "social capital": the development of "the features of social organisation, such as networks, norms and trust that facilitate coordination and cooperation for mutual benefit". As Rees has demonstrated, the industry is an incestuous one in which companies constantly deal with each other. Strategic alliances, product swapping and technology transfers are the norm rather than the exception. See J. Rees, 1997: "Development of Communitarian Regulation in the U.S. Chemical Industry", *Law and Policy 19(4)*, pp. 477-528.

[25] See in particular A. Fung, B. Karkkainen and C. Sabel, 1998: "After Backyard Environmentalism: Towards a New Model of Information-Based Environmental Regulation", Paper prepared for the Conference on Information Based Environmental Regulation, Columbia University, p. 36.

evidence that members of Responsible Care are improving their relative environmental performance more slowly than non-members.

Overall conclusions from this research are that because Responsible Care has operated without explicit sanctions for malfeasance, "it has fallen victim to enough opportunism that it includes a disproportionate number of poor performers, and its members do not improve faster than non-members. Thus the institutional pressure that Responsible Care exerts on its members appears to have inadequately counteracted opportunism."[26]

Another study of 16 firms found that the Responsible Care program dramatically changed the way of thinking of three of the firms, and was a useful and important safety health and environment tool in another three. However, in 10 of the firms Responsible Care primarily helped relations with external constituencies without significantly changing internal behaviour.[27] Indeed, some firms (who see environmental practices as marginal to their strategic and competitive objectives) appear to treat Responsible Care as a tool for external image manipulation rather than for genuine environmental improvement.[28]

Responsible Care continues to evolve. As previous analyses point out substantial modifications, including independent third party audit (already in the process of being introduced in some jurisdictions) and expanded roles for accountability, transparency and consultation, may help improve both its credibility and its capability to deliver positive environmental outcomes.[29]

Responsible Care may also have achieved much more than the above analyses give credit for in terms of "soft" effects, which are rarely considered because they are difficult to measure.[30] Rees has demonstrated that the chemical industry associations, through Responsible Care, have facilitated the development of trust amongst their members, creating an environment within which people work together, share information, provide mutual aid and establish policy. Tangible manifestations of this include Responsible Care's leadership groups[31], workshops, mutual assistance network and implementation guides. As a result, "by increasing interpersonal trust and reducing uncertainty, the development of community lowers transaction costs and makes collective action easier".[32]

More broadly, Responsible Care has enabled the development of an industry morality, a set of norms that generate a sense of obligation, emphasising particular values and structuring choice. Such a morality provides:

> ...a form of moral discourse capable of challenging conventional industry practices – "This is the way we always do business around here" - including the economic

[26] A.A. King and M. J. Lenox, 2000: "Industry Self-Regulation Without Sanctions: The Chemical Industry's Responsible Care Program" *Academy of Management Journal 43(4)*, pp. 698-736.
[27] S. Metzenbaum, 2000: "Information Driven", *Environmental Forum* (March/April), p. 29 referring to research by Nash and Ehrenfeld.
[28] C. Coglianese and J. Nash, forthcoming: *Management Based Environmental Policy*, chapter 1.
[29] N. Gunningham and J. Rees, 1997: "Industry Self-Regulation: An Institutional Perspective", *Law and Policy 19(4)*; pp. 363-414; N. Gunningham and P. Grabosky, 1998: *Smart Regulation: Designing Environmental Policy*, Chapter 4, Oxford University Press, Oxford.
[30] The following paragraphs are sourced from Gunningham and Grabosky, op. cit.
[31] These groups usually meet quarterly with peers to review progress and to provide and receive assistance. They are reputedly a highly effective way of creating peer pressure, and of enlisting corporate leaders to the cause of Responsible Care.
[32] Rees, op. cit.

> assumptions underlying many of those taken-for-granted policies and practices. In this way, an industrial morality ... legitimises aspirations other than profit as a good reason for action. It establishes an alternative moral vocabulary, a rhetoric of organisational motive that competes with (and critiques) the native tongue of the business organisation, the language of profits and losses.[33]

Within such a context, there is also considerable scope for peer group pressure to act as an effective driver of corporate change. The leadership groups in particular fulfill this role, bringing together representatives of a number of companies to share their experiences, their progress, and, by implication, their lack of progress.[34]

Similarly, there is the potential for Responsible Care to act as a vehicle for corporate shaming[35] through the spotlight of public exposure of a polluter's moral failings. Certainly the performance indicators and verification mechanisms currently being adopted under Responsible Care could form the basis for identifying recalcitrants and exposing them to the glare of adverse publicity. There is also some anecdotal evidence that to a modest extent such shaming already takes place through the leadership groups. In these ways, Responsible Care provides a vehicle for informal social control: regulation from the inside ("moralising social control"),[36] rather than regulation from the outside (based on external constraint).

Overall, the various Responsible Care mechanisms create a climate that can motivate and drive corporate executives to go beyond what is legally required in terms of environmental performance. However, despite its considerable potential and strengths there are also many obstacles to the success of Responsible Care. Of these, the largest is that environmental protection and private profit do not necessarily coincide, and are not perceived to coincide, particularly given the emphasis of most corporations on short-term profitability.[37] For both corporations and individual managers, the essential dilemma is that they are judged essentially on short-term performance, and if they cannot demonstrate tangible economic success in the present there may be no longer term to look forward to.[38]

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[33] Gunningham and Rees, op. cit.

[34] See T. Posner, 1992: *The Engineer*, 5 March, p.20 citing how such a process takes place during meetings of company chief executives.

[35] There is a criminological literature that argues persuasively the importance of a moral dimension to corporate (and individual) behaviour, and documents the considerable extent to which corporations can be "shamed" into doing the right thing. See for example J. Braithwaite, 1989: *Crime, Shame and Reintegration*, Cambridge University Press, New York.

[36] Ibid, pp. 9-11.

[37] Because corporations are judged by markets, investors and others principally on short-term performance, they have difficulty justifying investment in environmentally benign technologies that may make good economic sense in the long term, but rarely have an immediate or medium term pay-off. Most areas of reform, including stopping harmful emissions to land, water and air, replacing harmful chemicals with more expensive ones and cleaning up contaminated land, are vulnerable to these short-term market pressures.

[38] R. Jackall, 1988: *Moral mazes: The world of corporate managers*, Oxford University Press, New York. Jackall found that short term issues overwhelm long term considerations. In Jackall's view, "[m]anagers think in the short term because they are evaluated both by their supervisors and peers on their short term results". As one manager put it, "Our horizon is today's lunch" (Ibid, p. 84). Jackall also found that staff mobility, both within and between corporations (often the result of CEO-inspired re-organisations), meant that those who currently occupy a managerial post might feel no urgency about the environmental consequences of their decisions. This was because the threat of immediate governmental retribution, via the EPA, was most unlikely, and the delays in processing environmental actions through the courts meant that by the time a case was heard, the present incumbents would have moved on, leaving others to deal with the legacy of those decisions. See also J E Rogers Jr., 1992: "Adopting and Implementing a Corporate Environmental Charter", *Business Horizons 35(2)*, p. 31.

There may be a number of particular lessons for the mining industry to be learned from the Responsible Care experience. First, to the extent that the code relies on self-reporting as the principal means of monitoring, it will lack credibility with external stakeholders and the public in general. When the industry associations responsible for administering Responsible Care announced yearly compliance figures based on their member companies "ticking the boxes" and returning questionnaires, these statistics were viewed with great skepticism by external audiences, and as tantamount to students grading their own exam papers. Very belatedly, and only in a few countries, is Responsible Care turning to external verification and independent audit as a means of providing credible monitoring and reporting. The leader in this respect is Canada, where an external team comprising two industry and two non-industry representatives (one from the local community) conduct such audits.

Significantly, the most recent version of the Australian Minerals Industry code requires verification of the survey results by an accredited auditor at least every three years. However, it must be noted that since the code requirements are essentially process rather than outcome based this does not imply independent verification that any particular level of environmental performance is being achieved, but rather that the systems that companies claim are in place are indeed so.

Second, if the industry association is unwilling to impose credible sanctions for non-compliance with the code, this too substantially reduces its credibility. Environmental groups constantly ask for evidence that the relevant industry association is willing to take action to sanction renegade companies for non-compliance. In most countries there are none, leading critics to suggest that Responsible Care tolerates free-riders and lacks the political will or the means to hold recalcitrants to the standards set out in its codes of practice. It remains to be seen whether the Minerals Council of Australia will adopt a more aggressive approach to sanctions. At present, the position taken is that the code "is not there to judge how companies perform, and has no capacity to apply punitive measures when they fail to measure up."[39]

Third, transparency will be a critical feature of a code's credibility with the public. Responsible Care in the US initially used the slogan "don't trust us, track us" as a means of demonstrating to the public a commitment to openness and full disclosure. However, in practice, its members have been loath to make such disclosure. Even now, there is no requirement to make compliance audits public in the US and the Chemical Manufacturers Association leaves it to individual member companies to define what constitutes "full implementation" for their own circumstances.[40] The code development and implementation process is even less transparent in Europe. Canada and Australia are the exceptions in that firms are required to publicly report their discharges beyond the requirements of law, and public involvement is facilitated via a national advisory panel and facility-level committees.

Again, it is too early to judge the Australian Minerals Industry code in terms of transparency. Certainly "signatory values" include "openness, transparency and improved accountability through public environmental reporting." Quite what this will mean in practice only time will tell. The early signs are not encouraging. The mining industry took a leading role in opposing the implementation of a National Pollution Inventory (NPI), a watered down version of the US Toxic Release Inventory, and was successful in having removed from the NPI proposed reporting requirements in relation to issues such as tailings dams, which the mining industry prefers not to be the subject of public scrutiny. Another response to its anticipated public environmental reporting initiative is, according to regulators, to routinely defend and if necessary appeal all prosecutions, even those to which in the past it would have pleaded guilty. Since the industry can massively outspend local regulatory authorities in

[39] Gould, op. cit., p. 22.
[40] Harrison, op. cit., p. 33.

the courtroom, this strategy may well be successful in deterring environmental protection authority prosecutions and in preserving a clean record. It says nothing about the industry's commitment to improved environmental performance, however.

Finally, the Responsible Care codes, like ISO 14001, focus on systems rather than outcome based standards. As such, they leave the setting of goals to individual participants, focussing only on the processes that are in place to ensure that goals are achieved. As Harrison points out:

> at its core Responsible Care remains a management system. Whether or not it is effective as such, it cannot be viewed as a substitute for goal oriented public policy. For instance, the manufacturing code of practice commits participants to "be aware of all effluents and emissions to the environment, monitor those for which it is necessary, and implement plans for their control when necessary."…It striking that no specifics are provided about which substances should be monitored, what to report to the community, when control is 'necessary', or how firms should go in 'responding to community concerns'.

The same comment applies equally to the Minerals Industry Code.

***The Forestry Industry***

Forestry, like mining, is a sector whose activities have high environmental and political sensitivity. In contrast to mining, however, environmentalists have been able to persuade consumers and retailers to preferentially purchase products from sustainably managed forests.[41] They have sought to do so by developing private certification programs which typically define the environmental standards that firms must meet, by pressuring large buyers (such as do-it-yourself stores) to buy only from certified sources and by sensitising consumers to the environmental benefits of certified timber. That is, the key strategy of environmental groups has been to harness the incentives of the market to promote the public interest.

Certification has had a relatively short history. It began in the early 1990s as a response to the (perceived) failure of existing government policies and industry self-regulation to arrest the continued degradation of the world's forests. The chief instigators of this approach were environmental organisations, who believed that certification provided concerned consumers with a direct say in forest sustainability issues and the power to impose an economic penalty on unsustainably produced timber by boycotting it in the marketplace. Certification was considered an effective way of circumventing government forestry agencies considered to be too closely aligned with their industry "clients".

The most dramatic evidence of the power of private certification organisations in conjunction with direct NGO pressure to bring direct pressure to bear and to threaten the social licence was, according to Hoeberg:

> the June 1998 decision of industry giant MacMillan Bloedel to abandon its long-standing practice of clear-cutting in coastal British Columbia. In announcing the

[41] In principle, it might be possible to distinguish say, iron ore extracted from one source where mining techniques were environmentally sensitive from iron ore extracted from another where they were not. However, this would be far more complex than in the case of timber products which remain in their original form much further down the production chain than do most extracted minerals. It may also be that the emotional appeal of trees is much stronger than that of minerals, even when extraction of the latter can be demonstrated to cause substantial localised dama.ge.

> decision, company president Tom Stephens clearly credited the certification movement as an important motivation: "It reflects what our customers are telling us about the need for certified products, but equally important it reflects changing social values and new knowledge about forest ecology." By Spring 1999, two other BC companies had followed MacBlo's (sic) lead.[42]

At the forefront of certification initiatives has been the World Wide Fund for Nature. Together with a number of other organisations it established the Forest Stewardship Council, the first and still the most well known certification scheme.[43] As a precursor to certification, the Forest Stewardship Council developed a set of sustainable forestry management principles and criteria. It then sought to implement these through the accreditation of "approved" independent certifiers. However, this was only the first step. Certification required recognition from major supply chains if it was to become effective in influencing markets.

A key breakthrough came in the United Kingdom with the formation of the 95+ Buyers Group. This group of forest product retailers and wholesalers represented nearly 25% of the entire timber trade in the United Kingdom. In an agreement with the Forest Stewardship Council, they agreed to commit themselves to the buying and selling of Forestry Stewardship Council-endorsed forest products. Arguably this single event led to a more mainstream acceptance of certification, or at least recognition that it was a genuine force to be contended with.

Three important and related developments have subsequently transformed the certification landscape.[44] First, as industry and government witnessed the gradual acceptance of sustainable forestry management timber by a significant proportion of European, and to a lesser extent, North American forest product retailers, they increasingly adopted a "if you can't beat them, join them" attitude. This led to the formation of numerous rival industry-based, or at least quasi-government, certification schemes. For example, the American Forest and Paper Association established its Sustainable Forestry Initiative, a self-regulatory approach to sustainable forestry management and the Canadian Standards Association, in close co-operation with the domestic Canadian forest and paper industry developed standards for a national certification scheme based on the International Standards Organisation's ISO 14001 environmental management system. There is now a proliferation of certification schemes internationally, with industry, government and environmental schemes vying for prominence. Arguably, some of these schemes have been conceived to weaken the hold of the Forest Stewardship Council or to confuse the market place with the introduction of multiple rival schemes.

Second, the increasing commitments of retailers and others to purchase sustainably managed and certified timber (for example, the largest hardware chain in the United States, Home Depot, recently joined a Forest Stewardship Council buyers group) has focussed attention on one of the most obvious shortcomings of existing certification schemes: an acute lack of certified timber product. To date only a very small minority of the world's forests are certified under any of the schemes, the vast majority being in Sweden where the industry co-operated with the Forest Stewardship Council early on in the process. This shortage has led to a scramble by rival schemes to rapidly develop sustainable forestry management certified forest. In Canada, for example, more than 20 million hectares of forest is due to be certified in the near future under the Canadian Standards Association scheme. Overall, as at 31

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[42] G. Hoberg, 1999: "The Coming Revolution in Regulating Our Forests", *Policy Options* (December), p. 53

[43] Commonwealth of Australia, 1996: *Proceedings of an International Conference on Certification and Labelling of Products from Sustainably Managed Forests*, Brisbane, 26-31 May 1996.

[44] See, for example, M. Simula, 1999: *Certification of Forest Management and Labelling of Forest Products: Discussion notes on main issues* (draft), World Bank, Forest Policy Implementation Review & Strategy Development, June 1999.

December 2000 the amount of certified forests under the FSC scheme was 20,746,552 hectares. To give an indication of the growth rate, in September 2000 a little over 17 million hectares of forest had been certified. The amount of FSC certified timber is still small, however, representing only approximately 10% of roundwood sold in the UK, where consumers are particularly environmentally sensitive.

Third, the rapid expansion of the number of certification schemes, of the number of retailers willing to participate in them and of the projected supply of certified timber has led to widespread and mainstream acceptance of the role of certification. Even some of the previously most vocal critics have shifted their position substantially in this regard. With the gathering momentum of certification, as Simula notes, "we have already passed the point of no return."

Despite the increase in certified forest across the world, however, most of this is accounted for by forests in developed countries. For example, the combined total of Sweden (9,867,087 hectares) and the United States (2,859,231 hectares), accounts for approximately 61% of total FSC certified forest. The largest developing country participants are Poland (2,742,786 hectares), Bolivia (884,980 hectares), South Africa (828,128 hectares) and Brazil (665,558).[45] This points to another feature of the FSC scheme: although it is widespread, significant contributions (for example, greater than half a million hectares) are made by only a limited number of countries (the above six plus the United Kingdom with 958,320 hectares).

The Pan European Forestry Certification Scheme (PEFC) and the FSC have almost similar amounts of area as certified forest. However, the PEFC is arguably even more concentrated in its geographical coverage than the FSC. In fact, the subsidiary Finnish Forest Certification System (which carries the PEFC logo) dominates the PEFC in comparative terms. As of late 2000, "ten of Finland's 13 Forestry Centre areas have received a forest certificate under the FFCS (Finnish Forest Certification System) system. These forest certificates issued by independent certification bodies cover over 19 million hectares of forest." Other major contributors to the PEFC scheme are Sweden and Norway.[46]

Credibility is also closely related to the extent of external certification. Although a majority of certification schemes have employed the use of independent third party certifiers, some have advocated a form of self-assessment. Increasingly, however, independent third party certification has become the norm. Even the industry-based Sustainable Forestry Initiative, which was specifically designed to avoid external verification, has recently announced that it will accommodate independent third party certification. The exceptions to this trend are the schemes arising in some developing countries with a high degree of government involvement, where the independence of certifiers remains uncertain. The major international certification schemes are further described in Appendix 1.

[45] The use of indigenous certification schemes in developing countries, including Brazil (CERFLOR), Indonesia (the Indonesian Labelling Institute) and Malaysia (the National Timber Certification Council), is still in the development stage. These countries therefore have limited certified forests at present.

[46] The largest certification scheme, in terms of area certified, is the American Forest and Paper Association's Sustainable Forestry Initiative. As of late 2000, this scheme covered 29 million hectares of forest (engaging over 150 companies). Only some of this area is third party certified. By 2001 it was anticipated that 20 million hectares would be certified. The other major North American certification scheme is the Canadian Standards Association's Sustainable Forest Management initiative. The area of forest certified under this is still comparatively small, but large areas are anticipated to come on stream in the near future

Beyond this, it is difficult to evaluate the various programs. Meidinger's suggests that "all of the programs are likely to lead to environmental improvements in the near and mid term, but that only the FSC program would bring significant gains to human rights and community."[47]

**Box 2: Main Features of Certification Programs**

- The programs were all created by groups of self-selected standard setters with relatively low levels of government and public involvement.
- The standard setting organisations rely on decision-making based on formal constitutions and procedural rules, and organizational control based on contracts and auditing mechanisms.
- Programs seek to aggrandise the organisational capacities of the regulated entities by attempting to commit elements of firms' management systems to program goals and by monitoring the workings of the management systems.
- They rely heavily on the production, analysis and monitoring of information and share an implicit commitment to the proposition that improved information will lead both to organisational learning and improved control of organisational impacts on the environment.

It should also be noted that different schemes have very different "ownership" arrangements and support bases. For example, some schemes are driven largely by environmental organisations although the largest of these, the Forest Stewardship Council, includes some retailers and industry among its membership. Other schemes originate from national governments, while still others have non-government and industry organisations driving their implementation. Finally, some schemes engage a combination of these parties in a joint effort.

Source: E.E. Meidinger, 1999-2000: "'Private' Environmental Regulation, Human Rights, and Community", *Buffalo Environmental Law Journal 7*, pp 219-222.

Whether any of the schemes have any influence over the biggest lawbreaking international forestry companies is a moot point. It was noted earlier that there is already a shortage of certified timber and there remain many significant markets, most notably in Japan and other parts of Asia, which do not require certification. According to a (initially suppressed, and now much revised) World Wide Fund for Nature report, the worst forest products companies are from Asia, not from North America.[48] The same report suggests that corruption in some developing countries is allowing Asian logging firms to "bribe their way into clear cutting protected forests, national parks, and conservation zones".[49] Even an optimistic assessment must concede that beyond progressive European (and to a lesser extent, North American) markets, the current capacity of certification to foster sustainable forest management practices by public shaming and consumer preferences is limited, leaving the worst forest operations with the option of directing their products to less discriminating markets and consumers in Asia.

In essence, the limitations of certification as it currently operates are that its impact is "largely limited to forests whose timber enters international trade and, especially, to forests whose wood is destined for environmentally sensitive markets in Western Europe and North America."[50] Even in these regions, though, demand for FSC products is by no means uniform, with the "do it yourself" stores, which

[47] E.E. Meidinger, 1999-2000: "'Private' Environmental Regulation, Human Rights, and Community", *Buffalo Environmental Law Journal 7*, p. 228.
[48] See P. Brown, 2000: "Report on Forests Suppressed", *Guardian Weekly*, 1-7 June 2000.
[49] *Toronto Globe and Mail*, 10 August 2000.
[49] Brown, op. cit.
[50] S. Roberts, K. Thornber and N. Robins, 2000: "Domino Effect", *Tomorrow*, Sept/Oct, 2000, p. 35.

represent a minority of the total market, well ahead of other sectors.[51] Moreover, it is arguable that most of the companies that have obtained certification were already well advanced in their forest management practices and that while certification may have assisted these companies in maintaining or expanding their markets, it has not reduced the gap between the "good" and the "bad" companies. Nor has it acted as a significant brake on the destructive activities of the worst companies that are not exporting to environmentally sensitive markets.

In the future, as certification gains further momentum in the marketplace, the premium price that the market is arguably ready to pay for certified forest products[52] may act as an incentive for more companies (including bad performers) to adopt sustainable forestry practices and to achieve certification.[53] There may also be a broader range of attractions to forest products companies in gaining certification, identified by the WWF as follows:

- benefits of quality, productivity and the right to operate, including assurance of a long term supply of timber because forests do not become exhausted and lose their productive capacity;
- benefits from increased market share, sales and prices;
- benefits to company reputation with consumers, employees and local countries; and
- reduction of risk resulting in companies enjoying lower costs of capital and insurance.[54]

Certainly, there is a consensus that certification has already gained a critical mass in many developed economy markets. To the extent that a premium exists, or the broader benefits identified above hold, companies choosing to sell in these markets ignore certification at their economic peril. However, there is little sign of Asian markets (in particular Japan) responding in a similar fashion. Here, short-termism and environmentally destructive practices remain evident, at least for the moment. Even in developed markets, it remains to be seen to what extent serious distortions under certification can be avoided.[55] For example, there remains concern about the disturbing practice of converting natural forest to plantation forest and then subsequently receiving certification.

**Generic Industry Codes**

The same lack of reach and penetration to influence corporations who see a continuing commercial advantage in what is commonly described as "environmental rape and pillage" is equally the case with regard to the broader social or environmental charters, which seek to encourage higher standards of corporate environmental performance across industry as a whole. These codes have been influential in shaping the environmental behaviour of some leading and reputation-sensitive North American and European corporations. For example, approximately 2000 companies have signed the International Chamber of Commerce's *Business Charter for Sustainable Development* and over 120 of these have become active participants in the World Business Council for Sustainable Development.

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[51] In the UK, the 1995+ Buyers Group represents about 15% of the total UK market for roundwood products.
[52] See A. Mattoo and H.V. Singh, 1994: "Eco-Labelling: Policy Considerations", *Kyklos 47(1)*, pp. 53-65.
[53] The existence of such a premium has not been conclusively demonstrated, although some of the stakeholders themselves, including the WWF, assert that it does. See for example <<http://www.panda.org/forests4life/pubs.cfm>>, "Investing in tomorrow's forests", which states that the FSC has provided some producers with a price premium.
[54] Ibid, chapter 5.
[55] For example inappropriate criteria for the sustainable use of forests may be imposed on developing countries in particular. The complex interrelationship between certain African villages and their forests has been shown not to conform to "Western" notions of sustainability and yet have led to positive environmental outcomes. The external imposition of certification standards could, in this instance, result in less sustainable outcomes.

**Table 1: Contrasting FSC Certification and Responsible Care**

| Design Features | Forest Stewardship Council Certification | Responsible Care |
|---|---|---|
| Participatory approach to program design and implementation | ■ | ● |
| Transparency of design and operation | ● | ■ |
| Specified performance goals | ■ | ● |
| Rewards or consequences based on performance | ● | ▲ |
| Encourage flexibility and innovation | ▲ | ■ |
| Prescribed monitoring and reporting requirements | ■ | ● |
| Provision for verification of performance | ■ | ● |
| Encourage continual improvement | ▲ | ■ |

■ Essential component of the program

● In place

▲ Minor component or not included in the program

Source: *Tomorrow*, November/December 1998.

The Coalition of Environmentally Responsible Economies (CERES), which brings together a number of major US environment groups and various socially responsible investors and public pension funds, has also played a leading role, particularly through the design and promulgation of the CERES principles. These ten principles cover the protection of the biosphere, sustainable use of resources, disposal of wastes, energy conservation, risk reduction, safe products and services and environmental restoration, and issues of public information, management commitment and audits and reports. There is considerable emphasis on monitoring, implementation and reporting on progress.

Also of future significance may be the recently revised set of OECD Guidelines for Multinational Enterprises. These are non-binding recommendations to enterprises, whose aim is to help multinational enterprises operate in harmony with government policies and societal expectations, by providing guidance on appropriate business conduct across the full range of enterprise activities. The recent review has both extended the areas of coverage to include matters such as human rights and consumer protection, and extended existing coverage in areas such as environment. However, the

environmental issues that have been included are still relatively modest. Even so, the OECD Guidelines may be regarded as a supplement to more detailed codes of conduct and may ultimately come to "serve as an independent benchmark of the state-of-the art thereby helping to harmonise objectives among government, business, labour and other stakeholders."[56] Their non-mandatory nature remains a matter of continuing concern to NGOs.[57]

The guidelines also have significance because, exceptionally, they have been endorsed by all 30 OECD member governments as well as three non-members and are regarded as part of a package of international investment instruments that seek to clarify the rights and responsibilities of both governments and enterprises. Each of the adhering countries has agreed to promote the guidelines among enterprises operating "in or from its territory" and must set up "national contact points" charged with carrying out this function. The National Contact Point (NCP), often a government office, is responsible for encouraging observance of the guidelines in its national context and for ensuring that the guidelines are well known and understood by the domestic business community and by other interested parties. When issues arise concerning implementation of the guidelines in relation to specific instances of business conduct, the NCP is expected to help resolve them. Generally, issues are handled by the NCP in whose country the issue has arisen.

**Broader Lessons regarding Voluntary Initiatives**

What are the broader lessons we have learned about the design and appropriateness of voluntary instruments as a policy mechanism?[58] This issue can be considered under two headings, addressing two discrete questions. First, what internal characteristics are most likely to make voluntary initiatives effective? Second, how can voluntary initiatives be linked with other policy instruments or external pressures in order to increase their effectiveness?

***Internal Design Features***

Our limited experience with voluntary initiatives suggests the importance of structuring them in ways that maximise their chance of success. A number of features are particularly important.[59]

***(i) Environmental Targets***

Not all voluntary initiatives involve clearly defined targets, indeed most do not. The case for more generalised agreements is often that concrete targets are impossible to achieve in the early stages and that it is better for participants to feel their way, rather than resisting (and perhaps refusing to enter) an agreement which might commit them to non-attainable targets, or ones which, in retrospect, it is uneconomic to achieve. It is preferable in these circumstances to begin with good faith obligations of a general nature and process-based obligations (for example in terms of developing and implementing

[56] D. Johnstone, 1999: "Foreign Direct Investment and the Environment: Challenges and Opportunities" in OECD, *Foreign Direct Investment and the Environment*, Paris, p. 18.

[57] The NGO statement made at the adoption of the revised guidelines says: "Governments have accepted the argument put forcefully by business during the review that the Guidelines should not be "mandatory in fact or effect". The undersigned NGOs believe that this concession is fundamentally out of step with the experience and expectations of many communities around the world. As a result, NGOs will continue to call for a binding international instrument to regulate the conduct of multinational corporations." See OECD, 2000a: *Private Initiatives for Corporate Responsibility: An Analysis*, Paris, p. 23.

[58] For a recent analysis of related issues, see ibid.

[59] See generally, Gunningham and Rees, op. cit.; Moffit and Bregha, op. cit.; T.P. Lyon and J.W. Maxwell, 1999: "Voluntary Approaches to Environmental Regulation: A Survey", and references therein, in M. Franzine and A. Nicita (eds), *Environmental Economics: Past, Present and Future*, Ashgate Publishing, Aldershot.

an environmental management system). However, in the case of mature agreements, and those capable of lending themselves to specific quantifiable targets, the adoption of such targets is highly desirable. Without them, there is the risk that the initiative may become vacuous, degenerate into "greenwash" and lose credibility

### *(ii) Accountability and Transparency*

Those who are accountable under an agreement know they must explain and justify any questionable actions. This tends to both discipline and constrain decision-making. But how can accountability best be achieved? One of the principal mechanisms by which accountability can be fostered is transparency. Arguably, the first step towards transparency is the public announcement of the principles and practices that participants accept as a basis for evaluating and criticising their performance. When first promulgated these norms are often stated in very general terms, but can later be refined into detailed codes of management practice. The important point here is how a participant, by clarifying the standards it sets for itself, including performance indicators and implementation timetables, also provides more precisely defined measures for evaluating and criticising its performance. With increasing transparency, in short, accountability is more readily maintained.[60]

The next critical step towards achieving transparency is the development of an information system for collecting data on progress in implementing the agreement. The process usually involves two parts: (i) reporting and data collection; and (ii) collation and analysis of data. Reporting requirements usually adopt some form of self-reporting. An obvious problem this raises is why would an enterprise report information fully or accurately if it reflects poorly on its performance. And what about enterprises that are unwilling or unable to respond fully to often cumbersome reporting requirements? This brings us to monitoring and verification.

### *(iii) Monitoring and Verification*

The third and final step in achieving transparency - monitoring performance - also seems to be the most demanding and controversial. What makes it so are several thorny questions: How will the monitoring be structured? How will it be financed? Who will do the monitoring? This prompts a more general question. In view of all the effort, resources and controversy surrounding the creation and maintenance of a monitoring system, what might motivate an industry participant to take such a step? At least part of the answer is that claims made by a company may lack credibility. And from this credibility gap follows the need for some kind of independent confirmation of the industry's claims, by checking their accuracy, by monitoring the actual performance of partner companies and so on. In other words, the environmental improvement targets set under the voluntary initiative may require the incorporation of a workable set of performance indicators. Again, these may take the form of quantifiable or qualitative measurements. In either case, it is arguable that they should be determined in advance of the scheme's operation, preferably in conjunction with the target setting process.

Self-monitoring alone will not necessarily overcome the credibility gap. In many circumstances, but certainly not all[61], independent verification will also be necessary. This is often painful. Opponents of verification highlight the risk independent audits pose to business autonomy, the confidentiality of trade secrets, as well as the danger that verification results could make them increasingly vulnerable to regulators, environmentalists and litigation. Despite these and other concerns, the development of an independent verification capability is often of fundamental importance to the long-term viability of a

[60] This account is a modified and truncated version of Gunningham and Rees, op cit.

[61] Some types of corporate misconduct are not amenable to external verification. Other tools need to be deployed (e.g. whistleblowing provisions are considered important to some types of environmental misconduct).

voluntary initiative. Only then, for example, are community groups, NGOs or even government agencies likely to be convinced of the value of the arrangement. Suppliers and other commercial third parties will also want reassurance that can be provided, at least in part, by subjecting the measuring/monitoring/ auditing arrangements to outside scrutiny. Obviously the verification process could be conducted in-house (for example by an "arms-length" audit team) but the closer the verifier is to the industry partner, the lower the credibility of their findings. Third party audits provide far greater reassurance to outsiders than internal audits.[62]

Environmental initiatives that include independent verification have a greater chance of success for two reasons. First, it strengthens credibility and community/consumer confidence that the environmental claims are actually true. This is important if industry intends to obtain a financial benefit from its environmental activities, even if this is not its primary motivation. For example, the consumers of environmentally preferred products require reassurance of the product's *bona fides*. Independent verification is far more likely to provide this than in-house verification. Second, knowing that the results of the environmental improvement activities will be periodically subject to external assessment provides an ongoing incentive for companies to fulfill their commitments (which brings us back to accountability).

### *(iv) Voluntary Initiatives and Environmental Management Systems*

There is a striking similarity between the substantial majority of the factors identified above, as key features of successful voluntary approaches, and the pillars of environmental management systems. Such systems follow a defined sequence of steps that provide a structure for planning, implementation, reviewing and revising a system to address those parts of an enterprise's operations that can have an impact on the environment. In the case of ISO 14001, the further aim is to provide an international standard and a common (global) approach to environmental management and the measurement of environmental performance.

To meet the ISO 14001 standard, an enterprise must have a coherent framework for setting and reviewing environmental objectives, for assigning responsibility to achieve these objectives and for regularly measuring progress towards them. It must also have appropriate management structures, employee training and a system for responding to and correcting problems as they occur or are discovered. This implies documentation control, management system auditing, operational control, control of records, management policies, statistical techniques and corrective and preventive action.

However, while identifying environmental targets, performance monitoring, measuring and verification are all central to ISO 14001, third party audits and transparency are not. These omissions have resulted in strong criticism of the standard by NGOs, which may be addressed in the currently contemplated revisions of the standard. However, there is nothing in ISO 14001 that precludes greater transparency and third party verification and these elements can readily be incorporated by those who so wish. External pressures (e.g. public opinion or pressure from trading partners) rather than ISO itself will determine whether enterprises opt for such transparency of verification. If the experience of the quality standard ISO 9000 is repeated, then supply-chain pressure (as large companies, and multi-nationals in particular, require their suppliers to enter into contractual agreements committing themselves to become certified to the standard) may prove the most important determinant of companies seeking external certification, while NGO and community pressure may lead to greater transparency.

[62] However, even external audits may not be as independent as they purport to be. See N. Gunningham, 1993: "Who Audits the Auditors", *Environmental and Planning Law Journal 10(4)*, pp. 229-238.

Finally, the most fundamental weakness of ISO 14001 as a stand alone basis for a code of practice is that, as indicated above, it is a process standard not an outcome standard. This is not an argument against ISO 14001 *per se*, but rather an argument for coupling ISO with agreed performance standards. As Adams put it, "continuous measurable improvement in actual environmental outcomes is increasingly recognised as necessary to gain the trust of stakeholders…these efforts will be more successful the more the stakeholders are engaged in the process of setting, monitoring and continually improving the performance objectives. External verification is a crucial factor in making these voluntary efforts more credible and reliable."[63]

***Do Voluntary Initiatives Need to be Combined with Other Policy Instruments and External Pressures?***

Voluntary initiatives, such as the codes of practice contemplated by the mining industry, have several advantages for enterprises. They include greater flexibility in responding to environmental issues, greater ownership of solutions that they are directly involved in creating, less resistance, greater legitimacy, greater speed of decision making, sensitivity to market circumstances and lower costs. However, from a public policy perspective, such initiatives should only be preferred to the extent that they are demonstrably capable of delivering the identified environmental outcomes and achieving compliance on the part of target groups[64].

As with other instruments, voluntary initiatives work better in some circumstances than in others, and not all industries lend themselves to such initiatives through industry associations. A review of the literature relating to voluntary initiatives[65] and industry self-regulation[66] suggests that necessary (but as we will see, certainly not sufficient) conditions for the success of such initiatives are either (i) a strong natural coincidence between the public and private interest in establishing such agreements; or (ii) the existence of one or more external pressures sufficient to create such a coincidence of interest.

Circumstances where there is a natural and substantial coincidence between the private interests of individual enterprises and the public interest are often referred to as "win-win". While such "win-win" opportunities do exist in some industry sectors and for some companies[67], they are often insufficient to prompt voluntary action and are frequently overwhelmed by circumstances where no such self-interest exists. For example, in relation to forestry while limited "win-win" options may exist the fundamental fact is that clear felling remains by far the most economic option and it is highly unlikely that sufficient self-interest exists to replace it with less environmentally damaging forest practices.

The second situation conducive to voluntary initiatives and self-regulation is where there are sufficient external pressures on enterprises or industry associations to provide an incentive to make such initiatives work. These pressures might come from a variety of sources, and include the threat (actual or implied) of direct government intervention, broader concerns to maintain credibility and legitimacy

[63] J. Adams, 1999: "Foreign Direct Investment and the Environment: The Role of Voluntary Corporate Environmental Management" in OECD, *Foreign Direct Investment and the Environment*, Paris, p.116.
[64] An OECD study shows that voluntary initiatives are often directly shaped by the policy environments from which they emerge. They tend to enhance the effectiveness of public enforcement and enforcement strategy has shifted toward greater attention to and use of private compliance processes. See OECD, forthcoming: *Voluntary Initiatives for Corporate Responsibility: Progress to Date*, Paris.
[65] See for example, Moffet and Bregha, op. cit.
[66] See Gunningham and Rees, op cit and references cited therein.
[67] F. Reihhardt, 2000: *Down to Earth: Applying Business Principles to Environmental Management*, Harvard Business School Press, Cambridge.

(and through this, commercial advantage) and the market itself. The likelihood of self-regulation and voluntary initiatives functioning successfully will necessarily vary with the strength of these pressures. In the case of FDI involving the mining and forestry sectors, at least in developing countries, market and legitimacy concerns will be far more important than the possibility of direct regulation.

Probably the circumstances most conducive to voluntarism are those where an industry, or at least industry leaders, perceives the future prosperity and perhaps even the very survival of the industry as dependent upon some form of self-control. The mining and forest products industries both fit within this category.

In the case of forestry, we have seen that market pressures are particularly potent in persuading the industry that voluntary approaches (via accreditation) are both desirable and necessary to the industry's long-term prosperity and survival. For example, in Canada the development of a Sustainable Forestry Management system through the Canadian Standards Association, and the comparable USA initiative, was motivated by the threat of a European consumer boycott of Canadian forestry products. The closer the industry participant is to the final consumer goods, the greater the market pressures are likely to be.

However, even where the industry is not directly connected with the consumer and is not purchasing directly from it, public pressure may still be crucially important provided the public concern is deeply felt. This is the case in the mining industry, where we have argued that the fear of losing the "social licence to operate" is particularly strong.

Moving beyond the specifics of these two industries, the effectiveness of external pressures applied by consumers or the broader public, will "vary depending on the type of product, the type of market (eg. the number of players, their size, import/domestic considerations, stability), the extent of public concern or "outrage", and whether there is some natural affinity between consumer and industry interests."[68] Of course, where a combination of various external forces can be brought to bear, then the chances of successful self-regulation are likely to be higher than otherwise. Success is most likely where there is a small number of firms in each sector; domination of each sector by large firms; sectoral associations able to negotiate on behalf of their members; and a sympathetic business culture. Beyond this, there is a range of further problems common to many attempts to develop collective voluntary initiatives. These are examined below.

### *(i) Dealing with Free-riders*

The existence of external pressures (or a substantial coincidence between public and private interests in collective action) is a necessary but not sufficient condition for the success of voluntary initiatives and self-regulation. A range of other factors will also be crucial to the ultimate success of such initiatives.

Of these, perhaps the most important is the ability to stop free riding. Free riding is a form of collective action problem identified by Mancur Olson and others. The essential problem is that although each individual enterprise may benefit from collective action if other enterprises also participate (as when all agree to participate in a voluntary initiative that will enhance the reputation and competitive position of the entire industry), each will benefit even if it does not participate

[68] For example, the threat of consumer boycott against Canadian forestry products is heightened by the fact that European consumers and forestry producers hold some interests in common. See Office of Consumer Affairs, Industry Canada, 1996: Exploring Voluntary Codes in the Marketplace Symposium, Office of Consumer Affairs, Industry Canada and Regulatory Affairs, Treasury Board, Ottawa.

provided others do.[69] It is rational, therefore, for individual enterprises to "free ride". In other words, to defect or engage only in token compliance and thereby gain benefits from the collective scheme without paying or by imposing costs on others without compensation.

For our purposes, there are two main versions of the free rider problem. In the first, all parties agree to the terms and conditions of self-regulation but some merely feign compliance. For example, a self-regulatory program addressed to environmental protection such as the Australian Minerals Council's code of practice confronts the problem that some participants will be tempted to take advantage of the willingness of other companies to spend on cleaning up the environment, while refraining from doing so themselves as a matter of rational, economic self-interest.

A second version of free riding occurs where a part of the relevant industry refuses to be a signatory to the self-regulatory scheme. For example, 80% of the industry may agree to comply with a code of practice but 20% may refuse to sign and still receive the benefits of collective action by their competitors. If so, a failure to address the misconduct of the non-signatories (who by definition are beyond the coverage of the self-regulatory scheme) will almost certainly result in the failure of the code. This is because those who sign the code cannot afford to be at a competitive disadvantage against those who do not. Esmeralda, the Australian mining company responsible for the disastrous Baia Mare cyanide disaster in Romania, was not a signatory to the relevant industry code and cannot be sanctioned under it. However, for reasons indicated below, this second problem, while fundamental to the mining industry code, is not significant in relation to accreditation schemes such as in forestry.

In the first version, where all, or almost all, firms agree to participate in at least some circumstances, free riding may be capable of being contained through mechanisms such as peer group pressure, shaming or more formal sanctions. A crucial consideration will be the number of players involved. As Olson and others have pointed out, the greater the number of players the greater the temptations and opportunities to cheat, and the greater the difficulties in identifying and controlling those who do. There is also greater difficulty in reaching and maintaining consensus with a large number of players.[70]

Even where there are reasonably few players, success in curbing free riding is not assured. Other factors have an influence. It has been argued, for example, that the ability to control free riding increases as:

- enterprises are aware of each others' behaviour and can detect non-compliance;
- they have a history of effective co-operative action (e.g. an existing association);
- non-compliant behaviour can be punished; and

[69] The logic underlying Olson's theory of collective action is identical to that of an n-person prisoners' dilemma (see R. Hardin, "Collective Action as an Agreeable n-Person Prisoners' Dilemma", *Behavioural Science 16*, 1971, pp. 472-479). Note, however, that in a continuing series of two player games, the best strategy is "tit-for-tat", i.e. to co-operate in the first game and to do whatever the other player did last time from then on. See J.T. Scholz, 1984: "Cooperation, Deterrence, and the Ecology of Regulatory Enforcement", *Law and Society Review 18(2)*, pp. 179-224; I. Ayres and J. Braithwaite, 1992: *Responsive Regulation*, Oxford University Press, Oxford. Responsible Care, in its present form (relying solely on moral succession without sanctions), lacks the characteristics of a continuing series game.

[70] B. Purchase, 1996: *Political Economy of Voluntary Codes: Executive Summary*, <<http://strategis.ic.gc.ca/ssg/ca00796e.html>>

- consumers, customers or other clients value compliant behaviour and can identify compliant firms (with the result that free riders can be controlled by markets, particularly where these are driven by consumer demand).[71]

While it would be premature to judge the success of the Australian Minerals Industry code of practice in terms of its success in avoiding free riding, the experience with the closely related Responsible Care initiative is not encouraging. Recent studies cited above suggest that free-riding is rampant. The problem may be less severe under third party accreditation schemes where, at least in principle, the independence of the third party auditors or accreditors should facilitate the identification of non-compliers who can be punished through withdrawal of accreditation.

In the situation where a significant number of players refuse to join the self-regulatory program, and cannot be induced to do so by threats or incentives provided by other players, then some form of government intervention to curb the activities of non-participants is required. While this may be viable in many developed countries, it is rarely a credible option in developing countries (see below).

However, this is not a significant problem in relation to certification schemes such as the Forest Stewardship Council because certification labels allow a clear differentiation between participants and non-participants. Indeed, while the social licence to operate requires that the sector as a whole aspire to certain minimum standards, capturing a (supposed) price premium is only possible as long as there are other outsiders.

Collective action problems such as free riding are most likely to be overcome where the common interests of the group members is particularly strong (for example, where there is a "community of fate" whereby the fortunes of any one company are tied to the fortunes of the industry as a whole).

Given the serious problems of free riding, a prerequisite for successful collective voluntary initiatives will be effective monitoring and enforcement. Without it, free rider problems in relation to self-regulatory codes such as the mining industry may be insurmountable for the reasons described above. We have seen that the range of enforcement mechanisms that might potentially be invoked is quite broad. At the lower levels it could include education, incentives (e.g. under Responsible Care, the sharing of information) and peer pressure (e.g. Responsible Care leadership committees). At the higher levels, sanctions might include removal of benefits (e.g. the right to use the industry logo), a requirement of public disclosure of breaches (making the perpetrator vulnerable to adverse publicity) or the taking of remedial measures (product recall, reparation of environmental damage). Breach of terms of a self-regulatory program might also be construed as breach of contract, making a defecting enterprise liable in damages to the relevant self- regulatory body.

The ultimate sanction is expulsion from the association, making compliance a condition of membership. The impact of this will vary from case to case. Where an enterprise cannot effectively trade without industry membership it may be a potent "stick" indeed, though in these circumstances serious concerns may be raised about restrictive trade practices and contravention of any relevant anti-trust laws. Where expulsion will have little direct impact, associations will be reluctant to invoke it for fear of revealing their ultimate lack of regulatory power. It is at this point that most collective

[71] Cohen points to the case of the Canadian Care Labelling program, which has few free riders in part because of active lobbying by consumer groups. He also suggests that the GAP Inc's Sourcing Principles and Guidelines and the Canadian Eco-Labelling program are examples of codes that employ the market's power to curb free riders. See D. Cohen, 1996: "Voluntary Codes: The Role of the Canadian State in a Privatized Regulatory Environment", Paper presented to the Exploring Voluntary Codes in the Marketplace Symposium, Office of Consumer Affairs, Industry Canada and Regulatory Affairs, Treasury Board, Ottawa.

voluntary initiatives are vulnerable to failure. Lacking ultimate capacity to invoke sanctions at the tip of an "enforcement pyramid"[72], the credibility of sanctions at lower levels also weakened. This is a major reason why "pure" voluntarism is rarely successful and why there is a compelling need, even with many of the best self-regulatory programs, to complement self-regulation with some form of government or third party involvement. We explore this issue further in the next section.

### *(ii) The Role of the State and Third Parties*

How can public policy best be designed, in order to take advantage of the strengths and virtues of collective voluntary approaches and industry self-regulation[73], while compensating for its weaknesses as a stand alone mechanism? This implies an underpinning of state intervention sufficient to ensure that it does operate in the public interest, that it is effective in achieving its purported social and economic goals and has credibility in the eyes of the public or its intended audience. As we have indicated the type of state intervention that will provide the most appropriate underpinning, and indeed the extent to which such an underpinning is necessary, is likely to vary with each case. Mining and forestry are no exceptions to this. It is possible, however, to identify some of the most commonly important variables and to illustrate how co-regulation might operate to optimal effect in particular circumstances.

In the case of codes of practice as developed by the mining industry or under the Responsible Care program, collective voluntary initiatives should ideally operate under legal rules and sanctions because they provide incentives for compliance by members. There is considerable evidence from a variety of jurisdictions that fear of government regulation drives the majority of self-regulatory initiatives. It seems unlikely that these measures will perform well in the absence of continuing government oversight and the threat of direct intervention.[74] However, in the context of FDI in developing countries the law is rarely a credible and effective policy tool. In addition, environmental regulators are usually vastly under-resourced and sometimes vulnerable to industry capture and possibly corruption. Accordingly, we must look elsewhere for means to bolster the effectiveness of voluntary initiatives.

Ideally, this might involve other forms of regulation. As Zarsky has pointed out, "without obviating the need for local regulation, there is a great need for an overarching global framework to define – and raise – the environmental responsibilities of foreign investors. Only by setting common responsibilities for all transnational investors will policymakers escape the competitive race for FDI which keeps environmental commitments 'stuck in the mud'".[75] However, it is also recognised that there has been

[72] Ayres and Braithwaite, op. cit.

[73] Voluntarism and self-regulation are asserted to have a variety of benefits. Because standard setting and identification of breaches are the responsibility of practitioners with detailed knowledge of the industry this will arguably lead to standards that are more effectively policed. There is also the potential for using peer pressure and for successfully internalising responsibility for compliance. Moreover, because self-regulation contemplates ethical standards of conduct that extend beyond the letter of the law, it may significantly raise standards of behaviour and stimulate the greater integration of environmental issues into the management process. See generally, Gunningham and Rees, op. cit.; Lyon and Maxwell, op. cit.; Moffet and Bregha, op. cit.

[74] See for example, Davies and Mazurek, op. cit.; National Research Council, op. cit.; Harrison, op. cit. Note also the evidence suggesting that domestic legislation is by far the most important influence on environmental management practices. See OECD, 2000b: Corporate Responsibility - Results of a Fact Finding Mission on Private Initiatives, Report to the OECD's Committee on Investment and Multinational Enterprises (CIME), p 17.

[75] L. Zarsky, 1999: "Havens, Halos and Spaghetti: Untangling the Evidence about Foreign Direct Investment and the Environment" in OECD, *Foreign Direct Investment and the Environment*, Paris, p. 49.

little political will by governments for global and/or regional social regulation of investment. At present, one must look elsewhere for external controls on corporate behaviour.[76]

Conceivably, individual countries might choose to go it alone, and impose "long arm" legislation whose reach extended internationally to companies registered in that country. For example, Australia already has such statutes relating to sex tourism and bribery, and as Bill Dee points out "the addition of environmental legislation applying to Australian mining companies operating abroad would not be unprecedented."[77] A private members bill (the Corporate Code of Conduct Bill) is currently before the Australian parliament seeking to impose standards of conduct on Australian corporations undertaking business activities and employing more than 100 people in a foreign country. Such legislation is unlikely to be adopted, however, not least because of the fear that any country doing so would be creating incentives for powerful corporations to relocate elsewhere, taking much of their capital with them.[78]

Another possibility is to have third parties act as surrogate regulators, monitoring or policing the code as a complement or alternative to government involvement. Indeed, it is arguable that self-regulation is rarely effective without such involvement. Thus Webb, summarising the experience of the 1996 Canadian Symposium of Voluntary Codes concludes:

> Meaningful involvement by consumer and other public interest groups is often what sets apart the successful codes from those which have received less support from government and the general public. At a time when citizens are better informed, more demanding and more sceptical of so-called "elites" (government, industry, the academic and scientific communities etc) it is difficult to imagine a situation where a voluntary arrangement could succeed without meaningful community, consumer and/or other third party involvement.[79]

The most obvious third parties with an interest in playing this role are sectoral interest groups such as consumers, trade unions or NGOs. This contribution may be through their direct involvement in administration of the code itself (in which case it has greater credibility as a genuinely self regulatory scheme) or in their capacity as potential victims of code malpractice. It may also involve boycotts of firms that breach the self-regulatory program. In the case of the mining industry, public pressure, fuelled by NGOs and fear of losing the "social licence to operate", is the driving force that provides incentives to the industry to develop and implement voluntary codes.

Sometimes the role of third parties and government intervention can be combined. For example, in Indonesia the government has had considerable success with its PROPER-PROKASIH program which assigns companies a ranking according to their performance. This information is made publicly available. Firms are given a coloured ranking so that poor performers are easily recognised and stigmatised by the public and by environmental NGOs. According to the World Bank, many facilities have reduced their emissions despite the lack of an effective general enforcement program because of the powerful "shaming" impact of this program. Indeed, in this instance PROPER has done more to exploit the sensitivity of companies about losing their social licence than voluntarism.

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[76] In this regard, extraterritorial liability on environmental issues in home country courts might be an alternative way.

[77] Bill Dee, Australian Competition and Consumer Commission, Canberra, personal communication.

[78] However, such fears may be exaggerated given that environmental costs are usually quite low and other factors such as the fiscal regime are more likely to trigger relocation.

[79] Office of Consumer Affairs, Industry Canada, op. cit., p. 6.

The circumstances of forestry certification require a somewhat different analysis. Here, as we have indicated, the main driver is market pressure/demand which enables certification to provide an economic incentive for improved environmental performance. The need for state involvement is accordingly much less because the main impetus comes from requirements in export markets which are independent to a great extent from local conditions. Put differently, since the potential success of forest certification rests on the role of NGOs in developing independent third party accreditation schemes in conjunction with consumer pressure and the role of buyers groups, the relative incapacity of developing countries to provide credible regulation is far less important than in the case of the mining codes.

Finally, the importance of utilising a broader regulatory mix cannot be over-emphasised. Often, the best solution is to design complementary combinations using a number of different instruments. The synergistic effects of combining self-regulation, government regulation and third party oversight may be both effective and efficient. In the case of the chemical industry's Responsible Care program, for example, even though the industry as a whole has a vested interest in improving its environmental performance, collective action problems and the temptation to free ride mean that self-regulation and its related codes of practice alone will be insufficient to achieve that goal. However, a tripartite approach involving co-regulation and a range of third party oversight mechanisms may be a viable option.[80] This might involve creating:

- greater transparency (through a community right-to-know about chemical emissions), which in turn enables the community to act as a more effective countervailing force;
- stronger accountability (through the introduction of independent third party audits which identify whether code participants are fulfilling their commitments under the code, and which involve methodologies for checking and verifying that responsibilities are being met); and
- a safety net of government regulation which is invoked if the code is failing or when individual companies signatory to the code seek to defect from their obligations under it and free ride.

**Conclusion**

To summarise, voluntary initiatives are unlikely to make a substantial contribution to improved corporate environmental performance as a "stand alone" policy instrument. The evidence suggests that sole reliance on voluntary initiatives has proved insufficient to achieve an acceptable level of industry-wide compliance. For example, a KPMG Ethics survey of 1000 corporations found that 58% of those who said they had a code did not have anyone designated as responsible for ethics within the company. A Canadian survey concluded that industrial sectors relying solely on self-monitoring or voluntary compliance had a compliance rate of 60% versus the 94% average compliance rating for industries subject to federal regulations combined with a consistent inspection program.[81]

It is when such agreements are used in conjunction with state or third party oversight, or as a form of co-regulation, that their prospects appear more promising. Ironically, as Harrison points out:

> The growing popularity of voluntary initiatives…threatens, in some cases, the fundamental function of the state in setting public policy objectives in the first place, even if it means to achieve them is left to industry. As it now stands, as business is

[80] Gunningham, op. cit.
[81] Environment Canada (Pacific Region), Report on Performance of Voluntary Measures, <<http://csf.colorado.edu/ecolecon/may98/0062.html>>

> being given increasing flexibility, even to set its own objectives and grade its own performance in the case of many environmental management systems, the role of both government and other non-government actors is being curtailed by the move to voluntarism. Given that the business community is the last place many would look for altruism, that represents a significant leap of faith".[82]

The problems of the retreat of the state are exacerbated in the case of FDI in developing countries, where the capacity of the state to curb corporate environmental excesses was never strong and is now being rapidly outpaced by the growth of FDI and the severity of environmental problems these countries face. In these circumstances, voluntary initiatives seem to be a less than ideal policy approach. On the other hand, there are few credible alternatives and the urgency of environmental problems is not subsiding. As a WWF report points out, "poorly structured concessions effectively subsidise forest product companies and weaken forestry departments. Corruption and influence at the national level mean that environmental regulations are flouted. International government attempts to protect forests have been largely unsuccessful, and even though an international convention on forestry may yet be signed, environmental experts have little hope that it will reverse the large scale environmental problems of forests."[83]

In these circumstances, voluntary initiatives, however imperfect, must be strengthened by coupling them with external pressures and oversight. This can take a number of forms. Third party accreditation and certification in the forest products industry is one such form, although its impact may ultimately be diluted (arguably deliberately) by the proliferation of different schemes that serve to confuse the consumer and debase the credibility of the entire certification approach.

Incentives for large mining companies to take a code of practice seriously include the risk of corporate shaming, the importance of reputation capital and protecting the social licence to operate (because what a company does in any location and with any stakeholder contributes to the company's reputation worldwide). Governments can help, not only by direct regulation but also by providing environmental information and introducing a ranking system whose results are publicly released, such as the PROPER scheme in Indonesia.

Those, often small, companies that do not have a corporate brand or reputation to protect, and those who operate from countries which do not take environmental responsibilities seriously and are insensitive to the particular means by which corporations maximise their profits, pose an intractable problem. The practices of some Asian forest products corporations reflects this. A viable solution to the environmental excesses of some components of corporate capital in a globalised economy remains distant.

[82] Harrison, op. cit.
[83] "Investing in tomorrow's forests", <<http://www.panda.org/forests4life/pubs.cfm>>, p. 24.

## Appendix 1: Major International Certification Schemes[84]

### *Forest Stewardship Council*

The Forest Stewardship Council is the most prominent certification scheme internationally in terms of its market penetration and level of consumer awareness and, until recently, area of forest coverage (see Pan European Forest Certification below). It originated in the early 1990s in the United Kingdom where the World Wide Fund for Nature obtained the support of a number of timber traders to purchase preferentially sustainably managed forest products that had been certified. By late 1999, approximately 17 million hectares of forest had been certified worldwide under the Forestry Stewardship Council scheme. The vast majority of this was in Sweden, Poland and the United States.

### *ISO Environmental Management Systems: ISO 14001*

ISO 14001 is an environmental management system developed by the International Standards Organisation in 1996. ISO 14001 (and its European equivalent, the Environmental Management and Audit Standard, EMAS) provides a framework for organisations to identify, evaluate and manage their environmental risks, enabling them to take a systematic and integrated approach to environmental management. Under ISO 14001, organisations introduce policies, objectives, programs and measurement and assessment methodologies to achieve continuous environmental improvement. ISO 14001 has become an important policy tool in organisational management and increasingly considered a basic requirement of commercial relationships, particularly international trade. ISO 14001 is not, however, a forestry certification scheme.

It differs from forestry certification schemes in two critical ways. First, it cannot be used as a product standard or logo (in other words, it is conferred on organisations not their products). Second, it is inherently generic (meaning that it applies to all sectors, not just forestry). It has, however, been used as the foundation of many forestry certification schemes. A number of companies have used ISO 14001 certification as a learning/capacity development exercise prior to Forest Stewardship Council or Canadian Standards Association certification. It is interesting to note that ISO 14001 has required a major shift in the operations of the International Standards Organisation. In the past, the organisation attracted criticism that its structure favoured industry interests. With the development of ISO 14001, however, it has had to accommodate a much broader range of stakeholder interests and issues.

### *Canadian Standards Association*

The Canadian Standards Association (CSA) certification scheme began in 1994 with the support of the Canadian forest product industry and government forest agencies. The principles and criteria used are based essentially on ISO 14001. Additional performance standards relevant to environmental, economic and social issues are included, however. The scheme has a number of innovations over the conventional ISO 14001 approach, including compulsory third party certification, measurable improvements, local public input and economic and social objectives. The scheme is confined to forest certification and does not include chain-of-custody certification associated with individual products.

[84] P. Kanowski, D. Sinclair, B. Freeman and S. Bass, 2000: "Critical elements for the assessment of forest management certification schemes: Establishing comparability and equivalence amongst schemes", Commonwealth of Australia Department of Agriculture, Fisheries and Forestry, Canberra.

The area of forest certified under the CSA scheme is comparatively small but this is expected to change in the near future.

***Sustainable Forestry Initiative (SFI)***

Established by the American Forest and Paper Association in 1994, the initiative is essentially a comprehensive set of industry-based guidelines, principles and performance measurements for the sustainable management of forests. Sustainability is expressed in terms of both economic sustainability and the preservation of non-economic values such as species habitat, biological diversity, soil, water and air quality and visual aesthetics. The scheme is an attempt to "self-regulate" sustainable forestry management, in particular, to harness commercial relationships between enterprises. For example, pulp and paper companies are encouraged to exercise discrimination when purchasing timber from loggers to ensure that sustainable forestry management is supported along the supply chain. More recently, a voluntary verification process was added to the SFI program whereby member companies can apply a rigorous and consistent verification approach to document their conformance to the SFI Standard. The SFI program has 24 million hectares enrolled, including 133 member companies.

Another important US-based certification scheme is the Green Tag Forestry Program. Its proponents were the National Forestry Association in co-operation with the National Woodland Owners Association and in consultation with individual members of the Society of Consulting Foresters. The certification criteria are based on the procedures of the Forest Stewardship Council. Certification involves an on-site evaluation of the management plan by a "Green Tag participating forester" or a team of resource specialists. The management of the forest must be consistent with performance criteria in 10 categories of forest stewardship. Certification provides the right to label products from the certified forest(s) with the Green Tag label. Like SFI, the Green Tag Forestry Program covers both industrial and non-industrial forest owners.

***United Kingdom Woodland Assurance Scheme***

The United Kingdom Forestry Commission established the UK Woodland Assurance Scheme in 1999, specifically for small, non-industrial woodland owners. The scheme was developed with broad participation from industry, forest owners, non-governmental organisations, government and standards experts. It is also supported by the Timber Growers Association, the World Wide Fund for Nature and the Forestry Stewardship Council. A voluntary scheme, it relies on independent assessment of sustainable forest management practices. Individual or group certification is allowed. An interesting feature of the scheme is that it is designed to be compatible with both governmental national forestry standards and the Forestry Stewardship Council's national standard for the United Kingdom.

***Pan European Forest Certification***

The Pan European Forest Certification scheme aims to accredit national-based certification schemes in Europe. It is based on the Pan European inter-governmental "Helsinki Process" criteria and indicators for sustainable forest management, and provides for a common label recognisable throughout Europe. In effect, it is a form of mutual recognition. A large part of the impetus for developing the Pan European Forest Certification scheme was the concern of smaller European growers that the Forest Stewardship Council scheme did not satisfactorily reflect their history and needs. These owners have established a scheme more closely based on the considerable layers of national legislation pertaining to forests and on the intentions of the Helsinki Process. Features of the Pan European Forest Certification include its voluntary nature, it requires independent third part audits, there is limited involvement by environmental organisations and it is largely consistent with the ISO 14001 model in that it de-emphasises performance standards.

The scheme was launched in 1999, and currently recognises three national schemes (Finland, Sweden and Norway), representing a total of 18 million hectares of independently certified forest. Further initiatives are expected as a number of industry associations across Europe have signed onto the scheme. The area of forest certified under the Pan European Forest Certification scheme is already equal to the area certified by the Forest Stewardship Council, and will continue growing to approximately 27 million hectares by the end of 2000.

While interested in the scope for mutual recognition beyond its work across Europe, the Pan European Forest Certification scheme has not yet considered mechanisms or procedures for engaging in mutual recognition with non-Pan European Forest Certification schemes.

***Finnish Forest Certification***

The Finnish Forest Certification scheme was initiated in 1996 by the Finnish Central Union of Agricultural Producers and Forest Owners, the Finnish Forest Industries Federation, World Wide Fund for Nature (Finland) (which has since withdrawn) and the Finnish Association for Nature Conservation. It is based on the Environmental Management and Audit Standard, and is recognised by the Pan European Forestry Certification scheme. It uses a combination of process and performance standards, has a particular emphasis on non-industrial forestry and is consistent with national Finnish ecological and socio-economic priorities. The scheme allows for individual and group certification of conforming areas. It is anticipated that 12 million hectares of forest will be certified.

***Brazil***

CERFLOR is the name given to the Brazilian national forestry certification standard. ABNT (the Brazilian national standards organisation) and the Brazilian Society for Silviculture are developing this standard. The ABNT has established a technical committee comprising technical experts, industry representatives, environmental NGOs and academics to develop the standard. Their first focus has been the large scale, industrial plantation forests.

The technical committee has developed draft standards through a participatory process managed by ABNT and based largely on ISO procedures. The proposed scheme emphasises voluntarism, self-regulation and independence, with the ultimate objective of positively differentiating Brazilian products from others in the global marketplace. It appears that the draft standards and proposed scheme are considered broadly acceptable. CERFLOR has not yet certified any Brazilian forests.

***Indonesia***

The Indonesian Ecolabelling Institute (LEI) was established with support from the World Bank to launch a national certification scheme in Indonesia. In September 1999, the LEI and the FSC launched a joint certification program, which involves LEI, FSC-accredited certifiers and Indonesian certifiers. This joint program is an interim arrangement during which all Indonesian wood products certified under the program will carry both LEI and FSC labels. This program will assist Indonesia to establish LEI certification and a reputation in the international wood product markets. It should also accelerate the establishment of Indonesian forest certifying companies.

The standards for this program were developed based on national policy, International Tropical Timber Organisation (ITTO) guidelines, FSC principles, ISO standards and public consultation. This work has produced a set of national criteria and indicators for both native and plantation forests. Indonesia has made considerable progress in developing an institutional structure to support the

program, including capacity for establishing chain-of-custody. The initiative incorporates auditing and certification by independent third party certifiers. The National Standardisation Institute will accredit certifiers. Certifiers will be locally trained and paid by LEI rather than the applicant.

The interim arrangement is expected to last for two years. Following this arrangement, LEI will cease providing certification services and concentrate on becoming an accreditation body for certifiers.

***Malaysia***

Following a pilot study of certification schemes, the Malaysian Timber Council established the National Timber Certification Council (NTCC) to develop and oversee a domestically based certification scheme. The NTCC is an independent council including representatives from all sectors, though the strong government backing clearly signals its influence. The NTCC is working towards gaining active support from the national consumer advocacy organisation and WWF-Malaysia.

The NTCC has developed draft certification standards for sustainable forest management based on national policy and ITTO guidelines. The development of these draft standards also incorporated consideration of ISO procedures and standards and discussions with FSC concerning compatibility with FSC principles and criteria. The proposed scheme includes assessment by an independent auditor. The council has undertaken pilot testing of these standards within national forests on Peninsular Malaysia through agreement with the international testing firm SGS. These tests have included pilot certifications and timber export shipments carried out in association with the Keurhout Foundation in the Netherlands.

## Appendix 2: Australian Minerals Industry Code for Environmental Management

*Commitments made by Signatories of the Code*

- Application of the code wherever the signatory operates (this includes overseas);
- Progressive implementation of code principles;
- Production of an annual public environmental report within two years of registration;
- Completion of an annual code implementation survey to assess progress against implementation of code principles; and
- Verification of the survey results by an accredited auditor at least once every three years.

***The Seven Principles of the Code***

- Accepting environmental responsibility of all our actions.
- Strengthening our relationships with community.
- Integrating environmental management in the way we work.
- Minimising the environmental impacts of our activities.
- Encouraging responsible production and use of our products.
- Continually improving our environmental performance.
- Communicating our environmental performance.

***Values Signatories Commit To***

- Integrate environmental, social, and economic considerations into their decision-making and management, consistent with the objectives of sustainable development.
- Maintain openness and transparency, and improve their accountability through public environmental reporting and engagement with the community.
- Comply with all statutory requirements as a minimum.
- Continually improve their standard of environmental performance and, through leadership, pursue environmental excellence throughout the Australian minerals industry.

## Appendix 3: Criteria and Principles for the Use of Voluntary or Non-Regulatory Initiatives (VNRIs) as Developed by the New Directions Group[85]

The recently published "Criteria and Principles for the Use of Voluntary or Non-Regulatory Initiatives (VNRIs) to Achieve Environmental Policy Objectives" was developed by the New Directions Group under contract to Environment Canada. This document provides guidance to governments, industry, NGOs and others involved in the development and review of VNRIs . This appendix summarises the framework of criteria and principles contained in the document.

### *Criteria for the Utilization of VNRIs to Achieve Environmental Policy Objectives*

- VNRIs should be positioned within a supportive public policy framework that includes appropriate legislative and regulatory tools.
- Interested and affected parties should agree that a VNRI is an appropriate, credible and effective method of achieving the desired environmental protection objective.
- There should be a reasonable expectation of sufficient participation in the VNRI over the long term to ensure its success in meeting its environmental protection objectives.
- All participants in the design and implementation of the VNRI must have clearly defined roles and responsibilities.
- Mechanisms should exist to provide all those involved in the development, implementation and monitoring of a VNRI with the capacity to fulfill their respective roles and responsibilities.

### *Principles Governing the Design of VNRIs*

Credible and effective VNRIs:

- are developed and implemented in a participatory manner that enables the interested and affected parties to contribute equitably;
- are transparent in their design and operation;
- are performance-based with specified goals, measurable objectives and milestones;
- clearly specify the rewards for good performance and the consequences of not meeting performance objectives;
- encourage flexibility and innovation in meeting specified goals and objectives;
- have prescribed monitoring and reporting requirements, including timetables;
- include mechanisms for verifying the performance of all participants; and
- encourage continual improvement of both participants and the programs themselves.

[85] <<http://www.env.gov.bc.ca/epd/epdpa/ipp/frppioj.html>>

## Appendix 4: International Council on Metals and the Environment (ICME)[86] Environmental Charter

In all their activities, ICME members will be guided by the principles set out below.

***Product Stewardship Principles***

- Develop or promote metal products, systems and technologies that minimise the risk of accidental or harmful discharges into the environment.
- Advance the understanding of the properties of metals and their effects on human health and the environment.
- Inform employees, customers and other relevant parties concerning metal-related health or environmental hazards and recommend improved risk management measures.
- Conduct or support research and promote the application of new technologies to further the safe use of metals.
- Encourage product design and uses that promote the recyclability and the recycling of metal products.
- Work with government agencies, downstream users and others in the development of sound, scientifically based legislation, regulations and product standards that protect and benefit employees, the community and the environment.

***Environmental Stewardship Principles***

- Meet all applicable environmental laws and regulations and, in jurisdictions where these are absent or inadequate, apply cost-effective management practices to advance environmental protection and to minimise environmental risks.
- Make environmental management a high corporate priority and the integration of environmental policies, programs and practices an essential element of management.
- Provide adequate resources, staff and requisite training so that employees at all levels are able to fulfill their environmental responsibilities.
- Review and take account of the environmental effects of each activity, whether exploration, mining or processing, and plan and conduct the design, development, operation and closure of any facility in a manner that optimises the economic use of resources while reducing adverse environmental effects.
- Employ risk management strategies in design, operation and decommissioning, including the handling and disposal of waste.
- Conduct regular environmental reviews or assessments and act on the results.
- Develop, maintain and test emergency procedures in conjunction with the provider of emergency services, relevant authorities and local communities.
- Work with governments and other relevant parties in developing scientifically sound, economic and equitable environmental standards and procedures, based on reliable and predictable criteria.
- Acknowledge that certain areas may have particular ecological or cultural values alongside development potential and, in such instances, consider these values along with the economic, social and other benefits resulting from development.
- Support research to expand scientific knowledge and develop improved technologies to protect the environment, promote the international transfer of technologies that mitigate adverse

[86] As from October 2001, the successor organisation to ICME is the International Council on Mining and Metals (ICMM). See <<http://www.nidi.org/environment/links/icme/>> and <<http://www.icmm.org>>

environmental effects and use technologies and practices that take due account of local cultures and customs and economic and environmental needs.

***Community Responsibility Principles***

- Respect the cultures, customs and values of individuals and groups whose livelihoods may be affected by exploration, mining and processing.
- Recognise local communities as stakeholders and engage with them in an effective process of consultation and communication.
- Contribute to and participate in the social, economic and institutional development of the communities where operations are located and mitigate adverse effects in these communities to the greatest practical extent.
- Respect the authority of national and regional governments and integrate activities with their development objectives.

In support of the above Environmental Charter, in communicating ICME policies and principles and in promoting better understanding, ICME will seek to:

- provide a free flow of information on international environmental and developmental issues affecting the industry;
- listen and respond to the public about metals and the environment;
- develop and implement programs that communicate the benefits of a balanced consideration of environmental, economic and social factors;
- present products, processes or services as being environmentally sound only when supported by well-founded contemporary data; and
- ensure information provided is candid, accurate and based on sound technical, economic and scientific data.

**Table 2: Progress towards a Policy Framework for Forest Products Certification in Developed Countries**[87]

| Country | Policy Framework |
|---|---|
| **Australia** | Limited progress. Possible development of industry based standards based on National Forest Policy, Montreal Principles and ISO14001. |
| **Canada** | Large number of areas expected to be certified soon. Industry based standards developed to be compatible with Montreal Principles and ISO 14001 standards. Also seeking to develop regional standards consistent with FSC principles. Some FSC activity. |
| **Finland** | Early adopter with significant number of certified areas. Industry based standards finalised in line with Helsinki Principles and recognised by PEFC. Broadly compatible with FSC and may be integrated with ISO14001. Some application of FSC. |
| **Germany** | Mainly an importer. Domestic industry standards based on German forestry legislation and standards. FSC seeking market influence. |
| **The Netherlands** | Major importer. Local standards consistent with the Helsinki Principles. Limited FSC areas. Government (through the Kerhout Foundation) has developed minimum requirements for certificates entering Dutch market with reference to ISO standards. |
| **New Zealand** | Focus on plantation timber. Industry standards expected to be WTO compatible. Some FSC certification. |
| **Sweden** | Most advanced in terms of area certified. FSC is the major scheme, but PEFC is increasing its share. Industry scheme is based on national legislation, Helsinki Principles and ISO14001 standards |
| **UK** | Mainly an importer. Domestic standards developed by consensus to be compatible with both UK National Standard and FSC UK National Standard. |
| **USA** | Dominant scheme is SFI principles by AFPA following some member consultation, compatible with ISO14001. Significant area certified by FSC. Non-industrial operators use Green Tag, based loosely on procedures of FSC. State-based best management principles as minimum. |

[87] P. Kanowski, D. Sinclair and B. Freeman, 1999: "International Approaches to Forest Management Certification and Labelling of Forest Products: A Review", Commonwealth of Australia Department of Agriculture, Fisheries and Forestry, Canberra.

# Moving Towards Healthier Governance in Host Countries: The Contribution of Extractive Industries

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*Natural resources can be a source of great good… or dreadful ill. The key element is not the resource itself, but how it is exploited. An orderly mining regime, operating within a transparent and predictable legislative and fiscal framework, can be a major source of prosperity for governments and people. Without it, mineral wealth… will be a magnet for the greedy and corrupt to line their own pockets at the expense of the people.*

> *Nicky Oppenheimer, Chairman, De Beers*
> *Address to the Commonwealth Business Forum, "Diamonds Working for Africa", November 1999.*

## Introduction

This paper considers the potential of voluntary approaches for improving environmental performance with reference to the mining sector. We begin by considering the term "corporate responsibility" and how it fits into the broader processes by which society seeks to work with the business sector for mutual benefit. This leads to an assessment of the "state-of-the-art" in corporate responsibility initiatives among organisations in OECD Member countries. The results of an OECD survey on how mining companies view their roles in the societies in which they operate are then presented, and strategic issues that emerge from the analysis identified. In the penultimate section we discuss the contribution the OECD can make to the debate. Finally, a number of conclusions are presented.

## What is Corporate Responsibility?

The business community has made and will continue to make essential contributions toward achieving the goal of sustainable development. The most important contribution of business is the conduct of business itself: its core responsibility is to yield adequate returns to owners of capital by identifying and developing promising investment opportunities. In the process, businesses provide jobs and produce goods and services that consumers want to buy. The pattern of economic development in OECD countries attests to the power of the business sector to raise general welfare and living standards when operating in effective governance environments.

Clearly, corporate responsibility goes beyond this core function. Businesses also have to comply with legal and regulatory requirements and, as a practical matter, must respond to "softer" societal expectations not necessarily encapsulated by statute. OECD research suggests that many businesses

[1] The views expressed in this paper do not necessarily reflect those of the OECD or its Member countries.

have invested heavily in improving their abilities to do this. Companies make this investment because they recognise their interdependence with the societies in which they operate. Indeed, interdependence lies at the heart of corporate responsibility, which we define as the actions taken by businesses to nurture and enhance their relationships with the societies in which they operate.

Interdependence involves reciprocities. Societies can act to nurture this relationship by providing services such as law enforcement, appropriate regulation and investment in the many public goods used by business. In addition, society can finance these activities via a well-designed, disciplined tax system. If the actions of both the business sector and society are synergistic, then the "fit" between the two helps to foster an atmosphere of mutual trust and predictability that facilitates the conduct of business and enhances economic, social and environmental welfare.

The concepts of governance and corporate responsibility are inseparable. As pointed out by the noted governance expert Adrian Cadbury, systems of public and private governance help economies and organisations strike the "right balance between economic and social goals and between individual and communal goals."[2] Getting this balance right is an ongoing task for any society. Success hinges on the creation of appropriate systems of law and regulation. It also requires suitable channels for less formal influences on business behaviour such as those originating from employees and colleagues or from the press and civil society organisations. Thus, labour, civil and political rights are essential parts of both the public and private governance mix. Finally, governments must be efficient and effective enough to deliver the various services that support business activity. These include protection of property, prudential supervision, contract enforcement, investment in public goods and provision of public services. If governments do not play their roles, the business community will not be able to play its part either; corporate responsibility goes hand-in-hand with government responsibility.

The governance framework can be viewed as providing signals and incentives that guide companies in making investment choices that will not only yield adequate returns to owners of capital, but also conform to socially agreed trade-offs and constraints. For example, if societies are to benefit from mining company activities, then answers to several fundamental questions are required: What is an allowable trade-off between environmental harm and current income? What is society's risk tolerance in certain areas (e.g. for occupational health and safety, public safety)? Although business has an important role in expressing its views on what these trade-offs and constraints should be, its voice is necessarily only partial. The answers need to be produced by processes that are balanced and inclusive to ensure that the relevant stakeholders and interest groups have their say. Despite the higher profile roles that international organisations and NGOs have assumed in recent years, the answers to these basic questions remain largely formulated via domestic political processes. The next section will show that progress on private initiatives, including many undertaken by mining companies, has been significant. However, the picture is not wholly positive. Subsequent sections will argue that the real problems lie in how the rules of the game are formulated in many host societies.

**Private Initiatives for Corporate Responsibility: The State-of-the-Art**

In a world that is in dire need of good news, there is quite a bit of it on the corporate responsibility front. A 2001 OECD study entitled *Corporate Responsibility: Private Initiatives and Public Goals* drew on databases covering over two thousand organisations in thirty countries and found that most large OECD-based multinational enterprises have issued codes of conduct setting forth commitments in such areas as labour, environment, health and safety. Over the last fifteen years, principles and

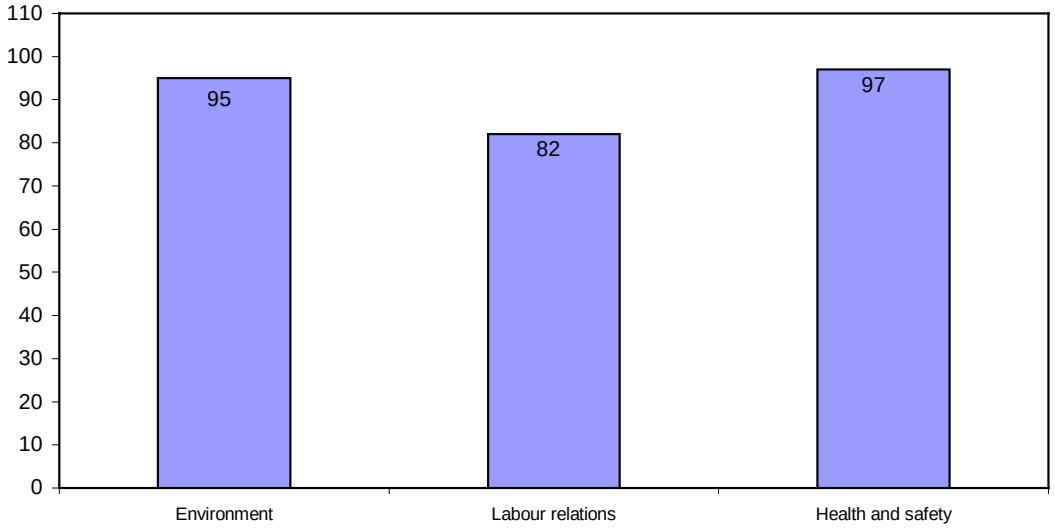
[2] A. Cadbury, 2002: "Corporate Governance. A Framework of Implementation", <<http://www.worldbank.org/html/fpd/privatesector/cg/preface.htm>>

management methods have emerged that allow businesses to address ethical issues about which they would have been incapable of organising any systematic response even as recently as two decades ago.

### *Global Phenomenon*

OECD research suggests that most major multinational enterprises have participated in this trend. For example, nearly all of the top 100 multinational enterprises publish material outlining the principles and management techniques they use to control environmental, health or safety outcomes or in the area of labour relations (see Figure 1).

**Figure 1: Top 100 Multinational Enterprises with Policy Statements on Environment, Health and Safety (per cent of UNCTAD's list of top 100 multinational enterprises)**




Source: OECD.

### *Growing Expertise*

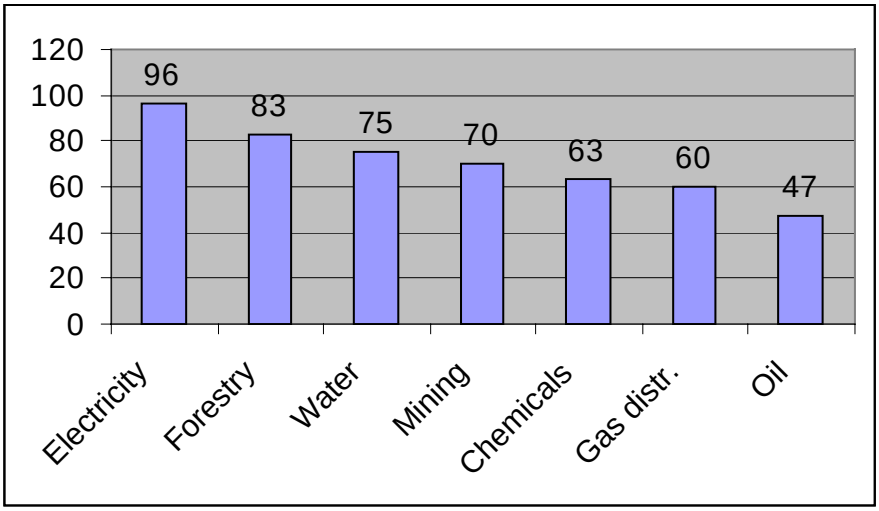
A new pool of international management expertise is evident. This new cadre of managers combines knowledge of regulatory and legal compliance with management control expertise. To cite only two examples, their activities are apparent in the emerging consensus on management practices in the corporate fight against corruption and in the increasingly sophisticated and standardised approach to environmental management. Figure 2 shows the high rates of adoption of formal management systems among European companies operating in high environmental impact sectors. Mining is among the sectors with the highest rates of adoption.

### *Emerging Standards*

Standards in support of improved non-financial accountability and performance have been developed and these are now being used, refined and tested through day-to-day use by companies. For example, about two-thirds of the high environmental impact companies shown in Figure 2 use a standard environmental management system (either ISO 14001 or EMAS). Other examples of standardisation are the Global Reporting Initiative for corporate reporting in support of sustainable development and the Voluntary Principles on Security and Human Rights.

Of course, not all of the news is good. Globalisation has raised legitimate public concerns about some aspects of business conduct. Some OECD-based multinational enterprises, including some in the mining sector, are perceived as being party, sometimes inadvertently, to serious problems: corruption of public officials, human rights abuses and serious environmental degradation. Further progress is needed in building a governance framework incorporating both domestic and international elements that will allow these difficult issues to be addressed.

**Figure 2: EMS Adoption by European Companies in High Environmental Impact Sectors (per cent adopting a formal environmental management system)**




Source: OECD/EIRIS (Ethical Investment Research Service). OECD Secretariat aggregations using data compiled by EIRIS on the environmental practices of 1650 companies from FTSE-Europe index. 424 companies are from high environmental impact sectors.

**Corporate Responsibility and Host Country Relations: The Extractive Industry Voice**

*The mining industry wants to better organise its voice to enable it to contribute more positively to public debate on sustainable development, which provides a coherent framework in which to address diverse issues.*

*Global Mining Initiative leaflet "An Industry in Transition"*

Companies in the extractive industry help to convert non-renewable resources into products that enhance the living standards of much of the earth's population. While exploring for, extracting and distributing mineral or petroleum deposits these companies often find themselves investing in what one of them describes as "some of the most difficult operating environments in the world."[3] In extreme cases, these include places where violence, corruption and human rights abuses are common and where basic government services (law enforcement, social protection and regulation) are not available or function poorly. As a result, these companies must often deal with some of the most daunting corporate responsibility challenges: serious human rights issues (e.g. management of security

[3] Quotation from the public statements of one of the largest multinational enterprises operating in the oil sector. The quote was located on the company's website in January 2002.

forces, resettlement), environmental management and fighting entrenched and widespread corruption. In dealing with these issues, extractive industry companies face a patchwork of regulatory and legal frameworks that reflect various pressures originating in both host and home countries. Home country pressures can be robust, stemming from NGO campaigns, from threats of litigation or criminal charges (e.g. on human rights abuses or bribery of government officials). Customers, business partners and employees can also exert pressure.

The OECD Secretariat has conducted a survey of how multinational enterprises in extractive industries view their roles and contributions in host societies. The sample consisted of 59 extractive industry companies, comprising 29 oil companies and 30 mining companies. A range of enterprise types were covered by the survey, including very large, visible companies and medium-sized firms with little public visibility. The mining companies in the sample operate in a range of countries and in some very difficult investment environments (e.g. Angola, Colombia, Congo, Indonesia and Zambia). The appendix describes the survey methodology. Below we summarise some of the key findings, while Figure 3 presents a diagrammatic overview of selected results.

***Oil versus Mining and Medium-sized versus Large Companies***

Extensive statements about the role of oil and mining companies in host societies were made by 38% of the former and 13% of the latter respondents. On the other hand, 43% of the mining companies did not comment on this issue (compared with 3% of the oil companies). The amount of material provided was strongly correlated with the size and public visibility of the companies. For example, all except one of the major oil companies issued extensive policy statements and declarations. In mining, the so-called "seniors" (large companies) were much likelier to make public statements containing detailed explanations of policies and practices than the "juniors" (smaller, less visible companies).

The difference between oil and mining companies was striking. Because the oil companies often have a retail presence that mining companies do not usually have, this finding seems to support the view that consumer pressures and other pressures linked to high public visibility are important drivers of corporate responsibility initiatives in extractive industries. Because the analysis used the same set of textual attributes for mining and oil, this interpretation assumes that the relevance of the attributes is the same for the two sectors and, hence, that the corporate responsibility challenges facing them are largely similar. Clearly, this assumption may be erroneous but the survey did not pose questions that tested alternatives.

***Provision of Local Social Services and Infrastructure***

Perhaps the most striking finding was the importance these companies placed on the social services they provide in host countries. The survey suggests that large companies in extractive industries are heavily involved in the provision of social services and that they view these as being among their pre-eminent contributions to host societies. Community development was noted by 55% of the oil companies and 40% of the mining companies. Education and medical services/infrastructure were the most frequently cited activities in this area: 52% of the oil companies and 27% of the mining companies noted the construction of schools and medical facilities. The development of potable water infrastructure (31% and 13%, respectively) and of agri-food projects (31% and 10%, respectively) also stood out.

One study of mineral taxation suggests that service and infrastructure provision has been a feature of mining company activities for over a hundred years.[4] This may be partly because many of mining operations are located in remote regions or that, in the absence of fiscal mechanisms for revenue sharing with local populations, they may need to "buy" the support of local communities in other ways. According to some NGO and press commentaries[5], the attention given to these services in companies' public statements reflects a "paternalistic" model of corporate social responsibility and a reluctance to face important underlying issues.

***Human Rights, Security Forces and Resettlement***

Respect for human rights as a business requirement was identified by 35% of the oil companies and 17% of the mining companies. Security issues were noted by 14% of the oil companies and 3% of the mining companies. A few companies, almost all of them oil companies, provided detailed information on how they manage security. The statements sometimes included vivid descriptions of violent incidents, involving employees, security forces or local people as well as explanations of how the incidents originated and how they were handled by employees. Many of these incidents took place in Nigeria, but there were also descriptions of incidents in other countries. Three companies noted that they were occasionally the target of extortion attempts.

Resettlement operations and compensation principles were discussed by 17% of the oil company respondents and 10% of the mining companies. Two companies cited the World Bank Resettlement Guidelines while several others described their compensation and resettlement practices in particular situations.

***Other Host Country Issues: Revenue Use and Transparency***

The survey showed that extractive industry firms are aware of the potential contribution that their (often-large) tax and royalty payments can make to the economic development of host countries. In all, 34% of the oil companies and 13% of the mining companies noted it. Overall, revenues paid to governments ranked among the benefits most commonly cited by extractive industry firms.

However, approaches to this issue vary. Most statements simply acknowledged that the payments made to governments are large and that they constitute a major benefit for host societies. In contrast, a few of the largest companies commented extensively about their concern that in some host countries little of this money is distributed among the broader population. Two oil companies described partnerships with international financial institutions (IMF and World Bank) designed to "clarify how the income from … oil production is spent and accounted for." In the statements made by the sample companies, the situations in three countries were discussed in oil company statements: Nigeria, Angola and Chad. Although there are industry wide initiatives addressing corruption issues in the mining sector, the issue of revenue use and transparency of host country revenue use was not highlighted in their descriptions of host country relations, even among very large mining companies. The diamond industry, where "conflict diamonds" and revenue use were the subject of a major NGO campaign, is an exception, as the quote from the chair of DeBeers cited at the head of this paper illustrates.

[4] See James Otto, 1995: *Taxation of Mineral Enterprises*, Graham and Trotman/ Martinus Nijhoff, London, Dordrecht, Boston.
[5] See for example, A-M. Impe, 2000: "Silence Total", *Vivant Univers 452* (March-April), pp. 22-29.

**Figure 3: Extractive Industry Firms: How They See Their Roles in Host Societies**

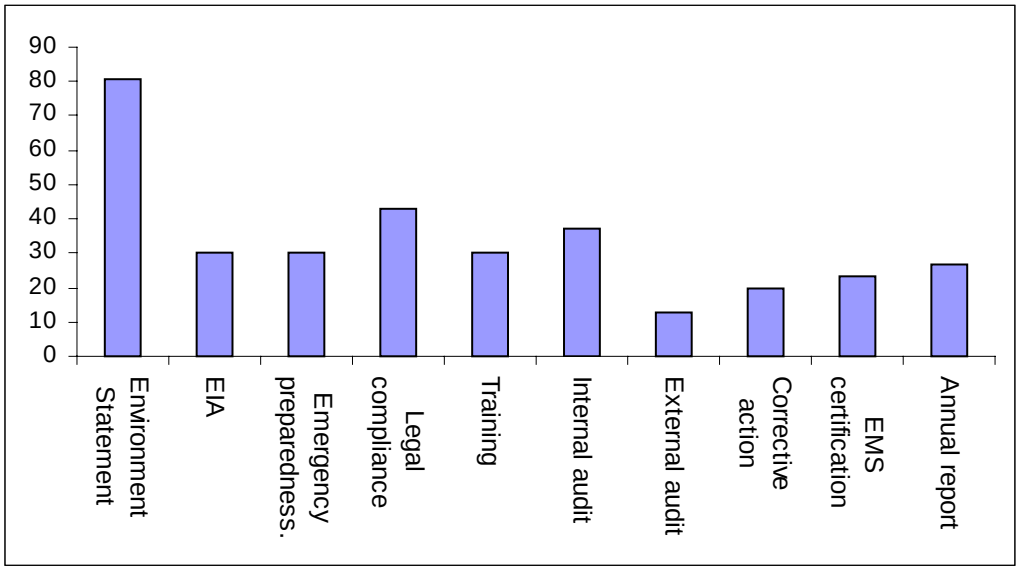
| Integrated Oil and Gas | | Diversified mining and metals |
|---|---|---|
| **Detail of statement (per cent of companies)** | | |
| 38% | Extensive detail | 13% |
| 59% | Some text | 43% |
| 3% | No statement | 43% |
| Subjects addressed in statements (per cent of companies addressing subject) | | |
| 34% | Taxes and royalties | 13% |
| 72% | Charitable donations | 37% |
| 35% | Human rights | 17% |
| 14% | Security forces | 3% |
| 17% | Resettlement | 10% |
| 28% | Corruption | 13% |
| 55% | Community development | 40% |
| 52% | Education | 27% |
| 34% | Scholarships | 17% |
| 55% | Clinics and hospitals | 17% |
| 31% | Drinking water | 13% |
| 31% | Agri-food | 10% |

Source: OECD.

***Environmental Statements***

In a separate textual analysis of the same 59 companies surveyed, mining companies were more likely to discuss environmental management than oil companies (81% of mining companies and 63% of the oil companies discuss this issue). Figure 4 shows the variety of attributes identified in environmental statements by mining companies. In analysing the environmental statements of the mining companies, 57% per cent of the respondents provided detailed information about their environmental management practices. Environmental impact statements and emergency preparedness were mentioned by 30% of the sample. Half of the mining companies have environmental health and safety (EHS) management systems and 23% of these are certified. In terms of management tools used for compliance, employee training (30%) and internal audit (37%) were the most frequently cited. External audits are used by 13% of respondent mining companies. Procedures established for non-conformance and corrective action were identified by 20% of the sample. An annual report on environmental performance is issued by 27% of the mining companies.

**Figure 4: Content of Environmental Statements by Mining Companies - Selected Attributes (per cent of companies mentioning attribute)**




Source: OECD.

Mining companies appear to be comfortable with environmental issues than with some other issues concerning host country relations (human rights, corruption and resettlement). They are more likely to discuss these issues at length and they speak with considerable assurance on them. This is probably because they are (justifiably) proud of their accomplishments - the development of managerial expertise and of behavioural and management standards - in this area. The apparent assurance and relative willingness to take public positions on environmental matters may also reflect the fact that, while mining companies are in control of their internal environmental practices, the host country issues involve areas where the role and potential contribution of mining companies is necessarily partial.

**Assessment: Strategic Issues for Mining Companies**

*We need responsible government before we can have responsible business….*

> *Survey respondent from Ghana,"Corporate Social Responsibility: Making Good Business Sense", World Business Council for Sustainable Development, January 2000.*

This exploration of the corporate responsibility initiatives of OECD-based multinational enterprises in extractive industries gives ground for hope, but also raises some fundamental concerns. The hope stems from the impressive progress that companies have made in some areas of corporate responsibility. Many companies have accumulated managerial expertise and contributed to the emergence of standards. OECD research indicates that progress in the area of environmental management has been particularly strong and that mining companies have contributed to this. The analysis of public statements suggests that mining companies speak with considerable confidence about their environmental initiatives and tend to use a common vocabulary when describing their management principles.

The concerns stem from some intractable governance issues, especially domestic governance in some host countries (corruption, protection of basic rights, etc.). Private initiatives in mining are essential complements to regulation, law and other forms of social control of business, but they cannot replace them. The environmental performance of mining companies cannot be disassociated from the quality of the signals and incentives they receive from host societies. Despite the significant progress these companies have made in devising principles and practices for managing their operations, they still need appropriate regulatory, legal and "softer" inputs from host societies. All countries have governance problems, but these seem to be more acute in some countries than others. As extractive industry companies themselves acknowledge in their public statements, they invest in some of the most difficult operating environments in the world. Corruption, including bribery, misuse of public funds and self-enrichment through privatisation and deregulation programs, is particularly harmful to the quality of governance and to the prospects for reform.[6] A basic question for international mining companies is: to what extent do they feel they have a role to play in helping some host countries improve their governance frameworks?

The survey of mining companies' public statements suggests that they focus primarily on environmental issues and on their provision of social services and infrastructure. Many of them mention the tax benefits that host countries receive in general terms. However, most of them avoid broader governance issues, such as the use and transparency of tax and royalty payments or other aspects of company-host country relationships. This is understandable. Dealing with such issues casts them in unaccustomed roles and takes them into areas where the amount of control they have is limited.

The manner in which mining companies consider these issues is important. Often, they are among the best informed outside actors in some countries and they help frame the debate on the development agenda. At the same time, the influence that mining companies have in host countries, while often significant, does have limits. Public governance problems in these countries are sometimes so severe that trying to act responsibly can be a serious competitive handicap, especially in such areas as combating corruption. Yet, many multinational enterprises recognise that it is in their interest to contribute to the search for solutions. Some evidence exists that a number of extractive industry companies have begun to act on broader governance issues. The OECD study shows that a few very large oil companies have made detailed public statements on host country revenue use and transparency. Mining industry associations have been considering issues as corruption and revenue use in host societies but, judging from their public statements, individual mining companies have not joined the debate.

The search for improved governance is not an easy one, requiring action on many fronts. It will be prudent for companies to act in partnership with each other, with host and home governments and with international organisations. It will be necessary to join forces in trying to help countries establish a sound institutional basis for sustainable growth. The role extractive industry companies can play in this process is an important one, but it is necessarily limited.

Fortunately, co-operative action will benefit from growing consensus among stakeholders. Recognition of the importance of public and private governance in raising economic, social and environmental welfare now seems to have taken hold and to enjoy considerable support. For most countries, the next frontier is actually doing it. The OECD, through its distinctive peer review process and its experience in consensus-based "soft" rule making, is well positioned to help.

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[6] See for example Jean Cartier-Bresson, 2000: "The Causes and Consequences of Corruption: Economic Analyses and Lessons Learnt" in OECD, *No Longer Business as Usual*, Paris, pp. 11-28.

**The OECD Contribution: Peer Review and "Soft" Norms**

*… the OECD is uniquely placed to contribute to the building of a better world… [It] can move quickly and act flexibly in fields where the advanced countries of the world are able to provide leadership in tackling new global problems like corporate governance, corruption and money laundering... It can help us understand issues better, encourage best practices and, when more formal action is called for, it can be a forum for developing rules of the game.*

*Donald Johnson, Secretary General of the OECD*
*"Fostering International Investment and Corporate Responsibility", March 2000.*

The OECD helps governments improve policy across many fronts. The two pillars of OECD activity are its distinctive peer review process and the creation of consensus-based, non-binding behavioural norms for governments and private actors. The latter instruments do not generally have the force of law[7], but they provide international benchmarks for public policy and private conduct. They complement and reinforce the private initiatives just described.

Peer reviews take place in relation to many aspects of public policy, such as macroeconomic policy, international investment, competition and regulatory reform and taxation. In the area of anti-corruption, the peer review processes in support of the OECD Bribery Convention, the anti-money laundering initiative[8] and work promoting integrity of public management are particularly noteworthy.

Norms have been developed in areas such as fiscal management, competition policy and tax policy and enforcement. While these are not binding, they do provide benchmarks for evaluating various aspects of public sector operations. A particularly important example is the OECD Corporate Governance Principles. These provide guidance, relevant for any country with formal financial markets, on the private governance characteristics that law and regulation should be attempting to foster among private enterprises.

Private companies are also important partners in these efforts. Working with business and labour representatives and with NGOs, the OECD Member countries, together with six non-members[9], are working to promote the OECD Guidelines for Multinational Enterprises (see Box 1 for a more detailed description). The Guidelines are non-binding recommendations for business conduct covering such areas as labour relations, environment, combating bribery and consumer protection. Although observance of the Guidelines is voluntary for companies, they represent a binding commitment for the 36 adhering governments. They agree to ensure that the Guidelines are understood and observed by multinational companies operating in or from their territories. The Guidelines are part of the Declaration on International Investment and Multinational Enterprises, an OECD instrument that provides a comprehensive and balanced approach for governments' treatment of foreign direct investment and for enterprises' activities in adhering countries.

[7] The OECD Bribery Convention is an important exception. The 35 signatories of the Convention are required to align their national legislation with the principles established in that instrument.
[8] The Financial Action Task Force (FATF) is responsible for this initiative. FATF is based in the OECD but has a somewhat different membership.
[9] Argentina, Brazil, Chile, Estonia, Lithuania and Slovenia. These countries have committed themselves to adhere to the OECD Declaration on International Investment and Multinational Enterprises. Latvia, Singapore and Venezuela have expressed their interest in following suit.

The Declaration enshrines the OECD's shared values on investment: transparency, non-discrimination and investment protection[10]. Finally, the OECD Corporate Governance Principles, in addition to being relevant to public policy makers, also provide guidance on governance for private-sector actors.

These processes are not the preserve of the OECD countries alone. Increasingly, non-members are associating themselves with all aspects of OECD work through participation in the work of most of the Organisation's committees and working groups. Six non-member countries (including some with major mining interests) have adhered to the OECD Declaration on International Investment.[11] Non-members are also involved in the OECD's work on combating bribery and in anti-money laundering.

**Conclusions and Next Steps**

Mining companies have made much progress in controlling the environmental impacts of their activities. This progress is likely to continue. Their efforts are an essential component of any overall system designed to promote better environmental outcomes from mining activities. However, these measures cannot be effective if the overall framework within which business operates functions poorly. This framework includes not only law and regulation but also mechanisms by which "softer" pressures are applied to business behaviour. In this context, general framework conditions such as protection of basic human and labour rights, freedom of the press and healthy democratic processes play major roles in influencing environmental outcomes in mining and other economic sectors. No country is perfect in this respect; designing, refining and enforcing appropriate policy frameworks is an evolutionary process. The challenge for the mining sector arises from the fact that some of the countries in which it operates have fundamental problems in these areas.

Although the overall share of the mining sector in total world economic output is small, its importance for some economies can be large and the underlying issues affect the welfare of millions of people. Mining companies have an important, but necessarily only partial, role to play in improving policy framework conditions in countries in which they operate. In responding to this challenge, they have sponsored anti-corruption activities in their industry organisations and have begun to examine what happens to mining tax revenues once they enter public financial systems. They have also started to devote greater attention to issues of transparency and design of the financial arrangements that link them to host countries. This is commendable. More generally, mining companies could usefully act in co-operation with other extractive industry operators, with international organisations and with home and host governments to advance a coherent governance agenda that has consensus among all actors. OECD experience shows that, even with general agreement on the desirable thrust of policy reform, the difficulty always lies in implementing it. Mining companies can make an important contribution to creating momentum for reform and providing technical expertise for improving the general framework that influences mining regimes in host countries.

[10] The OECD Declaration on International Investment and Multinational Enterprises comprises, in addition to the OECD Guidelines, the following instruments: (1) the National Treatment Instrument in which adhering countries commit to treating foreign-controlled enterprises operating in their territories no less favourably than domestic enterprises in like situations; (2) conflicting requirements instrument, which calls on countries to avoid or minimise conflicting requirements imposed on multinational enterprises by governments of different countries; (3) An instrument on international investment incentives and disincentives, which provides for efforts among adhering countries to improve co-operation on measures affecting international direct investment.

[11] See Footnote 9.

**Box 1: The OECD Guidelines for Multinational Enterprises**

The Guidelines are recommendations addressed by governments, to multinational enterprises operating in or from adhering countries (currently, the OECD Member countries plus Argentina, Brazil, Chile, Estonia, Lithuania and Slovenia). They provide voluntary principles and standards for responsible business conduct in a variety of areas including employment, human rights, environment and information disclosure. Although many business codes are now publicly available, the Guidelines are the only multilaterally endorsed and comprehensive code that governments are committed to promoting. The Guidelines' recommendations express the shared values of governments of countries that are the source of most of the world's direct investment flows and home to most multinational enterprises (MNEs). They aim to promote the positive contributions that multinational companies can make to economic, environmental and social progress. It is possible to read the recommendations as an approach to the development agenda now confronting the international community. The approach of the Guidelines is not one of regulation; rather it favours co-operation and accumulation of expertise in order to enhance the benefits of international investment. A few illustrations follow.

***Technology and human capital.*** In chapters II, IV and VIII, the Guidelines recommend a series of steps that MNEs should take to facilitate technology diffusion and human capital accumulation in host countries, two areas that have long been recognised as central to growth and productivity increases in less developed countries.

***Local communities.*** In chapter II and elsewhere, MNEs are requested to co-operate with local communities, keeping in mind the distinctive needs of different communities as well as their cultural diversity.

***Refrain from seeking exemptions***. The Guidelines also call on MNEs to refrain from seeking or accepting exemptions from host country regulatory requirements in areas such as environment, labour or financial incentives. This echoes efforts by developing countries to avoid being trapped in a "race to the bottom" or in a zero-sum game of incentive-based competition to attract FDI, which in the long run benefits no country.

***Labour management practices.*** The Guidelines cover all core labour standards and underline the importance of capacity building in host countries through local employment and training. The recommendations draw on an agreed body of international thought on labour rights, most of it developed in the International Labour Organisation. Far from imposing inappropriate labour standards on developing countries, the Guidelines enhance the positive role that multinational enterprises can play in helping to eradicate the root causes of poverty, through their labour management practices, their creation of high-quality jobs and their contribution to economic growth.

***Fight against bribery.*** Chapter VI enlists MNEs in the fight against bribery and corruption in host countries, an area that an increasing number of developing country governments now consider central to their reform efforts.

***Disclosure.*** Chapter III promotes business transparency on the basis of the standards set forth in the OECD Principles of Corporate Governance. Further global dissemination of these standards will promote development by strengthening the effectiveness and robustness of financial systems everywhere.

**Continued**

***Human rights.*** The Guidelines contain provisions requesting MNEs to respect the human rights of all people affected by their operations. While the countries adhering to the Guidelines recognise that governments play the primary role in protecting human rights, companies can help in a number of important ways. Increasingly, respect for human rights is considered a fundamental feature of successful market economies. Thus, the business community's assistance in promoting human rights will not only help reduce the suffering caused by human rights abuses, but will also promote economic development.

The implementation of the Guidelines relies on National Contact Points (NCPs). The NCP, often a government office, is responsible for encouraging observance of the Guidelines in the domestic context and for ensuring that the Guidelines are well known and understood by the national business community and by other interested parties. Because of the central role it plays, the NCP is a crucial factor in determining how influential the Guidelines are in each national context.

In addition to ensuring the Guidelines are well known in their country, the NCPs also oversee "specific instances." This provides for a soft whistle-blowing facility. Any interested party may call alleged non-observance by companies of the Guidelines recommendations to the attention of the NCP. However, companies cannot be forced to participate in this process nor are any formal sanctions provided for. The spirit of the Guidelines is not one of punishment or retribution. Rather, the NCPs seek to reinforce individual company's understanding of and commitment to the recommendations set forth in the Guidelines. The first annual report on the Guidelines, made public in 2001, shows that numerous specific instances have been considered or are under consideration. The second annual meeting in 2002 will provide the first insights as to how well these institutions are working and discussion about how they might be improved.

The Guidelines have a distinctive contribution to make and they are complementary to other global instruments for corporate responsibility, such as the UN Global Compact. The Guidelines are firmly rooted in inter-governmental and national government processes and are informed by extensive consultations with business, labour and civil society.

## Appendix 1: Methodology

The objective of the textual analysis is to capture the views of extractive industry companies concerning their roles in less developed countries. For this purpose, only publicly available statements by companies or company officials were taken into account and, in particular, only those available on their websites. These statements included anything available on the sites: policy statements, codes of conduct, descriptions or explanations of activities, speeches by company officials, news releases, etc. Public statements by a group of companies identified by a well-known, on-line financial information service (Hoovers) in the petroleum and mining sectors were also collected.

The subject areas covered were role and contributions to host societies, human rights, taxation, relations with local communities including provision of services (e.g. education or health) and infrastructure (e.g. water and medical), political relationships, the fight against corruption, environment. The content of these statements was then coded into a database using the following attributes: human rights; reference to external texts (Universal Declaration on Human Rights, Global Sullivan Principles[12], UN Global Compact, OECD Guidelines, and others); relations with local communities; compensation for land and relocation; security forces management; use of private security forces; paying government forces; extortion; contributions to economic development; importance of taxes and other payments to governments; jobs; investment; community development; provision of infrastructure; hospitals or medical clinics; sanitary initiatives; schools/teaching; drinking water; agri-food development; scholarships; employee involvement; legal compliance; charitable donations; dollars spent on these activities; corruption; transparency; relations with NGOs; political contributions; external audits; training; signing of commitments by employees; ethics committee or senior officer involvement; whistle-blowing; internal control/compliance systems; environment. The selection of textual attributes was based on publications dealing with corporate social responsibility in extractive industries (citations) and an initial reading of the public statements.

The sample of companies covers two sectors defined by the Hoovers corporate financial information website: "integrated oil and gas"; and "diversified mining and metals". The sectoral and business unit definitions are those used by Hoover in organising their financial analysis of these companies. Integrated oil and gas is defined as "major international energy companies engaged in the diverse aspects of oil and gas operations including crude oil and gas exploration, production, manufacturing, refining, marketing and transportation." All of the companies covered are publicly quoted. (For a list of companies by sector, see <<www.hoovers.com/company/dir/0,2116,6118,00.html>>) The oil companies include 7 US companies, 3 UK companies, 12 from continental Europe, one from Japan and 6 from other countries. Diversified mining and metals is defined as "major international mining companies engaged in the ownership of mining properties and the mining and processing of a variety of minerals."

[12] See <<http://www.globalsullivanprinciples.org>>

# The Relevance of the OECD Guidelines for Multinational Enterprises to the Mining Sector and the Promotion of Sustainable Development[1]

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## Introduction

The OECD Guidelines for Multinational Enterprises (the Guidelines) were adopted in their original form in 1976 as one part of the OECD Declaration on International Investment and Multinational Enterprises. They have been widely endorsed and thus have considerable normative value. All 30 OECD Member countries (and four non-OECD countries) have endorsed the revised Guidelines adopted in 2000 and their enhanced implementation procedures. In addition, the Trade Union Advisory Committee to the OECD (TUAC) and non-governmental organisations (NGOs) support them. Crucially, multinational companies, represented through the Business and Industry Advisory Committee to the OECD (BIAC), have given them their support. The Guidelines make explicit reference to other, complementary instruments. These include the Universal Declaration of Human Rights (UHDR), the ILO Conventions and the Rio Declaration on Environment and Development.

The Guidelines provide a set of recommendations on responsible business conduct addressed by governments to multinational enterprises operating in or from the 34 adhering countries. The new text "reinforce[s] the economic, social and environmental elements of the sustainable development agenda."[2] What distinguishes the Guidelines from other, largely private initiatives is that adhering governments - of countries that are the source of most of the world's direct investment flows and home to most multinational enterprises - have clearly stated that they are the only multilaterally endorsed and comprehensive code that they are committed to promoting.[3] Another critical aspect of the Guidelines is that adhering governments are obliged to monitor their implementation and to put a mechanism in place, the National Contact Point (NCP), to carry out this important task.

This paper examines the relevance of the Guidelines to the mining sector and how they might help foster investment that promotes sustainable development. Section 2 sketches the expansion of mining interests outside the OECD area in the 1990s. Section 3 considers globalisation and the challenges facing the mining industry while section 4 sets the Guidelines in the context of industry-led and other initiatives. Section 5 provides an overview of current concerns and the relevance of the framework of the Guidelines and their implementation procedures. Finally, section 6 presents preliminary observations about recent experiences with the implementation procedure and offers several proposals on the way forward.

## Expansion of Mining Interests in 1990s

The 1990s began with an abundance of global opportunities for the world's non-coal mining industry. The political changes that occurred in the early 1990s had a far-reaching impact for the world mining sector. Companies were able to take advantage of the opening of a number of countries in the former

[1] The views expressed in this paper are those of the author and do not necessarily represent the views of Oxfam.
[2] OECD, 2000: *The OECD Guidelines for Multinational Enterprises*, Revision 2000, Paris.
[3] The Honourable Peter Costello M.P., Treasurer of the Commonwealth of Australia, Statement by the Chair of the OECD Council Meeting at Ministerial Level, June 2000.

Soviet Union and China to foreign involvement and investment. However, the persistence of low prices for metals and minerals during this period acted as a constraint to expansion.[4]

The issue of prices is of fundamental importance to the world's mining groups, which base their investment plans in respect of deposit and mining development upon anticipated medium-term and long-term pricing scenarios. The industry is only able to determine the anticipated viability of expensive projects, which run over many years in terms of the costs of mineral extraction and processing and in terms of the prices thought likely to be realised. The *Financial Times* warned in 1996 that the industry could no longer automatically assume that the recovery in prices, which was observable in 1994, would continue. With the benefit of hindsight, that newspaper's view that "not too much should be made of specific short-term movements in metal prices" seems unduly optimistic. For example, in the last year the price of copper has averaged 71c/lb. Moreover, current estimates of world economic growth suggest that near term copper prices will continue to be materially weaker than originally envisaged.[5] Despite the current recession, demand for many kinds of minerals is expected to expand.

A glance at expenditure worldwide indicates the great interest of mining companies in exploring both established and promising regions of the world for new mineral deposits. The perceived opportunities and relative merits of regions outside the OECD area are readily apparent.

**Table 1: Worldwide Non-ferrous Exploration Expenditure by Mining Companies**

| Country/Region | % of global expenditure |
|---|---|
| Latin America | 29.1 |
| Australia | 19.6 |
| Canada | 12.2 |
| Africa | 11.9 |
| US | 10.9 |
| Pacific region | 9.6 |
| Rest of the world | 6.7 |

Source: *Financial Times*, 17 November 1995

According to industry analysts, one of the factors driving this expansion was the laxer regulatory climate. "Many North American and other multinationals were increasingly looking to offset the impact of environmental constraints in their domestic regions by securing resources overseas."[6] Another factor which helps explain the gold rush (or silver rush, copper rush and much else) to South

[4]M. Payne, 1996: "The Global Mining Industry", *Financial Times Management Reports*, London.
[5] "Anglo American, Zambia Copper Investments Limited concludes a strategic review of its investment in Konkola Copper Mine (KCM) operations in Zambia", News Release, 24 January 2002.
[6] Payne, op. cit.

America and other regions was the "privatisation bonanza" of mining sector interests in many countries.

**Box 1: The Privatisation Bonanza**

The main beneficiaries of this 'bonanza' appear to have been the mining companies. As the Chief Executive of the Zambia Privatisation Agency put it, in an attempt to justify the generous stability provisions and other concessions obtained by mining companies in countries like Peru, Uzbekistan and Kyrgyzstan, "mining companies focus their investment in countries which combine prospectivity and a mining tradition, with a willingness "to fix the rules of the game"." All the countries listed above, the ZPA Chief Executive explained, "were seeking to privatise mining assets at the same time as Zambia Consolidated Copper Mines was being marketed. Zambia thus needed to demonstrate its competitiveness with them."[7]

According to Transparency International this has generated another set of problems: "by overlooking the parallel existence of corrupt practices in commercial business, …donors who pushed for speedy divestment and companies that invested in former parastatals have been complicit in the creation of greater opportunities for private corruption."[8] An official inquiry into the privatisation of Zambia Consolidated Copper Mines, for example, found disturbing evidence of irregularities: "The process of privatising the mines was characterised by personal differences amongst key players, and not by observance of due process in the best interest of the nation. In some cases, political considerations appear to have overridden public interest, transparency and even the law." [9]

Despite some signs of improvement throughout the 1990s in corporate awareness of sustainable development, there is still a long way to go. Many mining companies continue to find themselves embroiled in controversy. One thing is clear: those companies that are slow to adapt to the new agenda would be ill-advised to assume that they will be freed from environmental, social or human rights constraints even where they develop operations outside the OECD area.

**Globalisation and Challenges for the Mining Industry**

Historically mining companies have had a poor reputation. They have been seen as despoilers of the countryside, polluters of water sources, usurpers of ancestral lands, exploiters of cheap labour and accomplices to, if not instigators of, gross human rights abuses.

Recent studies by Oxfam America and others show that mineral (and oil) dependence is strongly associated with unusually bad conditions for the poor. These include:

- overall living standards in oil and mineral dependent states are exceptionally low, and lower than they should be given their per capita incomes;
- oil and mineral dependent states tend to suffer from exceptional high rates of child mortality;

[7] Stephen Cruickshank, Chief Executive, Zambian Privatisation Agency (ZPA), personal communication, 18 October 2000.
[8] Transparency International, 2001: Global Corruption Report 2001, Berlin.
[9] Report of the Committee on Economic Affairs and Labour on the Review of the Privatisation of Zambia Consolidated Copper Mines Limited, Zambian National Assembly, Lusaka, November 2000.

- mineral dependence is strongly correlated with income inequality;
- both oil and mineral dependent states are exceptionally vulnerable to economic shocks.[10]

Most of the world's mineral dependent states are concentrated in sub-Saharan Africa. Few of these countries are performing well economically: twelve of the world's most mineral dependent states are classified as highly indebted poor countries. There is a strong negative correlation between a country's level of mineral dependence and its Human Development Index (HDI) ranking: the more that states rely on exporting minerals, the worse their standard of living is likely to be (see Appendix 1).

As the Oxfam America study states, extractive industries can provide benefits to the local population if they stimulate the development of related, non-extractive industries. One way is by promoting linkages with upstream industries that supply goods to the industry. Another is through the development of downstream industries that process and add value to the products. A third way is if the government uses export revenues to promote other, unrelated sectors of the economy. In practice, these linkages tend to be weak. When states undergo resource booms, their currency tends to appreciate at the same time. The resource sector tends to draw labour and capital away from other sectors of the economy, a phenomenon known to economists as "Dutch disease". These effects can reduce the international competitiveness of the country's agricultural and industrial exports, making it harder for the country to diversify its exports and generate pro-poor forms of growth. Once states become dependent on mineral exports they have difficulty diversifying their economy, and promoting sectors like agriculture and manufacturing that provide greater direct benefits to the poor.

Mineral dependent states have significantly higher levels of inequality than other states with similar incomes. The more that states rely on mineral exports, the smaller the share of income that accrues to the poorest 20% of the population. This suggests that once impoverished states become dependent on minerals exports any subsequent economic growth tends to do little to alleviate the conditions of the poor.

For the last century, the international prices for primary commodities, including minerals, have been more volatile than the prices for manufacturing goods. Since 1970, this volatility has worsened. This means that as countries become more dependent on mineral exports, they become more vulnerable to economic shocks.

Mineral dependent states have done a dismal job of protecting their economies against international market volatility. One survey found that mineral exporting states used their mineral revenues so poorly that export booms have led to higher levels of external indebtedness and less diversification than before.

***Employment and Mining***

Extractive sectors tend to be capital intensive and use little unskilled or semi-skilled labour. They are geographically concentrated and create small pockets of wealth that typically fail to spread. In addition, they produce social and environmental problems that fall heavily on the poor and they follow a boom and bust cycle that creates insecurity for the poor. Critics of the mining industry point to the fact that it does much less than other industries to generate employment while its energy consumption is prodigious and the costs, in terms of environmental degradation and social disruption, are disproportionately severe.

[10] M. Ross, 2001: *Extractive Sectors and the Poor*, Oxfam America, New York.

***Environmental Problems***

Globalisation involves wider market competition and the adoption of universal standards. In the 1990s purchases by mining companies in local markets declined in favour of suppliers from other regions and from abroad. These changes are reflected in the scale of mining operations in a country like Peru that is now three to five times the magnitude of a decade ago, as preference is increasingly given to open pit mining. Because of these technological innovations there has been a dramatic change in the nature and degree of environmental impacts. Conflicts between mining companies and local communities, particularly over access to land, have intensified.[11]

**Box 2: Opposition to Aluminium Industry Expansion in the Eastern Amazon**

A coalition of NGOs from Brazil, Europe and the United States is calling on three of the world's largest mining and aluminium companies to drop plans to build a huge dam in the Brazilian Amazon. In November 2001 the coalition wrote to the heads of Alcoa of the US, BHP Billiton of Australia and Cia.Vale do Rio Doce (CVRD) of Brazil, urging them to pull out of an auction for the concession for Santa Isabel, the first dam planned for the Araguaia River, a major Amazon tributary. The Santa Isabel dam would flood an ecological reserve, displace 7000 people and destroy the culture of the Surui indigenous group. The groups also question whether building large dams to fuel the aluminium industry promotes regional development, as the industry claims. Studies show that the food and beverage and textile industries together produce 18-25 times more jobs than the aluminium industry for the same amount of electrical energy consumed.

While greenfield sites are not unproblematic, more intractable are the problems associated with the "privatisation bonanza": the financial burden of making safe or refurbishing the dangerously dilapidated former state-owned mining assets and remediation of past environmental damage. In some countries this has become a highly contentious issue. Reviewing the environmental legacy of hardrock mining provides an indication of how far removed the industry still is from sustainable development. Problems include:

- acid mine drainage (AMD): a solution that originates at a mine site, carried off by rainwater or surface water and deposited in nearby streams, rivers, lakes and groundwater. It is generally extremely acidic in nature and contains high concentrations of toxic metals;
- groundwater and surface water depletion;
- heap leaching: using cyanide or sulphuric acid poisons rivers, streams and groundwater and kills fish and wildlife;
- tailings: these are the coarsely and finely ground waste from the mined rock remaining after the target minerals from the ore have been removed. Often tailings are stored in ponds behind an earth fill dam. These can leak, polluting nearby water and soil. There is also the potential for catastrophic dam or embankment failure;
- air pollution: smelter operations have the potential to emit heavy metals, sulphur dioxide and other pollutants into the air. Some air pollutants have toxic effects, such as causing cancer in humans from direct inhalation.

[11] K. Slack, 2000: *Briefing Paper on Mining in Peru*, Oxfam America, New York.

**Box 3: Excessive Air Emissions in Zambia**

According to the World Bank, atmospheric emissions from smelting activities at Nkana, Mufulira and Chambishi mines on the Copperbelt are a priority issue. Emissions of sulphur dioxide range from between 300,000 and 700,000 tons per year. Toxicological data collected worldwide suggest that human fatalities can arise from short-term exposure to atmospheric sulphur dioxide levels in excess of 1000 ug/m3.

It is increasingly accepted that corporate social responsibility is a key requirement for creating a prosperous and ecologically and socially sustainable world. Many companies fail to live up to their own definition of good corporate citizenship, however. All too often, mining operations continue to be out of step with accepted international standards such as the World Bank's guidelines on pollution abatement and WHO Air Quality Guidelines. There has been insufficient public debate about the exemptions that mining companies have negotiated with governments that release them from compliance with national and international environmental standards for lengthy terms. This is largely because there is no disclosure of the social and environmental components of the development agreements, even after a sale is concluded.

***Good Governance and the Mining Sector***

As the Oxfam America report states "government corruption tends to harm the poor, since the poor are least able to pay the bribes necessary to obtain government services. Several recent studies have found that states with large oil and minerals sectors tend to be abnormally corrupt - perhaps because these sectors periodically flood the governments with revenues, creating heightened opportunities for the misuse of funds. Resource rich governments tend to use low tax rates and patronage to dampen democratic pressures and spend an unusually high fraction of their income on internal security."[12]

***Conflict***

The effect of primary commodity exports on conflict risk is both highly significant and considerable. At peak danger (primary commodity exports being 32% of GDP, the risk of civil war is about 22 per cent, while a country with no such exports has a risk of only one percent.[13] "Two major conflicts in Angola and in the Democratic Republic of Congo continued to embroil states in the Southern Africa region during 2000 - 01. Both wars have been fuelled by a scramble for natural resources by government elites, generals, rebels and foreign companies."[14]

**Box 4: Democratic Republic of Congo: Conflict Diamonds**

At the end of last year, the report of the UN Security Council Expert Panel provided details on the smuggling of diamonds from the Democratic Republic of Congo (DRC) into almost every neighbouring country, and of collusion throughout the entire region. An estimated one third of the total rough diamond production of the DRC, valued at $300 million a year, is smuggled out of the country.[15]

[12] Ross, op. cit.
[13] P. Collier and A. Hoeffler, 2002: "Greed and Grievance in Civil War", Centre for the Study of African Economies (CSAE) Working Paper nr. WPS/2002-01, Oxford, UK.
[14] Transparency International, 2001: Global Corruption Report 2001, Berlin.
[15] <<http://www.un.org/Docs/sc/letters/20011072e.pdf>>

Oil and mineral wealth heightens the risk of civil wars in several ways. Poorly-governed mining operations can lead to the expropriation of land, environmental damage and human rights violations. These factors in turn can create grievances that lead to armed conflicts, as on Bougainville in Papua New Guinea and West Papua (Irian Jaya) in Indonesia. Rebel groups may also finance themselves by looting or selling off natural resources, as in the cases of Liberia, Sierra Leone and the DRC. Mineral (and oil) dependent states also tend to be more heavily militarised. These states spend a larger fraction of their entire government budgets on the military. In 1997, the typical government spent 12.5% of its budget on the military.[16]

### *Mining and the Crisis in Investor Confidence*

UNEP reports that in recent years the financial performance of mining companies has been affected by a series of mining-related accidents and community problems. The risks associated with mining have started to influence access to capital and shareholder value. The multiple problems that beset mining companies in almost every mineral rich country have scared off the commercial banks. Confrontations with indigenous peoples, the workforce and with local communities concerned about environmental impacts have contributed to this drastic decline in investment. It is an understatement to assert that "Mining, with very few exceptions, does not enjoy widespread support."[17] Some companies are experiencing delays in project implementation and are having difficulties in recovering invested funds. At the same time mining companies, "seemingly as never before", are concerned "to bear down on overheads, to take the cost out of the production process."[18] The cash costs of Anglo's Zambia operation for example had reduced substantially from $1 per pound of copper to about 80 cents over the 18-month period since it bought the mines.[19] At the height of the "privatisation bonanza" in the 1990s mining companies were able to dictate their terms in a buyers market. The subsequent collapse in base metal prices, the squeeze on investment and the global recession has left some companies, who scrambled to acquire these assets, over-extended. They are now displaying an equal determination to cut their losses and withdraw. "The decision by one of Zambia's major employers and investors [Anglo] to pull out is likely to throw the country into crisis and have harsh consequences for its economy."[20] If there is no buyer and the mines close, some 11,000 people will lose their jobs.

## Response from the Mining Industry and Other Initiatives

The exposure of the sector to reputation risk means that leading companies have been in the forefront in developing codes of conduct. There are wide divergences in the approaches taken by extractive industries, even in relatively narrowly defined areas such as the environment, human rights and fighting bribery. Similarly, management practices in support of these commitments vary significantly. An OECD review found that some firms have adopted advanced practices, while others have yet to translate their codes into management controls.[21] Disclosure of information is a key aspect of corporate citizenship since the disclosure policies render the firm accountable to outside assessment. Only a minority of the codes contain text on financial disclosure, however. Most texts deal with financial accounting and disclosure in an extremely general way. Companies promise to disclose information documenting what they are doing to implement their codes and their performance relative to the standards and aspirations set out in their codes. This is not uniform practice. Many company codes do not mention a commitment to disclose relevant information. In addition, disclosure

[16] Ross, op. cit.
[17] C. Hinde, 2000: "The global mining industry", *UNEP Industry and Environment – Special Issue*, Paris.
[18] Ibid.
[19] "Crisis for Zambia as Anglo pulls out", *Business Day*, 25 January 2002.
[20] Ibid.
[21] OECD, 2001: *Corporate Responsibility: Private Initiatives and Public Goals*, Paris.

can be to a select audience. The majority of company codes mention procedures to inform employees, managers and, at times, the board of directors but they are more reticent when it comes to transparency towards the general public. The OECD study concludes that the codes do not constitute a *de facto* standard of commitments in the areas they cover.

This lack of consistency and the continuing problems besetting the industry has led to efforts at consolidation. For example, the Global Mining Initiative (GMI) was launched two years ago at a meeting of mining CEOs at the World Economic Forum in Davos. The underlying rationale for the GMI is to provide leading companies with a platform to address the low esteem that the industry has in the eyes of the public. Despite its concern with the beleaguered status of the mining companies, the initiative has spurred a number of interesting developments.

Mining companies have formed a new international trade association, the International Council on Mining and Metals (ICMM), which will act as a lobby group to give the minerals industry a global voice in debates about the environmental and social impact of its activities. The aim of ICMM is to meet rising expectations by making a coherent case for the industry's contribution to sustainable development and the environment in which they work. Meeting these challenges is central to the future commercial and political viability of the industry. ICMM is a response by the industry to persistent regulatory, political and reputation challenges that threaten its sustainability and a desire to explain its stance. Some NGOs are critical of the Mining, Minerals and Sustainable Development (MMSD) global research programme commissioned by the GMI member companies. They see it as an industry-driven process and express concern about the independence of some of the researchers because of their work as consultants for mining companies. MMSD will develop a set of principles and guidelines for the industry and review the role and responsibilities of key stakeholders. The MMSD's corporate sponsors include Alcoa, Anglo American, Anglovaal, Barrick Gold, De Beers, Freeport-McMoran Cooper and Gold and Sumitoto Metal Mining.

***NGO Initiatives***

The daunting number of individual company codes is matched only by the volume and complexity of civil society initiatives, which range from practical management tools, (e.g. *A New Approach to Risk Mitigation in Zones of Conflict*) and financial incentives (socially-responsible investment indexes) to burgeoning proposals for new regulatory frameworks in Europe and North America. Proposals for reporting requirements are becoming more sophisticated. It is hardly surprising that companies are "overwhelmed by the sheer number of environmental and social initiatives being foisted on them by activists, stockholders, customers and senior managers."[22]

Numerous NGO campaigns concern particular mining operations across the globe from Angola to West Papua. Many focus on the negative social and environmental impacts of mining that destroy local livelihoods and most seek redress for affected communities. Others aim to set benchmarks that will promote sustainable development more generally or protect vulnerable ecosystems. What the campaigns have in common is the desire to reform the mining industry, making its operations more transparent and eliminating or modifying its most harmful practices. Many, if not the majority, of NGOs accept that despite its negative impacts, mining will continue to represent an important source of revenue for developing countries.

[22] *The Greenbusiness Letter*, March 2001

**What is the Relevance of the OECD Guidelines in the Current Context?**

In the face of so many competing initiatives it is appropriate to consider the contribution the OECD Guidelines can make. Many NGOs remain sceptical about the value of the Guidelines and view them as recommending "minimal social and behavioural practices for multinational enterprises."[23] As the NGO Statement to the June 2002 Meeting of the OECD Council at Ministerial Level explained, so far the response has been "guarded", but interest in the revised guidelines is growing.[24] Industry may feel that the Guidelines are too generic to be of much practical value. As the OECD study made clear, however, the effectiveness of codes and other voluntary initiatives depend on the effectiveness of the broader system of private and public governance from which they emerge. Private initiatives cannot work well if other parts of the system work poorly.[25] The value of the Guidelines ultimately will be judged by the seriousness with which governments handle the implementation procedures. The Guidelines cannot operate in isolation from the other, multiple initiatives that have arisen as a response to the public's increasing anxiety about the power and conduct of multinational companies in the globalised economy. As interest in the implementation procedures grows, so governments will have to improve the resources available to the national contact points (NCPs).

Indeed, the NCPs play a critical role. Their decisions in particular cases will need to be informed by sector-specific standards, industry benchmarks, global reporting requirements and other international human rights and environmental norms. It is only by referring to benchmark standards that the NCPs will be able to define acceptable and unacceptable actions. As part of the OECD Declaration on International Investment and Multinational Enterprises, adhering governments "jointly recommend to multinational enterprises operating in or from their territories in the observance of the Guidelines…having regard to the considerations and understandings that are set out in the preface and are an integral part of them." Reference is made in the Preface to the Guidelines to the international legal and policy framework in which business is conducted. The Universal Declaration of Human Rights is cited as part of this framework and its relevancy to corporate conduct noted. As an integral part of the International Bill of Human Rights, the Universal Declaration is implemented via the two corresponding International Covenants on Civil and Political and Economic and Social and Cultural Rights.[26] (See Appendix 3 for an analysis of the obligations on companies arising from the Universal Declaration of Human Rights.)

***Supranational Applicability***[27]

A key question is whether a company should apply standards that go beyond national requirements in the conduct of its business. Three observations are pertinent. They relate to the supplementary nature of the Guidelines, the prior influence of companies in framing legislation and the recognition within firms of corporate-wide codes of conduct. First, the Guidelines recognise that "[e]very State has the right to prescribe the conditions under which multinational enterprises operate within its national jurisdiction." This right is qualified as "subject to international law and to the international agreements to which it has subscribed." The application of overarching obligations is explicitly recognised. At the same time, "[t]he entities of a multinational enterprise located in various countries are subject to the laws of these countries." However, the perception that companies need only comply with national laws is based on a partial interpretation of the Guidelines. While they are not a substitute for national law

[23] Global Mining Campaign, 2001: *A Survey of the Mining Landscape: Situational Analysis*.
[24] NGO Statement for consultation on the OECD Guidelines for Multinational Enterprises, 17 June 2001.
[25] OECD, op. cit.
[26] RAID, 2001: Applicability of the OECD Guidelines for Multinational Enterprises, Submission to the UK National Contact Point, September 2001.
[27] This section draws on material presented in the document cited as footnote 25.

and practice, the recommendations within the Guidelines are perceived in supplementary terms and the firm expectation is that companies will adhere to them.

Adherence to the Guidelines may necessitate that a company complies with standards over and above those required by the host country's domestic legislation. It does not mean that the company, by doing so, is in direct conflict with or contravenes national law. This is precisely what is meant when the Guidelines are viewed as a supplement to national law and practice. After all, their raison d'être is the need for standards applicable across national boundaries to mirror the organization and operation of multinationals.

Second, to accept that companies are automatically absolved of responsibility for their conduct as long as they are in compliance with host country domestic legislation and the terms of development agreements is misplaced because it ignores the question of prior influence. National laws in many developing countries are framed according to the stipulations of the private sector, together with the World Bank, IMF and other advocates of deregulation. Furthermore, firm or industry-level agreements reflect the strong negotiating position of companies in their individual or collective capacity. The original Guidelines recognise the influence of private companies on Government policy and the regulatory environment and caution enterprises to take into account, *inter ali*a, economic, social, and environmental policy objectives. There are instances when the terms first agreed in negotiations are subsequently reflected in law. Under the revised Guidelines there is explicit recognition of the principle that multinational enterprises should refrain from seeking or accepting exemptions not contemplated in the statutory or regulatory framework.

***Typology of Cases Presented to NCPs***

An examination of mining industry-related problems that have arisen since the adoption of the revised Guidelines (though not all have been presented to NCPs as specific instances) reveals a wide range of concerns:

- failure to disclose material information to local communities;
- forced evictions;
- air pollution and/or contamination of water resources;
- occupational health and safety;
- abuse of market power;
- corrupt dealing;
- obstruction of inquires into serious human rights abuses.

**Initial Experience with the Implementation Procedures**

Very little practical experience with the implementation procedures of the revised Guidelines exists to date. The overall impression of the work of many NCPs is positive. They have made genuine attempts to disseminate the Guidelines and improve their outreach. NCPs approached about specific instances have shown a willingness to advise and to assist in problem solving. Mining cases will often occur outside the OECD area and the limited information gathering capacity of most NCPs may prove to be a problem. This is not insurmountable. For example, the trade missions of OECD countries or the EC delegation in such countries could play an active role in promoting the Guidelines and monitoring their implementation. There is a concern that the position of the NCPs, who are public officials often based in trade ministries, may make them vulnerable to political or commercial pressure. The credibility of the implementation procedures would be strengthened if the NCP were an

independent watchdog. This issue will certainly be something for any future review to consider. NGOs have been alarmed by the attempts of some NCPs to raise the barriers for admissibility by, for example, insisting that NGOs have full power of attorney before they can raise a case. Others are requiring that the cases be filed by NGOs based in the country where the problem has occurred. There are a number of undesirable outcomes from the creeping imposition of more complicated procedural rules. It may slow the process down and delay reconciliation between the parties, for example. While a case should have the support of local NGOs, it may not always be appropriate to make it a rule that they must present the case to the NCP. In countries with governance problems and violation of human rights routine, such a requirement could expose complainants to risks to their personal security or other forms of harassment. It is not unusual in some countries for local NGOs to be branded unpatriotic if they file complaints. Finally, the public will only start to place greater faith in the process if NCPs can be strengthened. NCPs have to be able to demonstrate their impartiality in order to convince all sides that they act as "honest brokers".

***Companies' Responses***

Companies, including the large multinationals, still appear unfamiliar with the Guidelines despite the dissemination efforts of the Business and Industry Advisory Committee to the OECD (BIAC). Although BIAC participated fully in the revision of the Guidelines, there is a sense that not all sectors of business have embraced the new text and procedures.

BIAC appears to understand the term "voluntary", which is used in relation to the Guidelines, as meaning "merely optional", whereas for governments, the trade unions and NGOs voluntary means "a firm expectation of company behaviour" but not legally binding. Some sections of business are better able to adapt to the new corporate social agenda. Of relevance to the mining sector is the fact that intermediaries like investment banks perceive that the Guidelines are not addressed to them. BIAC and the NCPs in particular should do more to engage them. Companies need to absorb the potential of the Guidelines as endowing "a seal of approval" which increasingly will be seen as an essential element of international financial competitiveness. Overall, mining companies who have had the Guidelines drawn to their attention seem to take them very seriously, possibly because they are reinforced by the obligatory implementation procedures. Some companies view with apprehension the prospect of NCP involvement and have engaged in a series of manoeuvres to prevent a case going forward. This can create a schizophrenic relationship whereby some companies appear to be entering into negotiations only as a means of staving off the involvement of the NCP. There have also been concerns that companies have even resorted to threats and intimidation of local NGOs. More subtle pressures have also been reported.

Companies' exaggerated fears of reputational damage from engagement with the NCPs overrides the potential benefits that the procedures might offer, particularly regarding facilitation and good offices inherent in the procedural guidance. Paradoxically, this refusal to engage is most likely to provoke a media campaign by NGOs. Ironically, it is the companies that are tending to treat the procedure as a quasi-judicial process, undermining its potential as a simple, fast track dispute-resolution mechanism. If business continues on this path, it may well have the effect of eroding the value of the Guidelines and make regulation more likely.

**Box 5: BIAC's Assessment of the Guidelines and Implementation Procedures**

The official and clear aim of the Guidelines is to improve the climate for foreign direct investment and promote the positive contribution that multinational enterprises can make. For their part, OECD governments undertake not to discriminate against multinationals, to avoid imposing conflicting requirements on them, and to co-operate on official incentives and disincentives to international investors. …

Implementation must be carried out in good faith by all parties. Otherwise, there is a serious risk that the main aim - namely, to improve the climate for foreign direct investment - may fail….

BIAC is extremely concerned regarding the Dutch Government's proposal to link official "acceptance" of the MNE Guidelines by individual companies to the availability of government subsidies and export credit coverage.

Source: BIAC Statement in OECD, 2001: *OECD Annual Report 2001*, Paris.

***Initial Outcomes***

It is too early to evaluate fully the effects of the implementation procedures. There is room for cautious optimism, however. The intervention of the NCP in one case clearly has brought about a measure of success. The threat of forcible eviction of squatters on mine land by the army was withdrawn and negotiations, which had broken down between the company and local community leaders, re-started. The company has begun to upgrade its staff dealing with social issues.

A preliminary, possibly premature, impression from the relatively few recent experiences suggests, unsurprisingly, that the cases that may be most amenable to NCP intervention concern familiar problem areas: evictions, environmental hazards, labour and occupational safety. This is not to say that there have been uniformly successful outcomes in all these areas, and not all pending cases have yet been resolved. There is also some doubt about the ability of the NCPs to tackle controversial issues: for example, an attempt to raise a specific instance about bribery did not proceed.

The potential of some of the unique provisions in the Guidelines has yet to be tested. For example, the Chapter IX provision exhorting companies to conduct their activities in a competitive manner offers NCPs the possibility to scrutinise the way companies strike deals. In particular, to compare and contrast the terms and conditions offered to large foreign and small, domestic businesses. It remains to be seen whether NCPs would be willing to take up this opportunity.

***Advantages of the Implementation Procedure***

Mining is a complex activity. The NCPs offer the prospect of a genuinely independent facilitation and reconciliation service. By involving independent experts, the NCPs could help resolve misunderstandings between the parties about some of the more technical aspects of mining relating to environmental and financial issues. The NCPs could instigate phased confidence-building measures, which could lay down the foundation for a more constructive and durable relationship between the local communities, the workforce, host governments and NGOs. A relationship built on mutual trust and respect will be essential if a climate conducive to investment is to be achieved.

**Recommendations**

To conclude the paper, several recommendations are made:

- NGOs should have regular and systemic involvement in the work of the OECD's Committee on Investment and Multinational Enterprises (CIME), including timely access to documentation;
- the performance of NCPs should be benchmarked in future annual meetings at the CIME level. This would help promote best practice through peer review;
- the Guidelines should be reviewed in 2003; and
- confidence-building initiatives with companies need to be undertaken to reduce their fears about the Guideline's procedures.

**Appendix 1: Mineral Dependent States and Human Development Index (HDI) Rankings, 1995**

| State | Minerals Dependence | HDI Rank |
|---|---|---|
| 1. Botswana | 35.1 | 122 |
| 2. Sierra Leone* | 28.9 | 174 |
| 3. Zambia* | 26.1 | 153 |
| 4. United Arab Emirates | 18.2 | 45 |
| 5. Mauritania* | 18.4 | 147 |
| 6. Bahrain | 16.4 | 41 |
| 7. Papua New Guinea | 14.1 | 133 |
| 8. Liberia* | 12.5 | 127 |
| 9. Niger* | 12.2 | 173 |
| 10. Chile | 11.9 | 38 |
| 11. Guinea* | 11.8 | 162 |
| 12. DRC* | 7 | 152 |
| 13. Jordan | 6.3 | 92 |
| 14. Bolivia* | 5.8 | 114 |
| 15. Togo* | 5.1 | 145 |
| 16. CAR* | 4.8 | 166 |
| 17. Peru | 4.7 | 80 |
| 18. Ghana* | 4.6 | 129 |
| 19. Bulgaria | 4 | 60 |
| 20. Angola* | 3.6 | 160 |
| 21. Zimbabwe* | 3.4 | 130 |
| 22. Iceland | 3.1 | 5 |
| 23. Kazakhstan | 2.6 | 73 |
| 24. Norway | 2.5 | 2 |
| 25. Australia | 2.4 | 4 |

* Highly Indebted Poor Country

Mineral dependence is the ratio of non-fuel mineral exports to GDP.

HDI is a state's rating in the UNDPs Human Development Index, which ranks states according to a combined measure of income, health and education. Rankings range from 1 (highest level of human development) to 174 (lowest).

Source: Oxfam America.

**Appendix 2: Relevance of OECD Guidelines to the Mining Sector - Typology of Issues Raised**

| Status | Company | Country | Issue | Relevant Section of the OECD Guidelines |
|---|---|---|---|---|
| not filed | | | Eviction of artisanal miners carried out despite court order restraining action.<br>Alleged complicity in destruction of evidence of deaths of miners. | **II, 2** Respect for human rights. |
| not filed | | | Pollution of water resources in violation of WHO standards | **V, 2b** Consult with directly affected communities.<br>**V 5** Maintain contingency mitigation plans. |
| pending | | | Excessive tax concessions later incorporated into law.<br>Exemptions from liabilities for environmental pollution.<br>Refusal to deal. | **II, 5** Refrain from seeking exemptions not contemplated in statutory framework.<br>**I X** Behave in competitive manner.<br>**X** Taxation: contribute to public finances. |
| filed | | | Threat of violent forced evictions and refusal to negotiate with communities. | **II 2** Respect for human rights.<br>**V 2b** Consult with directly affected communities. |
| filed | | | Occupational health and safety. | **IV 4b** Ensure occupational health and safety in operations. |
| not filed | | | Neglect of wider social provision in design of mine privatisation. | **II 1** Contribute to economic, social and environmental progress. |

## Appendix 3: Submission from the Business Group of Amnesty International (UK) on the Commission of the European Communities' Green Paper: "Promoting a European Framework for Corporate Social Responsibility"

The Universal Declaration of Human Rights (UDHR) calls on "every individual and every organ of society" to play their part in securing the observance of the rights contained within it. In this context, companies have a moral and social obligation to respect the universal rights enshrined in the UDHR. When looking at the specific responsibilities of companies, the following are specific areas where companies have responsibilities:

- Discrimination: Individuals are entitled to equal treatment and companies must not distinguish between individuals on the basis of race, caste, national origin, disability, colour, gender, sexual orientation, language, religion, political or other opinion, national or social origin, property, birth or other status. Companies must ensure that their activities do not infringe these rights.
- Life and liberty: Every individual has the right to life, liberty and security of the person and companies must ensure that their activities do not infringe any of these rights in relation to any individual or group of individuals.
- Slavery: No individual should be held in slavery or servitude of any kind and companies must ensure that their activities do not infringe this right.
- Torture: No individual should be subjected to torture, physical mistreatment or to cruel, inhuman or degrading treatment or punishment. Companies must ensure that their activities do not infringe this fundamental right.
- Security of person: No individual should be subjected to arbitrary arrest, detention or exile. Companies must ensure that their activities do not infringe this fundamental right
- Privacy: All individuals are entitled to protection against arbitrary and unjustified interference with their privacy and the privacy of their families. Companies must ensure that their activities do not infringe this fundamental right.
- Property: All individuals have the right to own property and access common resources, either alone or in association with others and companies must ensure that their activities do not infringe this fundamental right. Any deprivation of property and access to common resources for the purposes of the company's business must only be carried out by a government authority, be on just terms (including the payment of prompt, adequate and effective compensation) and be for the benefit of the public. In the specific context of local communities, this requires that companies not only respect the fundamental rights of these communities but also respect the principles of self-determination, including economic self-determination.
- Religion: All individuals have the right to freedom of religion (including the right of assembly and the right to maintain practices of worship and observance), where that religion does not impinge on the fundamental human rights of other individuals. Companies must ensure that their activities do not infringe this fundamental right or condone or promote infringement by any other person.
- Freedom of opinion: All individuals have the right to freely hold ideas and opinions, where those ideas and opinions do not impinge on the fundamental human rights of other individuals, and to hold those ideas or opinions without interference from the state or other individuals. Companies must not limit the ability of individuals to hold ideas or opinions, or, where compatible with the normal where those ideas and opinions do not impinge on the fundamental human rights of other individuals, and to hold those ideas or opinions without interference from the state or other individuals. Companies must not limit the ability of

individuals to hold ideas or opinions, or, where compatible with the normal operation of their business, to freely express such ideas or opinions.

- Freedom of association: All individuals have the right of association with other individuals and to bargain collectively. Companies must ensure that their activities do not infringe this fundamental right.
- Labour standards: All employees are entitled to a workplace that is safe, healthy and clean and to a fair and just wage in the context of the social environment within which they are working. Companies must not require any employee to work under conditions that do not meet the standards set out in the Conventions of the International Labour Organisation (ILO) and, furthermore, companies must comply with the requirements of the ILO's Convention on Child Labour and the UN Convention on the Rights of the Child.
- Bribery: Companies must comply with the OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions.

In addition to these civil and political rights, the human rights responsibilities of companies are increasingly being recognised as including:

- Respect for national sovereignty: Companies should recognise and respect the national laws, regulations, values, development objectives and the social, economic and cultural policies of the countries in which they operate in so far as these do not conflict with international human rights standards.
- Fair and adequate compensation: Companies should provide workers with remuneration that ensures a lifestyle worthy of human existence for workers and for their families.
- Respect for local communities: Companies should respect the rights to health, adequate food and adequate housing and shall refrain from actions that obstruct the realisation of these fundamental rights. Companies should also respect other economic, social and cultural rights such as the right to primary education, rest and leisure and participation in the cultural life of the community and companies should refrain from actions that obstruct the realisation of these rights.

## Appendix 4: Summary of Key Initiatives of Relevance to the Mining Sector

### *Global Compact and the Global Reporting Initiative*

The United Nations is promoting the Global Compact by encouraging companies to advance universal values in business operations around the world. The compact calls on business leaders to adopt and apply nine principles derived from the Universal Declaration of Human Rights, the ILO's Fundamental Principles of Rights at Work and the Rio Principles on Environment and Development.

The Global Reporting Initiative (GRI), which is an attempt to create a common disclosure framework for economic, environmental and social reporting, seeks to elevate sustainability reporting practices worldwide to a level equivalent to financial reporting. The GRI claims that its Sustainability Reporting Guidelines provide "a critical ingredient to the Global Compact – accountability".

### *Kimberley Process*

Led by South Africa, the process involves African governments that mine in conjunction with De Beers. In response to the highly successful NGO campaign on "conflict diamonds", the Kimberley group has proposed a global diamond regime whereby all diamonds would receive certificates of origin from they time they are mined, so that dealers will know conflict diamonds by the absence of official documentation. Agreement has been reached on the details of export and re-export certificates on minimum standards for controls in mining and trading countries, on statistics and on a process for including all countries as participants in the process. NGOs are concerned, however, that the final document has diluted the crucial issue of verification and monitoring by making review missions "voluntary". The agreement was submitted to the UN General Assembly for consideration in March 2002. NGOs are pressing for "the full force of law to be brought to bear on those individuals and countries that are perpetuating conflict through senseless acts of terrorism funded by diamonds".[28]

### *Voluntary Principles on Security and Human Rights for Mining and Energy Companies*

These were developed following discussions among the US Department of State, the UK Foreign and Commonwealth Office, transnational oil and mining companies, human rights organisations, unions and business organisations. Companies involved included BP, Royal Dutch/Shell, Chevron, Texaco, Enron, Rio Tinto Zinc, Freeport McMoRan.

### *Key findings from the OECD's Review of Voluntary Codes of Conduct*

The OECD in a recent review of business approaches to corporate responsibility notes that voluntary initiatives have "a crucial, but necessarily only partial role", to play in the effective control of business conduct. Voluntary codes cover a broad range of issues and address each of the economic, social and environmental pillars of the sustainable development agenda. The codes address issues such as environmental management, human rights, labour standards, anti-corruption, consumer protection and information disclosure, competition and science and technology. The OECD found in its inventory of 246 codes that the two most common issues addressed were labour standards and environmental stewardship. The greatest divergence was in the way companies treat bribery. Few codes discussed remuneration of agents. Some dealt only with bribery of public officials, others only with private-to-private bribery. Almost none dealt with both forms of bribery.

[28] *Other Facets 4*, December 2001.

***NGO Initiatives***

***(i) International Right to Know Campaign***

This uses the model of the US Right-to-know laws and would require US companies to report on the key environmental, labour and human rights practices of their companies overseas.

***(ii) World Heritage Sites Protection – IUCN***

This encourages governments to prohibit mining in most IUCN designated protected areas, such as those designated for wilderness protection, conservation of specific natural features, habitat and species management.

***(iii) Global Mining Campaign***

This attempts to co-ordinate civil society activists, NGOs and affected communities. Its aim is to enhance mining company accountability to communities and their performance in the areas of environmental protection, human rights, economic and social development and cultural rights and integrity.

***(iv) Socially Responsible Investment Initiatives***

In the UK, pension fund trustees must now state the extent to which environmental, ethical and social matters are considered in their investment decisions.

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