MMSD

Mining, Minerals and Sustainable Development

October 2001 | No. 61

An Exploratory Paper on Economic and Financial Mechanisms to Build Synergies and Reduce Conflicts Between Mining and Biodiversity

Frank Vorhies & Nick Bertrand
IUCN-The World Conservation Union
Switzerland

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Mining, Minerals and Sustainable Development is a project of the International Institute for Environment and Development (IIED). The project was made possible by the support of the World Business Council for Sustainable Development (WBCSD). IIED is a company limited by guarantee and incorporated in England. Reg. No. 2188452. VAT Reg. No. GB 440 4948 50. Registered Charity No. 800066

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1 Introduction

The purpose of this paper is to explore economic and financial mechanisms that might help build synergies and reduce conflicts between mining and biodiversity. Or, to paraphrase the Convention on Biological Diversity, how can governments, the industry and, indeed, civil society adopt economically and socially sound measures that act as incentives for mining operations to conserve biodiversity?

The Terms of Reference for this paper highlight four topics:

- creating an enabling environment,
- innovative mechanisms,
- what needs to be done to allow this to take place, and
- creating a "level playing field" across the industry.

The paper first tackles the challenge of creating a level playing field across the industry. This section leads directly into the need for creating an enabling environment. From this basis, we explore strategic categories of innovative mechanisms. The paper concludes with a proposed programme of work to enable the suggestions proposed here to be developed and implemented.

2 Creating a Level Playing Field – Conceptually and Politically

Before exploring what economic and financial mechanisms might influence biodiversity decision-making within the mining industry, we need to be clear on what we mean by biodiversity. We also need to have a shared vision on the conceptual framework for a biodiversity management strategy or plan. After all, it is this strategy or plan which will require financing.

2.1 What do we Mean by Biodiversity?

Agreeing on the meaning of biodiversity is not a trivial matter. Even among conservation NGOs, there is not always a shared understanding of the meaning of biodiversity. For example, several large NGOs, such as WWF and Conservation International, focus their attention on "high biodiversity" eco-regions or "conservation hot spots". This focus often seems to equate biological diversity with species diversity or at least with bio-regions exhibiting high levels of endemism.

IUCN, on the other hand, has adopted a different understanding of biodiversity as reflected in its mission:

> to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable.

The IUCN mission clearly links conservation with the concepts of sustainability and equity. Though it predates the Convention on Biological Diversity (CBD), which was launched at Rio in 1992, the IUCN mission in many ways is an early expression of the "triple bottom line" vision of biodiversity articulated in the Convention.

Given its global acceptance by over 180 countries (with the notable exception of the United States), the Convention on Biological Diversity provides the mining industry with both a conceptual and a political level playing field for exploring synergies and reducing conflicts between mining and biodiversity. The Convention not only enables mining companies to develop coherent biodiversity strategies and plans for mining operations across the world, but it also provides a politically-sound basis for engaging in constructive dialogue and partnerships with the biodiversity community. This includes partnerships with conservation NGOs who may have somewhat different perspectives of biodiversity and different conservation agendas.

Furthermore, the Convention is a key political instrument of the global programme for sustainable development. After all, it is a product of the Rio Summit in 1992. In an April 2001 report on the status of biodiversity by the Secretary General of the United Nations, the Convention's political importance was reaffirmed. In his report, the Secretary General stated that:

> The Convention on Biological Diversity has emerged as the principal instrument relevant to the implementation and achievement of the objectives of sustainable conservation and use of biological resources as stipulated in chapter 15 entitled Conservation of biological diversity of Agenda 21. With its threefold objectives, namely, conservation, sustainable use, and the fair and equitable sharing of benefits derived there from, the Convention has provided a comprehensive and almost universal framework and process for synergy and collaboration among biodiversity-related multilateral environmental agreements (MEAs) and action plans.
>
> (See http://www.un.org/esa/sustdev/biod.htm)

In short, the Convention on Biological Diversity provides a level conceptual and political playing field for the mining industry. Mining companies committed to sustainable development should consider "ratifying" the Convention.

2.2 *Key Biodiversity Concepts*

Once again, before we can review the categories of economic and financial mechanisms, we need to agree on what we are talking about. A good place to start is Article 2 on the Use of Terms of the Convention on Biological Diversity. This article provides definitions – which have been officially accepted by over 180 countries – of key biodiversity concepts which are relevant to the mining industry, including the following:

> **Biological diversity** means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

Biological resources includes genetic resources, organisms or parts thereof, populations, or any other biotic component of ecosystems with actual or potential use or value for humanity.

Ecosystem means a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.

Genetic resources means genetic material of actual or potential value.

Habitat means the place or type of site where an organism or population naturally occurs.

Protected area means a geographically defined area which is designated or regulated and managed to achieve specific conservation objectives.

Sustainable use means the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations.

(See http://www.biodiv.org/convention/articles.asp.)

The mining industry in its "ratification" of the Convention would also adopt these politically-accepted terms and their meanings.

2.3 The Components of Biodiversity

Regarding biodiversity – or biological diversity to be precise – the Convention refers to the components of biodiversity. For example, the Preamble calls for "conservation of biological diversity and sustainable use of its components." Subsequently, the Parties to the Convention have adopted the notion of components and have generally focused on three levels:

CBD
Components of Biodiversity
Ecosystems
Species
Genes

The components of biodiversity provide us with a "politically-acceptable" scientific concept essentially focused on the variety of life on Earth at the ecosystem, species and genetic levels of nature. Hence, these components provide the key dimensions of a shared understanding of biodiversity.

2.4 Biodiversity's Triple Bottom Line

Biodiversity, however, is much more than a politically-acceptable scientific concept. It also embodies what the Montreal-based Convention Secretariat calls "a new philosophy" and "a call for action." In their introductory guide, it explains that:

> The Convention … recognizes – for the first time – that the conservation of biological diversity is 'a common concern of humankind' and is an integral part of the development process. The agreement covers all ecosystems, species, and genetic resources. It links traditional conservation efforts to the economic goal of using biological resources sustainably. It sets principles for the fair and equitable sharing of the benefits arising from the use of genetic resources, notably those destined for commercial use.
>
> (See http://www.biodiv.org/doc/publications/guide.asp)

A distinguishing feature of the Convention is that it clearly links conservation, sustainable use, and benefit sharing. This is done in Article 1 on Objectives which – and it is worth noting – presents the three objectives in one sentence:

> *The* objectives of this Convention, to be pursued in accordance with its relevant provisions, are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources …

CBD
Biodiversity
conservation of biodiversity
sustainable use of biological resources
fair & equitable benefit sharing

In so doing, the Convention fundamentally addresses the three dimensions of sustainable development enshrined in the Rio Declaration and Agenda 21 of the 1992 Earth Summit – economic sustainability, social sustainability and environmental sustainability. In fact, biodiversity, including explicit reference to the Convention, is covered in Chapter 15 of Agenda 21.

These three dimensions were reaffirmed in the December 2000 decision of the UN General Assembly to hold a 10-year review called the World Summit on Sustainable Development in 2002. The decision states that the UN General Assembly:

> Decides that the Summit, including its preparatory process, should ensure a balance between economic development, social development and environmental protection as these are interdependent and mutually reinforcing components of sustainable development …

(See http://www.johannesburgsummit.org/.)

United Nations
Sustainable Development
environmental protection
economic development
social development

The three dimensions of sustainability also make up the increasingly accepted "triple bottom line" concept of ethical business and ethical investing. As a prominent ethical business group, SustainAbility, explains:

> The triple bottom line (TBL) focuses corporations not just on the economic value they add, but also on the environmental and social value they add – and destroy. At its narrowest, the term 'triple bottom line' is used as a framework for measuring and reporting corporate performance against economic, social and environmental parameters.
>
> At its broadest, the term is used to capture the whole set of values, issues and processes that companies must address in order to minimize any harm resulting from their activities and to create economic, social and environmental value.
>
> (See http://www.sustainability.com/home.asp.)

SustainAbility
Triple Bottom Line
environmental value
economic value
social value

Finally, the three dimensions are also integrated into the World Business Council for Sustainable Development's description of itself:

> The World Business Council for Sustainable Development (WBCSD) is a coalition of 150 international companies united by a shared commitment to sustainable development. The

organization pursues this goal via the three pillars of economic growth, environmental protection and social equity.

(See http://www.wbcsd.org/.)

WBCSD
Sustainable Business
environmental protection
economic growth
social equity

Hence the objectives of the Convention on Biological Diversity are fully consistent with the similar concepts of sustainable development exposed by both the United Nations and the private sector. In short, biodiversity's triple bottom line links the conservation of biodiversity to the economic and social development objectives of both governments and business. Hence the Convention provides the level playing field – both conceptually and politically – on which the mining industry can build synergies and reduce conflicts with biodiversity.

CBD	United Nations	SustainAbility	WBCSD
Biodiversity	**Sustainable Development**	**Triple Bottom Line**	**Sustainable Business**
conservation of biodiversity	environmental protection	environmental value	environmental protection
sustainable use of biological resources	economic development	economic value	Economic growth
fair & equitable benefit sharing	social development	social value	Social equity

2.5 The biodiversity management matrix

Biodiversity management strategies and plans – including economic and financial mechanisms – for the mining sector should incorporate both (a) the components of biodiversity and (b) biodiversity's triple bottom line. Hence the logic of the Convention presents us with a biodiversity management matrix:

The Biodiversity Management Matrix

	ecosystems	species	genes
conservation			
sustainable use			
benefit sharing			

For each bottom line of biodiversity (on the left in the matrix), we need to manage the impacts of business decisions on each of the three components of biodiversity. Of course, for some industries particular components will be more important than others. For the mining industry, the impacts on ecosystems and the related concept of habitats (see the Convention definitions above) are likely to deserve the most attention.

The objective of this paper is not to develop the Biodiversity Management Matrix into a Biodiversity Management System for the mining sector. Nevertheless, this matrix and the thinking behind is important when considering the types of financial and economic mechanisms which may be appropriate to address the linkages between mining and biodiversity. The following outline provides some insights into the types of issues, which would be addressed using this approach:

Elements of a Biodiversity Management Tool for Business

1	**Brief Description of the Business Project**
1.1	Overview of the Commercial Project
1.2	Overview of the Biodiversity Context
2	**Biodiversity Strategy and Action Plans**
2.1	National Biodiversity Strategy and Action Plan (NBSAP)
2.2	Local Biodiversity Plans and Policies
3	**Conservation of Biodiversity**
3.1	Ecosystems/Landscapes
3.2	Protected Areas

3.3	Endangered/Threatened Species
3.4	Alien Invasive Species
3.5	Genetic Resources
4	**Sustainable Use of Biological Resources**
4.1	Sustainability of the Business Project
4.2	Sustainability of Outputs (Product/Services)
4.2	Sustainability of Inputs (Sustainable Supply Chain)
5	**Equitable Benefit Sharing**
5.1	Investors
5.2	Customers
5.3	Employees
5.4	Suppliers
5.5	Neighbours (Indigenous and Local Communities)
5.6	Authorities
5.7	Other Project Stakeholders
6	**Project Sponsors**
6.1	Details of Project Sponsors
6.2	Project Management
6.3	Project Partners
7	**The Market**
7.1	Market Demand
7.2	Marketing/Distribution Channels
7.3	Competitors
7.4	Market Potential
8	**Government**
8.1	Government Regulations and Controls

8.2	Government Incentives and Support
8.3	Foreign Exchange Controls
9	**Project Financing**
10	**Timetable**

This outline provides elements of an integrated biodiversity business plan – including sections on biodiversity's triple bottom line and sections on the business operations and its financial requirements. Developing such a plan for a mining operation would make it easier to identify precise economic and financial mechanisms to ensure that the biodiversity factors are addressed.

3 Creating an Enabling Environment

As proposed above, a key element of creating an enabling environment would be for the mining industry to "ratify" the Convention on Biological Diversity. In the context of the Convention, we have a very practical way to ensure that mining addresses biodiversity – require that all mining operations take place within protected areas.

If we expect a mining company to develop a biodiversity management strategy and plan based on the matrix and outline presented in the previous section, then a practical way to encourage its implementation is by making the mining operation a designated protected area. Recall the official definition of a protected area in the Convention:

> **Protected area** means a geographically defined area which is designated or regulated and managed to achieve specific conservation objectives.

In the case of mining, the geographically defined area would include at the very least the mining site. In most cases, however, it should probably also include a sufficient part of the surrounding landscape to ensure ecosystem integrity during and after the mining operations. The specific conservation objective of this protected area would be to implement a triple bottom line biodiversity management plan in the context of a mining operation.

Proposing that mining must take place only in a protected area framework, of course, does not imply that mining could or should take place in any category of protected area. At the October 2000 Amman Congress, IUCN members (again, with the notable exception of the United States) resolved that mining should not be allowed in IUCN Protected Areas Management Categories I to IV. Importantly, however, in the same resolution, the IUCN members also resolved that:

> in categories V and VI, exploration and localised extraction would be accepted only where the nature and extent of the proposed activities of the mining project indicates the compatibility of the project activities with the objectives of the protected areas …
>
> (See http://iucn.org/2000/about/content/resolutions.html.)

This particular resolution is highly insightful in its realisation that these two categories of protected areas – V and VI – can be used as the enabling environment for a mining operation to address biodiversity. In the context of designing appropriate economic and financial mechanisms, we should require that mining operations take place only in Category V or VI protected areas which include a specific conservation objective that the mining operation integrates biodiversity's triple bottom line into its business plan.

4 Strategic Categories of Innovative Mechanisms

Economic and financial mechanisms for mining and biodiversity should influence key decision-making points for setting up and operating a mining operation. Three of the most critical decision-making points are (a) access to the mining area, (b) access to the capital markets, and (c) access to customers. For each of these decision-making points, economic and financial mechanisms can be designed to integrate biodiversity's triple bottom line into the decision-making process and subsequent business plans and management strategies.

4.1 Access to the Mining Area

Regarding access to the mining area, as discussed in the previous section, access should be made contingent on the mining operation being integrated into a protected area and that this protected area have a triple bottom line biodiversity management strategy and plan.

Within the context of such a "multiuse protected area," mechanisms will need to be designed to finance the incremental costs of integrating biodiversity management into the mining operation. Essentially, money has to come from somewhere to cover these costs. The precise mechanisms to generate this money will depend on (a) the proposed management structure of the protected area; and, (b) the financial policies of the government.

Assume that the mining company is assigned sustainable use rights for the protected area and also that this protected area covers a sufficient portion of the landscape to ensure ecosystem and habitat integrity during and after the mining operation. These use rights should include the right to develop a portfolio of sustainable land use activities which can generate additional revenues for biodiversity management. Activities might include ecotourism, organic agriculture or medicinal plant cultivation which the mining company could subcontract to specialists.

A portion of the revenues from the various sustainable land use activities, including mining, could be collected to cover the costs of biodiversity management including, of course, the costs of rehabilitation after the mining operation closes. The most direct way to collect this revenue would be for government to levy an access fee on the mining company in exchange for access to the sustainable use rights of the protected area.

Such a biodiversity management fee or levy, however, assumes that biodiversity management will be carried out by the government, e.g. a protected area authority, or will be subcontracted by the government to a non-governmental biodiversity management agency.

Another alternative, of course, is to assign both sustainable use rights and biodiversity management responsibilities to the mining company. In this case, the mining company would be given a license to operate in the protected area only after a thorough biodiversity and financial due diligence process convinced the government authorities that the mining company is willing, able, and committed to taking on the conversation objectives of the protected area.

In either case – whether the sustainable use activities generate sufficient funds to cover the costs of an independent biodiversity management programme or the mining companies takes on the responsibility directly for this programme – there must be enough net revenue from the mining and other activities to the make the multiuse protected area a financially viable proposition.

If the business plan does not show sufficient net revenue, however, but the proposed multiuse protected area is seen as a key instrument for sustainable development, then the government could explore fiscal mechanisms for increasing the net revenues in the business plan. Specifically, it could reduce corporate income taxes and other significant taxes such as duties on imported equipment. In so doing, the government would essentially covert a tax on company income into earmarked payments for biodiversity management.

Finance ministries, however, are often reluctant to negotiate individualised tax requirements for specific industries, companies or projects. If this is the case, an external source of grant financing may be required. One option would be for the mining company to take on the biodiversity responsibility for the protected area in partnership with a conservation NGO and the NGO would be tasked with raising donations to cover the incremental costs of biodiversity management. For developing countries who are Parties to the Convention on Biological Diversity, another option would be to apply to the Global Environment Facility – the financial mechanism of the Convention – for funds to cover the incremental costs.

Clearly, a key category for economic and financial mechanisms is access to the mining area. And, as this section has indicated, situating the mining area in a multiuse protected area – Category V or VI – provides an appropriate setting for identifying the appropriate mechanisms tied to access rights.

4.2 Access to Capital Markets

Mining operations tend to be capital-intensive both in terms of physical capital and financial capital. There are high initial costs to set up a mining operation, while revenues flow over the life of the operation which is usually for many years. Hence mining operations require significant injections of working capital at the start-up phase.

Mechanisms to increase the net revenues available for biodiversity management can also be developed within the capital markets. Both regulatory and voluntary approaches can influence the capital markets for the mining sector.

By offering fiscal incentives – such as tax breaks on interest, dividends or capital gains – governments can encourage the channelling of capital towards sustainable mining

operations. Such tax breaks would be attached to investments in officially approved "sustainable investment funds." This approach, of course, would require a sustainability due diligence process based on clearly defined, transparent and verifiable criteria. The Global Reporting Initiative may be able to play a role here.

The Dutch market for sustainable investment funds or so-called "green funds" has been stimulated over the last few years by the Government of the Netherlands. Tax subsidies are granted to funds managed by private banks which are invested in government-approved green business projects. A case could be made to the Dutch and other governments to include sustainable mining projects in such schemes.

Current practices in other sectors could also inspire voluntary market-based approaches. Market drivers such as increased vigilance in the composition of pension funds and the move towards "ethical" investing could act as deterrents to irresponsible mining as well as an incentive to sustainable mining. Mining companies that adopt biodiversity's triple bottom line should be attractive to ethical funds. The SAM/Dow Jones Sustainability Indexes may be able to play a role here.

The bottom line for the mining industry is that the current trends in greening the international capital markets through fiscal incentives and market-based approaches could play a significant role in reducing the capital costs of a mining operation, thereby freeing up revenues for biodiversity management.

4.3 Access to Customers

Ultimately, mining companies, like all companies, make money by selling goods and services. Companies have absolutely no chance of integrating biodiversity into their operations if they do have customers for their products. Swissair had a very progressive programme of providing organic meals on its flights, but it could not earn enough revenues to keep its planes in the air. A bankrupt biodiversity-responsible company is of no good to sustainable development.

On the customer side, there is scope for creating a biodiversity-friendly minerals market. The use of voluntary market-based mechanisms such as certification and labelling could attract ethical consumers and enable to guide end-consumer purchasing. For some customers, especially large ones, the label is not nearly as important as the biodiversity management plan. Increasingly, large-scale purchasers are beginning to look at their supply chain and explore "prescriptive buying" practices to ensure that the inputs to their business are sustainable. Mining operations in a multiuse protected area context as described above could solicit favourable contracts with ethical customers. Increased and secure revenues from these customers would contribute to the costs of biodiversity management.

Furthermore, if a mining company develops a portfolio of sustainable use activities in a protected area – from its mining operations to ecotourism to organic agriculture – it will be able to better position itself in several markets and thus attract the interest of both ethical customers and ethical investors, who more often than not are likely to be the same people.

5 What is to be Done?

This paper along with the other papers and discussions of the Mining, Minerals and Sustainable Development Project are producing a baseline of information and ideas for moving forward on developing a sustainable development strategy and action plan for the mining industry. Over the next few years, there are a few high profile international events, which could provide a framework and a timetable for taking this work forward.

5.1 May 2001 – 6th Conference of the Parties of the Convention on Biological Diversity (The Hague)

This meeting could provide an opportunity to begin to seriously explore adoption of the Convention on Biological Diversity as the level playing field for the mining industry. States are "Parties" to the Convention. Perhaps companies could become "Partners" of the Convention. The Convention is a global convention, hence it is a convention for the global economy. Mining is a global industry and hence it should become a partner to the convention. IUCN could host a workshop at its Global Biodiversity Forum to explore this idea with interested stakeholders.

5.2 September 2001 – The World Summit on Sustainable Development (Johannesburg)

In collaboration with the World Business Council for Sustainable Development and the Earthwatch Institute, IUCN is planning to launch a new edition of its handbook on business and biodiversity. This book will provide general guidance for the private sector and thus promote a shared understanding of biodiversity and biodiversity management along the lines outlined in this paper. Hence it will provide a baseline for the mining industry. Case studies from the industry, of course, will also be included.

In addition, IUCN is considering an opportunity proposed by some of its NGO members to organise an exhibition of business and biodiversity partnerships at the Summit to profile experiences and lessons learned. The mining industry, of course, should be featured in this event.

Backing up both of these products will be an internet-based Business & Biodiversity Library – guidelines, case studies, key events, useful links, etc – providing more substantive and detailed information that can be put in either the handbook or the exhibition at the Summit. A special doorway to the library for the mining industry could be opened to house information of specific interest to the industry and its stakeholders.

Finally, during 2002, we could build on the baseline of information generated by the Mining, Minerals and Sustainable Development Project and, in regarding this paper, collect more substantive information on the options for mining in multiuse protected areas and on practical economic and financial mechanisms.

5.3 October 2003 – 5th World Parks Congress (Durban)

In preparation for the World Parks Congress in 2003, we could develop the proposition that mining should only occur in multiuse protected areas – Categories V and VI – and seek an endorsement of this proposition at the Congress.

During this period we would also have to work on the development of substantive guidelines for the mining industry on biodiversity management strategies and plans as well as on the development of procedures for due diligence of these plans by public authorities and private investors. These could also be reviewed by stakeholders at the Congress.

5.4 2004 – 7th Conference of the Parties of the Convention on Biological Diversity

The 7th Conference of the Parties of the Convention on Biological Diversity is scheduled to take place in 2004, though the exact time and location has not yet been set. Importantly, protected areas will be a key agenda item of this meeting.

At this meeting, the concept of a multiuse protected area framework for mining as well as standards for biodiversity strategies and plans for the mining industry could be presented to the Parties for their endorsement.

The meeting could also be an excellent time for mining companies to become official "Partners" of the Convention on Biological Diversity.