

## 4.5

### MINING AND SUSTAINABLE DEVELOPMENT: INSIGHTS FROM INTERNATIONAL LAW\*

*Cecilia G. Dalupan*

#### EXECUTIVE SUMMARY

This paper analyses the state and treatment of mining in international conventions, with emphasis on the growing body of multilateral environmental agreements. It then explores the challenges that the recognised and emerging principles of sustainable development pose for the mining sector and the development of international mining law.

The sovereign right of a State to exploit mineral and other natural resources within its jurisdiction has long been recognised but has never been absolute. It has always been qualified by the responsibility to ensure that activities do not cause transboundary environmental harm. Furthermore, principles found in the growing body of multilateral environmental agreements, insofar as they are binding on States that have voluntarily entered into them or are recognised as customary in international law, necessarily affect where and how mining is carried out, even within the boundaries of a sovereign State.

No formal or general international law with respect to mining has developed in the same way as it has for marine, forestry or other renewable resources. Mining has not readily lent itself to international standards or principles for various reasons that may include the fact that mineral endowments vary greatly from one country to another, as do physical environments and methods of extraction.

---

\* This article is based on Ms. Dalupan's work as the 2001 El Paso Energy Corporation Fellow with the Natural Resource Law Center at the University of Colorado in Boulder.

Furthermore, governance regimes for mining that do exist relate to certain areas beyond national jurisdictions including outer space, the deep seabed and Antarctica.

With respect to more general international legal instruments relevant to mining, the Stockholm Conference on the Human Environment (1972), the World Charter for Nature (1982), the World Summit on Environment and Development (1992) and the World Summit on Sustainable Development (2002) are clear milestones. While the Rio instruments made no specific mention of mining, these ushered in the paradigm of 'sustainable development'. The Plan of Action adopted during the review and reaffirmation of Rio commitments at the World Summit on Sustainable Development in Johannesburg provides the international community's most recent and definitive statement of principles on mining. It recognises that minerals are essential for modern living and formally recognises the concept of 'sustainable mining and mineral development'. It stresses actions and partnerships at all levels to address the issues and concerns throughout the life-cycles of mining operations.

A rigid and literal interpretation of principles of sustainability, however, may lead to the conclusion that mining is inherently inconsistent with sustainable development. A less rigid view considers the broader context and development of international environmental law and resource utilisation. Initiatives to develop indicators for sustainability and responsibility in mining have been undertaken by international bodies, governments, non-government organisations (NGOs) and the industry. These initiatives reveal a sector striving to redefine itself in the context of the sustainable development.

The continuing challenge of applicability and relevance exists particularly with respect to emerging principles such as common but differentiated responsibilities, special treatment of developing countries, the requirement for public participation and access to information. The analysis of these principles in the context of mining and minerals, or alternatively the reshaping of the sector in the context of sustainable development, are tasks that will not, and should not, be done in a vacuum. A relevant foundation is provided by two main sources: a) existing international law and principles relevant to mining and b) the on-going initiatives to develop standards and indicators of mining and sustainability.

The Stockholm Declaration, for example, offers two complementary perspectives on the principles of 'sustainable use' of resources in the context of minerals: where the use is extended through rational management and technology and where the benefits from use are shared and extended in ways that lead to other productive uses.

Principle 27 of the Rio Declaration issues a general invitation for 'States and people to cooperate in good faith and in a spirit of partnership in the further development of international law in the field of sustainable development.' For the mining

sector in particular, this invitation is now a greater challenge to define ‘sustainable mining and minerals development’ which gained formal recognition at the Johannesburg Summit. It is in the context of this challenge that the different national and international initiatives to discuss global mining issues and possible international standards and indicators for sustainability in mining become most responsive and relevant.

## 1. INTRODUCTION

In recent years, several initiatives have focused on the role of the mining sector<sup>1</sup> in the context of ‘sustainable development’.<sup>2</sup> Different governments have established regulatory frameworks covering not only the conventional legal and fiscal aspects of mining but also broader provisions on environmental and social issues. Industry associations have also formulated codes of conduct and best practices. These are paralleled by efforts of the United Nations, multilateral institutions such as the World Bank, and projects like the Mining, Minerals, and Sustainable Development Project.

These initiatives have sought to identify issues commonly encountered with respect to mining, and to formulate generally applicable principles. Such issues involve environmental and social impacts of mining and related economic considerations (concerns that constitute the three pillars of sustainable development). The identification of global issues and general principles raises the possibility that these efforts may lead to the development of international law on mining and sustainable development.

However, before evaluating whether these initiatives can lead to the development of a global governance regime, it is necessary to evaluate the present ‘state’ of mining in international law and specifically in multilateral agreements. This article provides an overview of multilateral agreements as they relate to, or affect mining. It begins with an analysis of the state and treatment of mining in international conventions, with an emphasis on the growing body of multilateral

---

<sup>1</sup> The discussion of the mining sector is limited to the exploration, development and utilisation of ‘hard rock’ or metal mining.

<sup>2</sup> Defined in *Our Common Future*, also known as the Brundtland Report formulated by the Brundtland Commission, as ‘development that meets the needs of the present without compromising the ability of future generations to meet their own need’.

environmental agreements, then explores the challenges that principles of sustainable development – recognised and emerging – pose for the mining sector and the development of international law on mining.

## 2. MINING IN MULTILATERAL AGREEMENTS

International conventions constitute one of the sources of international law<sup>3</sup> and have been used to establish governance regimes covering a subject matter or area of shared interest by States, though these may be divergent or even conflicting. Earlier in the 20th century, international agreements on natural resources largely focused on their economic value and were driven by the need or desire to regulate the use of shared resources or to address transboundary impacts. Thus, States' national interests served as impetus for intergovernmental agreement and action, which is certainly the case of international agreements in general, regardless of subject matter. It was in the States' individual national interests to prevent or resolve conflicts and arrive at agreements concerning the management, and thus, economic usefulness, of shared cross-boundary resources.

While there are some early examples of international conventions entered into for primarily environmental reasons, in the late 1960s and early 1970s an 'ecological era' dawned, from which point a very diverse and broad body of international environmental law has developed and continues to expand. There are over 900 international environmental agreements – bilateral, multilateral, regional and global – that cover sectors like atmosphere and space, marine and coastal resources, fisheries, flora and fauna, biodiversity and forestry.<sup>4</sup>

Multilateral environmental agreements have traditionally been response-oriented, i.e. formulated in response to an environmental crisis. However, while national self-interest is the fundamental and immediate driver for participation in an international agreement, regional and even global environmental concerns, together with their economic implications, are important motivations as well. Examples include agreements on desertification, drought, ozone depletion, loss in biodiversity, pollution and industrial accidents and climate change.

---

<sup>3</sup> The Statute of the International Court of Justice (1920), then annexed to the Charter of the United Nations (1945).

<sup>4</sup> Bell, 1997.

It appears at the outset that no comprehensive international legal instrument exists with respect to mining and mineral resources. Perhaps the only area where general principles and even binding international agreements relevant to mining have long existed is on labour conditions for mine workers. This is likely due to greater consciousness on workers' welfare through different labour movements and international linkages like the International Labour Organisation (ILO). ILO Convention 176 on Mine Safety and Health (1995), for example, is an international agreement on these aspects of mining operations regardless of location or type of mineral resource.

No general international legal instrument exists for mineral resources, however, in the same way as the United Nations Convention on the Law of the Sea. Neither is there a broad international convention or inter-governmental statement of principles as in the case of forestry.<sup>5</sup> Nevertheless, a broad survey of multilateral agreements yields significant observations with respect to mining and mineral resources.

### **2.1. The Sovereign Right to Exploit Natural Resources and its Limitations**

The sovereign right of a State to exploit mineral and other natural resources within its jurisdiction is one of the basic principles of resource utilisation in international law. This right, however, is not and has never been absolute, but has been qualified by the corollary responsibility of a State to ensure that activities within its jurisdiction or control do not cause damage to the environment beyond its national jurisdiction.<sup>6</sup>

The Aarhus Protocol to the 1979 Convention on Long-Range Transboundary Air Pollution of Heavy Metals (1998) illustrates this responsibility. Its objective is to control heavy metals emissions caused by anthropogenic activities that are subject to long-range transboundary atmospheric transport, and are likely to have significant adverse effects on human health or the environment. To this end, parties

---

<sup>5</sup> See section 2.2 below.

<sup>6</sup> The recognition of this right and duty not to cause transboundary environmental harm has been reiterated in international conventions and declarations including the Charter of the United Nations (1945), Convention on the Continental Shelf (1958), the Convention On Long-Range Transboundary Air Pollution (1979), the Stockholm Declaration on Human Environment (1972), the Rio Declaration on Environment & Development (1992) and the UN Convention on Biological Diversity (1992).

to the Protocol commit to reduce their total annual emissions of certain heavy metals into the atmosphere through measures appropriate to their particular circumstances. The Protocol also provides, *inter alia*, guidelines for the best available techniques for controlling and general options for reducing emissions of heavy metals and their compounds.

However, the duty not to cause transboundary environmental harm is not the only limitation on a State's sovereign right to exploit its natural resources. By entering into conventions which limit or even prohibit mineral extraction in areas identified for preservation or conservation, States have recognised the legitimacy of curtailing their sovereign rights of resource exploitation. This is true even in early international agreements such as the Convention Relative to the Preservation of Fauna and Flora in their Natural State (1933) entered into by the then Union of South Africa, Belgium, the UK, Egypt, Spain, France, Italy, Portugal, and the Anglo-Egyptian Sudan, which prohibits mining and other development activities in strict natural reserves. This prohibition continued with the African Convention on the Conservation of Nature and Natural Resources in 1968.

Similarly, the growing body of multilateral environmental agreements and conventions on social concerns indicates that the sovereign right to exploit one's natural resources is no longer qualified just by the duty not to cause transboundary environmental damage. Even the manner and extent of exploitation within a State may be subject to various qualifications in multilateral agreements to which it is a party or to which it may become subject as a result of customary practice in international law. Examples include the Copenhagen Declaration on Social Development and Programme of Action of the World Summit for Social Development (1995), the Aarhus Convention containing Guidelines on Access to Environmental Information and Public Participation in Environmental Decision-making Convention, and International Labour Organisation (ILO) Convention 169 on Indigenous and Tribal Peoples in Independent Countries (1989).

ILO Convention 169 provides that the rights of indigenous peoples to the natural resources pertaining to their traditional lands, including the right to participate in their use, management and conservation, shall be specifically safeguarded. It further provides that in cases where the State retains the ownership of mineral or sub-surface resources, governments shall establish or maintain procedures through which they shall consult these peoples, with a view to ascertaining whether and to what degree their interests would be prejudiced, before undertaking or permitting any programmes for the exploration or exploitation of such resources pertaining to their lands. The people concerned shall, wherever possible, participate in the benefits of such activities, and shall receive fair compensation for any damages which they may sustain as a result of such activities.

In summary, principles found in multilateral and other environmental agreements, insofar as they are binding on States that have voluntarily entered into the same or are recognised as customary in international law, necessarily affect where and how mining is carried out even within the boundaries of a sovereign State.

## **2.2. International Governance Regimes for Mineral and other Resources**

There is no global governance regime or extensive multilateral statement of principles for mining or mineral resources, in contrast with many renewable resources. Examples of such regimes and principles abound in the sectors of agriculture, forestry, fisheries, marine and coastal resources.

With respect to fisheries, marine and coastal resources, exhaustive legal texts such as the Fisheries Convention (1964) and the United Nations Convention on the Law of the Sea (1982) exist together with many other regional agreements formulated over the last five decades. These cover a wide range of living resources including tuna, salmon, dolphins, seals and whales. Bodies of water like the Atlantic and Pacific Oceans, the Mediterranean Sea, the Rhine, the Red Sea, Gulf of Aden, Baltic Sea and the Black Sea have also been given special international focus.

In forestry, the international community formulated the Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests (1992) which was signed at the World Summit on Environment and Development. Its long-winded, ambivalent title reflects the difficulty in its negotiation and formulation. Since 1992, however, various regional agreements indicate progress in forestry resources protection, management and utilisation.

It may thus be concluded that mineral and other non-renewable resources have not lent themselves as readily to international standards or principles as marine or other renewable resources. Various factors may explain why forming general principles would be difficult – these include the broad range of minerals and their uses, the variety in methods of extraction, and the differences in physical environments and climates where mining takes place.

Another significant factor may be the ‘size’ of the global mining industry, in that the level of capitalisation is relatively small, particularly when compared with the energy sector, for example.<sup>7</sup> Hence, the necessary impetus for broader action

---

<sup>7</sup> Hinde, 2000. To further illustrate this point, Hinde points out that the combined market capi-

such as the formulation of treaties may not exist. Furthermore, and despite dire predictions of the Club of Rome's 'The Limits to Growth' (1972), mineral reserves have not been depleted, but are reportedly stable and even increasing at the same time that recycling and other technologies contribute to a longer life-cycle of metals. In contrast, an international response has been considered imperative with respect to forestry and biodiversity in order to arrest deforestation and the loss of species.

Finally, mineral resources are rarely shared in nature, unlike marine and water resources. Mineral deposits are usually identified within the boundaries of a particular State, and their extraction is generally limited within that State. In exceptional instances where the mineralisation does cross borders, as in the Pascua-Lama deposit shared by Argentina and Chile, the countries did enter into a protocol agreement in the framework of a Mining Integration Treaty.<sup>8</sup> That mineral activities and their impacts are generally confined within the jurisdiction of a particular State may explain why the international community has taken little action on comprehensive standards or guidelines for operation. This is confirmed by the fact that, where the few international governance regimes for mining do exist, they apply only to areas beyond national jurisdictions.

### **2.3. Mining Regimes in Areas Beyond National Jurisdictions**

Outer space, the deep seabed and Antarctica are all areas beyond any national jurisdiction. Consequently, they are not 'owned' by any one State. However, the first two environments are treated in relevant international conventions as constituting the 'common heritage' of humankind,<sup>9</sup> which connotes that these are resources owned by all and that consequently, any development should benefit humanity in general.

---

talisation of the 20 largest mining companies is only about US\$ 166 billion, while that of energy companies BP Amoco and Exxon Mobil is US\$ 520 billion.

<sup>8</sup> See Bauni, chapter 5.2.3 *infra*.

<sup>9</sup> This concept emphasises that there are certain areas of general concern to humanity, which should thus be safeguarded by special legal regimes. See Kiss, 1997.

*Outer Space: The Moon and Other Celestial Bodies*

The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (1967) expressly provides that these bodies are not subject to national appropriation by claim of sovereignty, use, occupation, or any other means. It provides that the exploration and use of outer space should be carried out for the benefit of all peoples, without discrimination and with the interest of maintaining international peace, security and international cooperation and understanding.

The Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (1979) definitively characterised the moon and its natural resources as the ‘common heritage of mankind’ beyond national appropriation by any claim. It recognises freedom of scientific investigation on the moon by all States Parties, pursuant to which they shall have the right to collect and remove from the moon samples of its mineral and other substances. They may, in the course of scientific investigations, also use mineral and other substances of the moon in appropriate quantities.

To prevent the moon from becoming an area of conflict, the States Parties to the treaty undertook to establish an international regime to govern the exploitation of its mineral and other natural resources, characterised by rational management and equitable sharing of benefits. Since these treaties were formulated, no significant developments have taken place with respect to exploitation of the moon’s mineral and other natural resources.

*The Case of Antarctica*

The issue of ‘ownership’ of Antarctica is far from settled, having been claimed by several States that entered into the Antarctic Treaty in 1959. This led to the development of protocols and other treaties, constituting what is called the Antarctic Treaty System, which involves only States either claiming Antarctica or manifesting concrete interest in it. While multilateral in nature, it involves a limited number of States and its legitimacy has been questioned, even by the General Assembly of the United Nations.

Within the framework of the Antarctic Treaty System, the States Parties thereto formulated the Convention on the Regulation of Antarctic Mineral Resource Activities or CRAMRA (1988). After years of difficult and complex negotiations, they arrived at a convention text that was both praised and criticised. The subject of many legal discourses, the CRAMRA was seen by some sectors as merely a mining code, complete with permitting and other legal procedures, which effec-

tively threw open the doors to the exploitation of a critical and sensitive environment. Others praised what they considered the convention's strong environmental safeguards, and viewed it as a pragmatic document intended to regulate possible attempts at mineral development in a vulnerable area.<sup>10</sup>

The CRAMRA, however, was never ratified. Legal analysts have differed in their assessment of the CRAMRA's status, with some declaring it dead, others relegating it to legal limbo, and still others viewing it as capable of resurrection, whether in itself or as a model for a future regulatory framework.<sup>11</sup> The legal diagnosis of the CRAMRA is currently moot, in view of the parties' decision to enter into the Madrid Protocol on Environmental Protection to the Antarctic Treaty (1991).

The Madrid Protocol aimed at manifesting the parties' commitment to comprehensive protection of the Antarctic environment. Antarctica was designated as a natural reserve, devoted to peace and science. Most significantly for purposes of this article, the Protocol imposed a 50-year prohibition or moratorium on mineral resource activities other than for scientific research. Although certain clauses in the Protocol, such as those allowing parties to disengage themselves from the 50-year moratorium, have been criticised as contrary to the agreement's environmental protection objectives, this has not happened so far and, thus, the prohibition of mineral resource activities within Antarctica stands.

### *The Seabed Mining Regime*

The most developed international governance regime or regulatory framework for mineral resources activities exists in the case of the deep seabed as provided under the United Nations Convention on the Law of the Sea of 1982 (UNCLOS III). Under Part XI, the seabed and its resources are recognised as constituting the 'common heritage of humankind.' Its original formulation stressed the equitable sharing of benefits derived from seabed mining. Requirements such as those on mandated technology transfer, royalties, taxes and other payments were imposed and were

---

<sup>10</sup> Weiss (1995), for example, represents the view that exploitation of Antarctica's mineral resources would violate established international law and that given the area's unique characteristics, mining would place it and the global environment in jeopardy. Vicuna (1996), on the other hand, supports the position that CRAMRA dealt very stringently with environmental issues and that there was an objective need for a regulatory framework for potential mining activities in Antarctica.

<sup>11</sup> Zang, 1991.

largely rejected by industrialised countries. Contentious debates surrounding the deep seabed mining regime are cited as a reason for the delay in obtaining the necessary number of ratifications for the convention which entered into force in 1994.<sup>12</sup>

In the interim, when no agreement could be reached on deep seabed mining as it was originally formulated, several industrialised States entered into relevant agreements. The Provisional Understanding Regarding Deep Seabed Mining (1984), entered into by Belgium, France, the Federal Republic of Germany, Italy, Japan, the Netherlands, the United Kingdom and the United States, provided that no party shall authorise, or itself engage in the exploitation of the hard mineral resources of the deep seabed before 1 January 1988. In a similar manner, an Agreement on the Resolution of Practical Problems with Respect to Deep Seabed Mining Areas (1987) was entered into by Canada, Belgium, Italy, the Netherlands, and the then Union of Soviet Socialist Republics.

Apparently in order to make Part XI more acceptable to industrialised countries, the Agreement Relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea (1994) was negotiated. It still maintained the declaration that the deep seabed was the common heritage of mankind 'to be shared by all nations and not subject to traditional territorial sovereignty'. Unlike its original formulation, however, the revised agreement did not contain detailed production policies, systems of assistance to land-based producers, tax impositions or mandatory transfer of technology. In their place were provisions deemed favourable to industrialised countries such as the assurance that market-oriented approaches would be used in management, reduction in the size of institutions, and substantial representation in decision-making bodies.

In July 2000, the Regulation on Prospecting and Exploration for Polymetallic Nodules in the Area was formulated. As the first set of rules adopted to implement Part XI, it covers only prospecting and exploration, and includes preliminary matters such as the content, procedure and fees for applications and exploration contracts. It also contains provisions on the protection of the marine environment, confidentiality, settlement of disputes and other general provisions.

The Agreement Relating to the Implementation of Part XI thus contains what appears to be the only broad-based international regulatory framework for mineral activities in force today, although it applies only to mining and minerals in deep seabed areas.

---

<sup>12</sup> Heim, 1990.

### 3. INTERNATIONAL LAW ON SUSTAINABLE DEVELOPMENT AND MINING

The last three decades have seen significant developments in international environmental law through the proliferation of multilateral environmental agreements and the formulation of a comprehensive agenda for the environment and natural resources. Landmark environmental legal instruments developed by the international community at Stockholm and Rio, the UN General Assembly and most recently at Johannesburg, have played an instrumental role in the 'universalisation of environmental law'<sup>13</sup> and the development of the sustainable development paradigm.

#### **3.1. The Stockholm Conference on the Human Environment and the World Charter for Nature**

Over 130 nations took part in the 1972 Stockholm Conference on the Human Environment which recognised that many environmental problems required international concerted efforts<sup>14</sup> and which resulted in the Declaration of the United Nations Conference on the Human Environment and Action Plan for the Human Environment. The Declaration provides, in part, that the non-renewable resources of the earth must be employed in such a way as to guard against the danger of their future exhaustion and to ensure that all humankind shares benefits from such utilisation.

The Action Plan contained many recommendations on the different sectors of the environment and natural resources. Recommendation 56 on mining and mineral resources focused on the accessibility, further accumulation and dissemination of pertinent information. Specifically, it recommended that the Secretary-General provide the appropriate vehicle for the exchange of information on mining and mineral processing, including the environmental conditions of mine sites, the action taken in respect of the environment, and positive and negative environmental repercussions.

Further it proposed that the appropriate United Nations bodies send experts to assist developing countries, to provide adequate information on the technology for

---

<sup>13</sup> Caldwell, 1999.

<sup>14</sup> Futrell, 1997.

preventing adverse effects of mining on the environment and the adverse health and safety effects associated with the mineral industry. This body of information could then be used for prediction, and criteria for planning and managing mineral production that would emerge as development progressed would indicate where certain kinds of mining should be limited, where reclamation costs would be particularly high and where other problems would arise.

Ten years after Stockholm, the General Assembly of the United Nations promulgated Resolution 37/7, the World Charter for Nature, which provides that natural resources shall not be wasted, but used with a restraint appropriate to the principles set forth therein. With respect specifically to non-renewable resources that are consumed as they are used, it provides that these shall be exploited with restraint, taking into account their abundance, rational possibilities of converting them for consumption, and the compatibility of their exploitation with the functioning of natural systems.

The Stockholm Declaration and Action Plan, together with the World Charter for Nature, are foundational instruments for what is now a complex body of international environmental law. These are significant for the mining sector in their recognition of the value of non-renewable resources and concern for their development, management and consumption.

### **3.2. The World Conference on Environment and Development and the World Summit on Sustainable Development**

The Stockholm Declaration, Action Plan and the World Charter for Nature are important international legal instruments which helped pave the way for further development in the area of international environmental law. Ten years after the World Charter of Nature and 20 years after Stockholm, the World Summit on Environment and Development was held in Rio de Janeiro in 1992.<sup>15</sup>

The Rio Declaration reiterates the long-standing principle on the sovereign right of States to exploit their resources pursuant however to their environment and development policies and the requirement to notify concerned States of any natural disasters, emergencies or adverse transboundary environmental effects.

---

<sup>15</sup> The largest gathering ever of ministers and heads of 172 States attended the Rio Summit. States Parties there signed five international instruments: the Rio Declaration on Environment and Development (Rio Declaration), Agenda 21, the Statement on Forest Principles, the Convention on Biological Diversity and the Framework Convention on Climate Change.

In contrast to the Stockholm instruments and the World Charter for Nature, the conventions entered into at Rio do not make any specific mention of minerals or other non-renewable resources. However, Rio definitively ushered in the paradigm of 'sustainable development' which views economic progress as inseparable from environmental protection and social concerns in the pursuit of genuine human development.

Principle 1 of the Rio Declaration provides that human beings are at the centre of concerns for sustainable development and are entitled to healthy and productive lives in harmony with nature. As such, the genuine development and welfare of human beings are both the fundamental motivation and ultimate objective of any initiative, agreement or programme. Further, Principle 25 expressly provides that peace, development and environmental protection are interdependent and indivisible.

Emerging principles of sustainable development are also evident in the Rio Declaration, such as the recognition of the right of human beings to development and access to information and justice. It emphasises the importance of public awareness and participation, the balancing of the needs of present and future generations, the recognition of the special situation and needs of developing countries, common but differentiated responsibilities and the need for cooperation in a spirit of global partnership.

With respect to primarily environmental concerns, the Declaration encourages, *inter alia*, the precautionary approach, internalisation of environmental costs, and use of economic instruments and environmental impact assessment. On social issues, participation of different groups is recognised and encouraged. Particular importance is given to indigenous peoples' unique knowledge and their role in environmental management.

Similar to the Action Plan formulated at the Stockholm Conference, Rio also witnessed the signing of Agenda 21, a comprehensive blueprint for sustainable development covering five major areas: socio-economic dimensions, conservation and resource management, strengthening the role of major groups, and measures of implementation. Like the Stockholm Declaration, Action Plan and World Charter for Nature, the Rio Declaration and Agenda 21 are not legally binding. They are, however, landmark statements of principles established by the international community.

'Soft law' principles in international law such as those contained in the Rio Declaration, although not legally binding, carry 'strong moral obligations' and

influence both international and national policies.<sup>16</sup> Thus, these ‘soft law’ principles have paved the way for their incorporation not only in legally binding multilateral agreements entered into since Rio but also in many national laws.

Ten years after Rio, the international community gathered once again in Johannesburg and reaffirmed ‘sustainable development as a central element of the international agenda and gave new impetus to global action to fight poverty and protect the environment’.<sup>17</sup> The Summit adopted the Johannesburg Declaration on Sustainable Development and the Plan of Implementation. The Plan of Action stresses commitments and targets to achieve progress on broad concerns led by poverty eradication, water and sanitation, health, sustainable production and consumption, energy, chemicals and management of the natural resource base. It also placed great emphasis on corporate responsibility and the importance of partnerships among governments, business and civil society.

Of great significance is Part IV<sup>18</sup> of the Plan of Action which focuses on mining. Section 46 thereof provides the international community’s most recent and definitive statement of foundational principles on mining, echoing the intent of the Stockholm Action Plan and filling in the gap that was evident at Rio. It begins with the recognition that minerals are essential for modern living and further provides that enhancing the contribution of mining, minerals and metals to sustainable development includes actions and partnerships at all levels to address the difficult concerns throughout the life-cycles of mining operations. These concerns include: the environmental, economic, health and social impacts and benefits of mining; the need to promote transparency and accountability for sustainable mining and minerals development; participation of stakeholders, including local and indigenous communities and women; financial, technical and capacity-building support to developing countries on, *inter alia*, small-scale mining, value-added processing, scientific and technological information, reclamation and rehabilitation of degraded sites.

---

<sup>16</sup> Allen, 2001.

<sup>17</sup> United Nations, Department of Economic and Social Affairs, *Key Outcomes of the Summit*, <[www.johannesburgsummit.org/html/documents/summit\\_docs/2009\\_keyoutcomes\\_commitments.doc](http://www.johannesburgsummit.org/html/documents/summit_docs/2009_keyoutcomes_commitments.doc)> (September 2002).

<sup>18</sup> Part IV is ‘Protecting and managing the natural resource base of economic and social development’. See United Nations, *Report of the World Summit on Sustainable Development*, U.N. Doc. A/CONF.199/20\*, <[www.johannesburgsummit.org/html/documents/summit\\_docs/131302\\_wssd\\_reports\\_reissued.pdf](http://www.johannesburgsummit.org/html/documents/summit_docs/131302_wssd_reports_reissued.pdf)> (26 August – 4 September 2002).

These brief provisions have already being criticised as an inadequate response to the difficult issues raised by mining and that a more aggressive approach is needed in such efforts as the on-going World Bank's Extractive Industries Review.<sup>19</sup> In the context of Agenda 21's silence, the express inclusion in the Johannesburg Plan of Action of provisions on mining, which frame it within the context of sustainable development, is extremely significant. The adoption of these provisions represents the formal recognition by the international community that mining has a role in and contribution to sustainable development which depends, however, on the approach to the 'cradle-to-grave' concerns – from planning to closure – attendant to the life-cycles of mining operations.

#### 4. PRINCIPLES OF SUSTAINABILITY IN MINING – THE CHALLENGE OF RELEVANCE AND APPLICABILITY

A rigid and literal interpretation of principles of sustainability may lead to the conclusion that mining (given the inevitable environmental impacts of extraction and that mineral consumption leaves less for future generations) are inherently inconsistent with sustainable development. A less rigid view, not inconsistent with sustainable development, considers the broader context and development of international environmental law and resource utilisation.

The general silence on non-renewable resources at Rio does underscore, however, the difficulties in adapting or relating principles of sustainable development in the context of mining and mineral resources. While the Johannesburg Plan of Action introduced the concepts of 'sustainable mining practices' and 'sustainable mining and minerals development', it did not expressly propose the formulation of general criteria or binding governance regimes to further clarify their interpretation, scope and application.

The international community, however, has recommended the formulation of general principles to direct mining activities, as early as the 1972 Stockholm Action Plan. This plan proposed the formulation of criteria for planning and managing mineral production, with specific indicators for where certain kinds of mining should be limited and where reclamation costs would be high. It also recommended that relevant United Nations bodies take appropriate action.

---

<sup>19</sup> Sampat, 2002.

In this regard, the United Nations Environment Programme or UNEP<sup>20</sup> convened a multi-sectoral group in 1991 which resulted in the formulation of Fundamental Principles for the Mining Sector or Berlin Guidelines. The statement called for governments, mining companies and minerals industries to, among other issues: recognise environmental management as a high priority, establish environmental accountability, and ensure the participation and dialogue with the affected communities and other directly interested parties on the environmental aspects of all phases of mining activities. Similar efforts to develop guidelines, criteria and indicators for mining and sustainability are likewise being undertaken by governments, the mining industry, NGOs and financial institutions.

The increasing involvement of the mining industry raises the question of why companies that conduct or intend to conduct operations purely within the boundaries of one State, as mining activities characteristically are, would support the formulation of international criteria and principles.

One answer lies in common sense, or perhaps more appropriately, good business sense. As pointed out by the UN Global Compact,<sup>21</sup> as markets have gone global, so must corporate citizenship and social responsibility. Principles of sustainable development ultimately must make good business sense in the context of the global economy.

It may be said that initiatives of industry, international organisations, NGOs and other sectors cannot lead to the formal development of international legal instruments on mining and sustainable development inasmuch as parties thereto must be States. However, non-State players, economic and other factors have clearly influenced recent developments in international law. The role of NGOs, business and other sectors, whose interests are increasingly represented in official delegations of States, is clearly influential in the treaty-making process today, as evidenced in Rio and in other international treaty negotiations.

---

<sup>20</sup> UNEP was established following the Stockholm Conference to promote international cooperation in the field of environment and to recommend, as appropriate, policies to this end, to provide general policy guidance for the direction and coordination of environmental programmes within the United Nations system.

<sup>21</sup> A United Nations initiative seeking to promote good corporate practices based on universally accepted principles of international law. See United Nations, *Secretary-General Proposes Global Compact on Human Rights, Labour, Environment, In Address to World Economic Forum in Davos*, U.N. Document SG/SM/6881/Rev.1\*, <[www.un.org/partners/business/davos.htm#speech](http://www.un.org/partners/business/davos.htm#speech)> (31 January 1999).

Whether these initiatives will ultimately contribute to the development of a formal body of international law on mining and sustainable development remains to be seen. Essential to the further development of international law, whether it be in the form of a statement of principles or the establishment of a more complex governance regime, is consensus among States. Such consensus is the source of legitimacy and authority for the implementation and enforcement of international law where, unlike national legal systems, a presumed authority and a recognised enforcement mechanism almost always exists. For any guidelines or indicators to contribute to the development of international law on mining and sustainability, consensus among States through their governments is essential.

Recognised and emerging principles of sustainable development include State sovereignty over natural resources and responsibility not to cause damage to the environment in areas beyond national jurisdictions, sustainable use of natural resources, people's right to development and a healthy environment, equity and the eradication of poverty, the prevention of environmental harm and the precautionary principle.

Developing international law on mining in the context of sustainable development would call for an analysis of these principles as they relate to the mining and minerals sector. The continuing challenge of applicability and relevance lies here. It may be evident how the principle of State sovereignty and the duty to prevent transboundary harm may be immediately relevant to mineral resources activities, as it has been for decades, but this may not be the case for the requirement of 'sustainable use' which is traditionally understood as applying to renewable resources. Nor would the application of the precautionary principle, which provides that the lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation, be readily apparent where there are threats of serious or irreversible damage.

Other emerging principles also call for further reflection and analysis in the context of the mining and minerals sector. Could the principle of 'common but differentiated responses' together with the 'special treatment of developing countries' provide a basis for the formulation of indicators of sustainability that are specifically applicable to mining activities conducted by industrialised States or multinational companies in developing countries? Can, and to what extent may the principles of public participation and access to information be standardised and implemented in large-scale mining operations?

Different international legal instruments offer valuable insight with respect to the applicability of sustainable development principles to mining. The Aarhus Protocol, discussed above, designed measures to anticipate, prevent or minimise emissions of certain heavy metals and their related compounds expressly as an

application of the precautionary principle. The Stockholm Declaration also provides guidance on the interpretation of 'sustainable use' of resources in the context of minerals. The Declaration provides that non-renewable resources of the earth must be employed in such a way as to guard against the danger of their future exhaustion and to ensure that all humankind shares benefits from such utilisation. Thus there would appear to be two complementary perspectives on 'sustainable use' of mineral resources. The first pertains to the resource itself where its use is extended through, for example, rational development and management as well as through recycling and other technologies. The second pertains to the benefits from its use, which should be shared and extended in ways that lead to other productive uses.

The analysis of sustainable development principles in the context of mining and minerals, or alternatively the reshaping of the sector in the context of sustainable development, are tasks that will not and should not be done in a vacuum. It is evident that there is much to build on from at least two sources: existing international legal instruments and principles relevant to mining as well as the on-going initiatives to develop standards and indicators of mining and sustainability.

## 5. CONCLUSIONS

The sovereign right of a State to exploit its mineral resources has long been recognised but has always been qualified by the responsibility to ensure that activities do not cause transboundary environmental harm. In the last three decades, multi-lateral environmental agreements, insofar as they are binding on States that have voluntarily entered into them or are recognised as customary in international law, increasingly affect where and how mining is carried out. While the Rio instruments made no specific mention of mining, these ushered in the paradigm of 'sustainable development' that rendered inevitable a re-examination of a sector often regarded as destructive and unsustainable.

This re-examination has witnessed various initiatives to develop indicators for sustainability and responsibility in mining which have been undertaken by industry, international bodies, governments, NGOs and financial institutions. These initiatives reveal a sector striving to redefine itself in the context of sustainable development.

Principle 27 of the Rio Declaration issues a general invitation for States and people to 'cooperate in good faith and in a spirit of partnership... in the further development of international law in the field of sustainable development'. For the mining sector in particular, this invitation is now a greater challenge to define

‘sustainable mining and minerals development’, a concept formally recognised at the Johannesburg Summit. It is in the context of this challenge that the different national and international initiatives to discuss global mining issues and possible international standards and indicators for sustainability in mining become most responsive and relevant.

### SELECTED BIBLIOGRAPHY

- Allen, C.H., ‘Protecting the Oceanic Gardens of Eden: International Law Issues in Deep-Sea Vent Resource Conservation and Management’, 13 *Georgetown International Environmental Law Review* (2001) 563.
- Bell, R.G., ‘Developing a Culture of Compliance in the International Environmental Regime’, 27 *Environmental Law Reporter* (1997) 10402.
- Caldwell, L.K., ‘Is World Law an Emerging Reality? Environmental Law in a Transnational World’, 10 *Colorado Journal of International Environmental Law and Policy* (1999) 227.
- Futrell, J.W., ‘International Environmental Legal Framework’, SB79 *American Law Institute - American Bar Association* (1997) 1.
- Heim, B.E., ‘Exploring the Last Frontiers for Mineral Resources: A Comparison of International Law Regarding the Deep Seabed, Outer Space, and Antarctica’, 23 *Vanderbilt Journal of Transnational Law* (1990) 819.
- Hinde, C., ‘The Global Mining Industry’, 23 *Industry and Environment, United Nations Environment Programme Division of Technology, Industry and Economics* (2000).
- Kiss, A., *Introduction to International Environmental Law* (UNITAR, Geneva, Switzerland, 1997).
- Report of the United Nations Conference on the Human Environment 1972, Stockholm Declaration of the United Nations Conference on the Human Environment 1, 4, U.N. Doc. A/CONF.48/14/Rev. (1973), reprinted in 11 I.L.M. 1416 (1972).
- Sampat, P., ‘From Rio to Johannesburg: Mining Less in a Sustainable World’, (World Summit Policy Brief #9), Worldwatch Institute, <[www.worldwatch.org/worldsummit/briefs/pdf/miningbrief.pdf](http://www.worldwatch.org/worldsummit/briefs/pdf/miningbrief.pdf)> (6 August 2002).
- United Nations Conference on Environment & Development, Agenda 21, U.N. Doc. A/CONF.151/6/Rev. 1 para. 39.1(d) (1992), reprinted in United Nations, Agenda 21: The United Nations Programme of Action from Rio 15, 1993; 4 Agenda 21 & the UNCED Proceedings 1 (Nicholas A. Robinson ed., 1993).

- United Nations Conference on Environment and Development, *Rio Declaration on Environment and Development*, U.N. Doc. A/CONF.151/5/Rev. 1 Princ. 4 (1992), reprinted in 31 *ILM* 874 (1992).
- United Nations Department of Economic and Social Affairs, *Key Outcomes of the Summit*, <[www.johannesburgsummit.org/html/documents/summit\\_docs/2009\\_keyoutcomes\\_commitments.doc](http://www.johannesburgsummit.org/html/documents/summit_docs/2009_keyoutcomes_commitments.doc)> (September 2002).
- United Nations Environment Programme, *History*, <[www.estec.esa.nl/mercure/unep/intro.htm](http://www.estec.esa.nl/mercure/unep/intro.htm)>.
- United Nations, *Report of the World Summit on Sustainable Development*, U.N. Doc. A/CONF.199/20\*, <[www.johannesburgsummit.org/html/documents/summit\\_docs/131302\\_wssd\\_reports\\_reissued.pdf](http://www.johannesburgsummit.org/html/documents/summit_docs/131302_wssd_reports_reissued.pdf)> (26 August – 4 September 2002).
- United Nations, *Secretary-General Proposes Global Compact on Human Rights, Labour, Environment, In Address to World Economic Forum in Davos*, U.N. Document SG/SM/6881/Rev.1\*, <[www.un.org/partners/business/davos.htm#speech](http://www.un.org/partners/business/davos.htm#speech)> (31 January 1999).
- Vicuna, F.O., 'The Effectiveness of the Protocol on Environmental Protection to the Antarctic Treaty', in Stobbe, O.S. and Vidas, D. (eds.), *Governing the Antarctic: The Effectiveness and Legitimacy of the Antarctic Treaty System* (Cambridge University Press, 1996), p. 174.
- Weiss, J.D., 'The Balance of Nature and Human Needs in Antarctica: The Legality of Mining', 9 *Temple International and Comparative Law Journal* (1995) 387.
- Wilson, J.R., 'Regulation of the Outer Space Environment through International Accord: The 1979 Moon Treaty', 2 *Fordham Environmental Law Report* (1991) 173.
- World Commission on Environment and Development, *Our Common Future* (Oxford and New York, Oxford University Press, 1987).
- Zang, D.M., 'Frozen In Time: The Antarctic Mineral Resource Convention', 76 *Cornell Law Review* (1991) 722.

