



CODE FOR ENVIRONMENTAL MANAGEMENT OF MARINE MINING

**Adopted by the
INTERNATIONAL MARINE MINERALS SOCIETY
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Introduction

The Code: Its Content and Format. The Code consists of a concise statement of Environmental Principles for the marine mining industry, followed by a set of Operating Guidelines for application as appropriate at specific mining sites. These Guidelines can function for industry as benchmarks for development of environmental management plans, and also for regulatory agencies and other stakeholders at sites targeted for exploration and extraction.

Initiative for the Code. The International Marine Minerals Society approved development of this Code at its Annual General Meeting in January 2000, following a request from a member with involvement in the marine mining industry.

Development of the Code. The draft Code has drawn on prior marine mining environmental statements, such as those in the Madang Guidelines 1999 and the Green Paper on Offshore Mining Policy developed by the government of Papua New Guinea. The draft Code has also drawn substantially on the Code for Environmental Management adopted by the Minerals Council of Australia. This industry-related Code has a Statement of Principles followed by specifics for each Principle adopted. The present Code follows the same general format, with a concise statement of “Principles” followed by a substantial set of “Operational Guidelines”. These follow closely (and sometimes are identical to) the wording in the Australian Minerals Code.

In addition to the prior industry and government statements, the Code has drawn on the experience of industry personnel and marine environmental scientists and engineers through a process of review, comments and editing from February 2000. The background of experience available for consultation extends over some 40 years through environmental assessments related to:

- The marine mining industries in South Africa and Namibia (diamonds), Alaska (gold) and Southeast Asia (tin).
- The dredging industry of Europe and North America for borrow sand, construction aggregate and channel navigation.
- The marine disposal of tailings from coastal mines in Canada, Alaska and the Southeast Asia/South Pacific archipelagoes.
- And, in addition, for benchmarking the Operating Guidelines, the Code draws on the globally extensive deep water experience by UK, USA, USSR, Japanese, German, French, Australian, Indian and Danish oceanographers and marine biologists on biodiversity assessment of the deep hot vents, nodule and crust fields, metalliferous muds and abyssal plains extending back over more than 100 years to the Challenger Expedition of 1873-1876.

Who Will be Served by the Code? Mining companies with an interest in, or active in, marine mining; and government authorities, NGOs, communities, and other stakeholders at marine mining sites.

How Will the Code Function? The Code provides a framework and benchmarks for implementation by marine mining companies at their operations. It also provides a framework and benchmarks for stakeholders in governments, NGOs and communities in appraising actual and intended applications of environmental practice at marine mining sites.

Companies and stakeholders adopting the Code or following its Principles and Operating Guidelines are encouraged to publicize their actions.

Code Review. It is intended that the Code will be reviewed by IMMS after five years, with a focus toward possible changes based on experience with its implementation. There will be consultation with the marine mining industry and with other stakeholders at marine mining operations.

Reporting. Companies adopting the Code commit to a high transparency in their environmental activities, with regular reporting of environmental planning, assessment and actions. Reports are to demonstrate the Company's commitment to, and implementation of, the Code, and will describe the company's performance in relation to the Principles and Operating Guidelines.

Benchmarking the Code. The Operating Guidelines provide benchmarks by which a mining company can set its environmental program for a marine exploration or extraction site. Site stakeholders, including government agencies, NGOs and communities can also use the Guidelines as benchmarks for checking the mining company's environmental protection actions.

Principles

Marine mining companies adopting this Environmental Code commit themselves to the following principles:

- To observe the policies, and respect the aspirations, of sovereign governments and their regional sub-divisions, and of relevant international agencies, as appropriate to underwater mineral developments.
- To apply best practical procedures for environmental and resource protection, with consideration for future developments within the area which might be affected.

- In initiating a project to consider environmental implications through all stages, from exploration through development and operations to eventual closure.
- To facilitate community partnerships on environmental matters.
- To maintain an environmental quality review program.
- To report publicly on environmental performance and implementation of the Code.

Operating Guidelines

Sustainable Development. Manage activities in a manner consistent with sustainable development of the operating area, such that economic, environmental and social considerations are integrated into decision-making and management.

1. Pursue clean production through technological innovation, operational efficiencies, waste minimization, environmental monitoring and information feedback to management, and through scientific/engineering research.
2. Return unused extracted materials to the seabed in a manner that will facilitate future sustainable use of the area.
3. Recognize the maintenance of ecological and cultural heritage values of the marine environment and adjacent lands as important considerations in sustainable development.
4. Promote re-use and recycling of mineral products and by-products to maximize their utility to current and future generations.
5. Support activities to improve knowledge of the short- and long-term availability and use of mineral resources.

Environmentally Responsible Company Ethic. Develop an environmentally responsible company ethic by showing management commitment, implementing environmental management systems, and providing time and resources to demonstrate requirements of the ethic to employees and contractors.

1. Develop, implement and communicate an environmental policy consistent with the Code.
2. Demonstrate management commitment through application of environmental management practices consistent with the Code.
3. Ensure that employees and contractors are informed about company policies, goals, guidelines and practices for environmental, socio-economic and heritage protection.
4. Implement effective basic environmental education and training programs for all employees.
5. Require employees and site contractors to comply with company practices and procedures.
6. Facilitate community education about company environmental principles and their application at the area of operations.

Community Partnership. Consult interested communities on their concerns, aspirations and values regarding development and operation of marine mining projects, recognizing that there are links between environmental, socio-economic and cultural values.

1. Identify directly and indirectly affected stakeholders and their concerns.
2. Foster openness and dialogue with employees and the regional community, promote cross-cultural awareness, and specifically address concerns about environmental and social impacts.
3. Provide to the community technical information about potential effects and duration of operations, of waste products and their management, of rehabilitation procedures, and of socio-economic consequences.
4. Establish community consultation relevant to each stage of operations.

Environmental Risk Management. Apply risk management techniques site-specifically to identify environmental risks, their possible consequences, and their probabilities of occurrence.

1. Utilize environmental baseline studies as the basis for risk management.
2. Evaluate the risks of alternative project concepts, weighing the positive and negative consequences, and provide opportunities for stakeholder participation.
3. Implement management strategies to mitigate environmental impacts of the preferred development option.
4. Adopt an active, but cautious, approach to reasonably foreseeable environmental risks.
5. Develop and implement contingency plans to address incidents and abnormal operating and environmental conditions.

Integrated Environmental Management. Recognize environmental management as a company priority and integrate environmental management into all operations from exploration, through design and construction to mining, minerals processing, rehabilitation and decommissioning.

1. Establish a management system that allocates management and employee responsibilities relevant to the organization's activities and applicable legal requirements.
2. Address within an environmental management system.
 - Applicable legal and regulatory requirements
 - The Operating Guidelines of this Code and of any other applicable Code or Guidelines
 - Company environmental policies, objectives and targets
 - Environmental management plans and procedures
 - Environmental monitoring procedures
 - Reliable and secure storage for environmental data gathered and specimens collected
 - Setting and testing of contingency and emergency response plans

- Regular auditing of the environmental management system and environmental performance
 - Reporting procedures
3. Periodically review the environmental management system to ensure that it remains effective and relevant to the company's evolving needs, and to changing community values and expectations.

Company Environmental Performance Targets. Set environmental performance targets not necessarily limited to the requirements of directly applicable legislation, regulations, licenses and permits. Specifically:

1. Identify legal and other requirements applicable to the environmental aspects of the company's marine mining activities, products or services.
2. Set internal performance targets and periodically assess achievements in order to reinforce policy commitments and to enable demonstration of continual improvement.
3. Ensure that legal requirements and internal performance targets are effectively communicated to the employees who are accountable for the relevant activities.

Environmental Improvement and Upgrading. Implement management strategies to meet current and anticipated standards and regularly review targets in the context of changing needs and aspirations.

1. Regularly review and update company policies, programs and environmental performance to correct any deficiencies.
2. Assess and rank environmental issues in order to concentrate efforts in priority areas and where maximum gains are achievable.
3. Undertake, participate in, or support research on priority issues by appropriate funding or on-site support
4. Facilitate employee education in technical developments, scientific understanding, consumer needs and community expectation.
5. Provide technical and professional level skill upgrade opportunities to environmental employees, such as through attendance at appropriate workshops and conferences.
6. Provide professional environmental employees with reporting opportunities at relevant conferences and in refereed international publications.
7. Facilitate transfer of information to the community about technical developments, scientific understanding, consumer needs and expectations.

Rehabilitation and Decommissioning. Ensure that decommissioned sites are rehabilitated and left in a safe and stable condition, after taking into account beneficial uses of the site and surrounding seabed.

1. Incorporate rehabilitation and decommissioning options in the conceptual design of operations at the feasibility stage.
2. Develop clearly defined rehabilitation plans, monitor and review rehabilitation performance and progressively refine such plans.

3. Determine and account for rehabilitation and decommissioning costs and periodically review their adequacy during the life of the operation.
4. Establish a program of progressive rehabilitation commensurate with the nature of the operation and the type and rate of disturbance.
5. Periodically review the rehabilitation and decommissioning strategies during the period of operations so as to incorporate changing regulatory requirements, public expectations, and environmental and cultural information.
6. Address issues and programs related to long-term responsibility for the seabed in the final decommissioning plan.

Reporting and Documentation. Demonstrate commitment to the Code's principles by reporting on the company's implementation of the Code and its environmental performance. Make reports publicly available, particularly to regulatory agencies, the community and within the Company.

1. Implement regular reporting of environmental performance to all stakeholders, including the board of directors, shareholders, employees, authorities and the community.
2. Ensure that reporting requirements of all authorities are met in scope and in good time.
3. Provide an annual environmental report written for community understanding.
4. Reports should describe the Company's processes for:
 - Communicating environmental policy
 - Communicating environmental performance
 - Community consultation and responding to concerns
 - Code implementation
5. Reports should also include but not be limited to:
 - Organization profile, environmental policies and objectives
 - Environmental management processes
 - Establishment of benchmarks against which continual improvement can be measured
 - Documentation of relevant data to support the reported results
 - Opportunities and progress in improvements
 - Significant environmental events and their consequences
 - Environmental incidents and any regulatory action taken
 - Performance in relation to regulatory requirements and internal targets
 - Environmental, socio-economic and cultural issues to be addressed and strategies to implement them
6. The first report after adoption of the code is to be released within two years.
7. The annual environmental reports are to be made available to the public through the Company's corporate and regional offices. Copies of each report are to be lodged in major libraries in jurisdictions within which the Company operates. Companies will identify where reports will be deposited at the time of adoption of the code.

Archiving. Ensure future availability of environmental information and collections gathered (other than proprietary technical information) for international scientific understanding, or for national heritage use.

1. Ensure that all environmental data are securely banked and accessioned into appropriate national or international archives for subsequent review and further reporting.
2. Ensure that representative collections of geological and biological specimens are accessioned into appropriate national museums for subsequent review and further reporting, and for subsequent scientific research.
3. Ensure that any cultural, archeological or anthropological artifacts incidentally collected, are reported and delivered to appropriate agencies.

Performance Reviews. Regularly evaluate Company performance of the Environmental Code by qualified, externally-accredited environmental auditors from within the adopting Company, or by externally-accredited environmental auditors appointed by the Company. Performance reviews are to be conducted and reported by the company at least every three years.