

THE INTERNATIONAL SEABED AUTHORITY'S TECHNICAL ACTIVITIES IN RESPECT OF THE DEVELOPMENT OF MINERAL RESOURCES IN THE INTERNATIONAL SEABED AREA

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Summary

The International Seabed Authority is the international organization through which States Parties to the United Nations Convention on the Law of the Sea shall, in accordance with Part XI of the Convention and the 1994 Agreement relating to the implementation of this Part, organize and control activities in the seabed beyond the limits of national jurisdiction.

Currently, the Authority is the process of finalizing a set of regulations and rules governing the exploration for polymetallic nodules in areas beyond the limits of the national jurisdiction. In 1998 and 1999 the Authority organized two workshops. The first workshop was devoted to the development of guidelines for the assessment of the possible environmental impacts arising from the exploration for polymetallic nodules. The second workshop dealt with the present state of seabed mining technologies for polymetallic nodules, the future trends in the development of such technology and the promotion of cooperation in the development of technology. The next workshop will be held in 2000 and will deal with mineral resources other than polymetallic nodules in particular polymetallic sulphides and cobalt-rich crusts. The activities the Authority is carrying out is to facilitate the development of exploration and exploitation of mineral resources in the international seabed area. Among its activities, is the development of a database on polymetallic nodule resources (POLYDAT). The database has proven useful for resource assessments of areas reserved for the Authority.

Introduction

The International Seabed Authority (<http://www.isa.org.jm/>), which has its headquarters in Kingston, Jamaica, is an autonomous international organization established under the 1982 United Nations Convention on the Law of the Sea and the 1994 Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea

The fundamental principles of the regime, as reflected in the United Nations Convention on the Law of the Sea and in the Implementation Agreement adopted by the General Assembly of the United Nations in 1994, are that:

- the mineral resources of the international seabed area shall be the common heritage of mankind and not subject to appropriation by any State;
- all rights in the mineral resources of the international area shall be vested in mankind as a whole and the economic benefits from deep seabed mining are to be shared on a non-discriminatory basis for the benefit of mankind as a whole;
- the International Seabed Authority is established as the organization to administer such resources and to promote and encourage the conduct of marine scientific research in the international area.

The Authority came into existence on 16 November 1994, upon the entry into force of the 1982 Convention. The headquarters of

the Authority are in Kingston, Jamaica. All States Parties to the 1982 Convention are members of the Authority. At the end of 1999, there were 132 members of the Authority. The governing bodies of the Authority are the Assembly and the Council.

The principal function of the Authority is to regulate deep seabed mining. In so doing, the Authority is required to give special emphasis to ensuring the protection of the marine environment from any harmful effects, which may arise from mining activities.

The Authority also has the responsibility to promote and encourage marine scientific research in the international seabed area and to coordinate and disseminate the results of such research.

Exploration for and mining of any of the mineral resources in the international seabed area can only be carried out under a contract issued by the Authority. The Authority may issue contracts to mining companies or states which wish to carry out such activities, and must ensure that their activities are carried out in accordance with the contract.

Establishment of rules, regulations and environmental guidelines

The International Seabed Authority has been involved in elaborating a set of rules and regulations to govern the exploration for polymetallic nodules to be found in the Area. With the imminent adoption of this set of rules and regulations, another hurdle in the establishment of the legal regime under which these mineral resources may be exploited will have been completed.

Prior to the entry into force of the 1982 Convention, some countries and mining consortia had made large preliminary investments in the survey and location of polymetallic nodules. These entities were accorded a special status as registered pioneer investors.

An important milestone was reached at the third session of the Authority in August in 1997 when plans of work for exploration by seven registered pioneer investors were formally submitted and considered to be approved by the Council of the Authority. The pioneer investors concerned are

- Government of India
- Institut français de recherche pour l'exploitation de la mer (IFREMER)/Association française pour l'étude et la recherche des nodules (AFERNOD) (France)
- Deep Ocean Resources Development Co. Ltd. (DORD) (Japan)
- Yuzhmorgeologiya (Russian Federation)
- China Ocean Mineral Resources Research and Development Association (COMRA) (China)
- Interoceanmetal Joint Organization (IOM) (Bulgaria, Cuba, Czech Republic, Poland, Russian Federation and Slovakia)
- Government of the Republic of Korea

These rules and regulations contain a number of provisions for protection of the environment including set aside of reference zones, implementation of monitoring programmes, submission of specific information, and liabilities for damage to the marine environment. In applying for an exploration contract, contractors are required to provide, inter alia, environmental data (wind speed and direction, current speed and direction, water temperature and salinity, and data on biological communities), an assessment of the potential environmental impacts of their proposed activities and a description of a programme for oceanographic and baseline environmental studies. To this end, the Authority convened a workshop in Sanya (China) on the development of guidelines for the assessment of the possible environmental impact arising from exploration for polymetallic nodules. The proceedings of the workshop¹ in Sanya entitled, "Polymetallic Nodule Exploration: Development of Environmental Guidelines" are available at the Secretariat of the Authority.

Seabed mining technology development

From 3-6 August 1999, the International Seabed Authority hosted another workshop to determine the progress that has been made in developing technologies for exploring for and mining deep-sea polymetallic nodules in areas beyond the limits of national jurisdiction.

Participants in the workshop included representatives of those states that had taken advantage of the provisions of resolution II of the United Nations Convention on the Law of the Sea, and registered pioneer areas or claim sites in the seabed (registered pioneer investors), policy makers engaged in the elaboration of codes for exploration and mining in the Area and experts from other marine mineral industries.

The workshop was convened in order to review the progress in the work of the registered pioneer investors in relation to exploration and mining technology, and in the light of recent events, to better define the fiscal/legal regime for deep seabed polymetallic nodules of the Area.

The proceedings of the workshop² are available at the Secretariat of the Authority. In addition to the papers that were presented during the workshop, the proceedings will contain summaries of presentations by the various experts, summaries of the discussions that followed the presentations, and the conclusions of the workshop. The proceedings will also contain a patent study to determine trends in deep seabed exploration and mining technology development prepared by the Secretariat of the International Seabed Authority

Finally, the International Seabed Authority will issue a CD ROM containing patents that have been granted in recovery technologies for use in deep seabed polymetallic nodule resource development since the 1960s.

Development of mineral resources of the international seabed area

Deposits of polymetallic nodules were discovered on the seabed more than 100 years ago. Scientific investigation found that the nodules contained valuable metals such as manganese, nickel, copper and cobalt. Since the late 1960s the nodule resources have aroused the interest of worldwide mining companies. Recent scientific studies have aroused interest in other mineral resources,

such as polymetallic sulphides and cobalt-rich crusts, found in the international area.

Interest in cobalt-rich manganese crusts, on account of their cobalt content, has been demonstrated by the frequency of surveys in the Pacific Ocean. These mineral resources are widespread on the seabed, and are commonly found on the flanks of seamounts. They are known to contain nickel, copper, zinc, iron, manganese as well as cobalt.

During the past two decades of ocean exploration, numerous polymetallic sulphide deposits have been found in different parts of the deep seafloor. These deposits, containing high concentrations of zinc, lead, copper, barium, silver and gold, have been mapped in different parts of the world ocean floor.

Others mineral resources of the deep seabed such as gas hydrates, oil and gas, marine phosphorites and precious metals have also aroused the interest of research institutions and mining companies. In addition, certain types of fauna associated with vent systems where sulphides are to be found the so-called genetic resources have also attracted a significant amount of commercial interest.

In the context of the International Seabed Authority, this interest in marine mineral resources other than deep polymetallic nodules was confirmed by a request of the Russian Federation for the Authority to adopt rules, regulations and procedures for the exploration and exploitation of deposits of polymetallic sulphides and cobalt-rich manganese crusts to be found in the international seabed area.

At the present time, however, the acquired knowledge on the marine mineral resources has not proven sufficient to extract and exploit them. While interest in deep seabed polymetallic nodules exploitation has existed during the past 40 years, interest in other marine mineral resources of the Area is relatively recent. The economic value of a marine mineral occurrence at any time, is determined by means of resource assessment, availability and cost of mining technology, and information about market conditions of the commodities to be extracted. The bridge between the geology and the origin of marine minerals and the engineering for future commercial exploration and exploitation is built in part by resource assessments. Assessments bring forth specific information on the value of mineral deposits and promote them from the theoretic to the practical.

Adequate resource assessment of mineral deposits have been made for manganese nodules deposits in the equatorial Pacific Ocean by six of the above mentioned seven registered pioneer investors. A detailed resource assessment is currently being conducted in the areas reserved for activities by the International Seabed Authority. This assessment will review the available data and information relating to polymetallic nodules, evaluate the adequacy of data, evaluate the resources potential, estimate the potential mining characteristics and identify prime areas for future exploration and development.

When the extent and valuable metal content of polymetallic nodules and the appropriate technology to mine them become known, their economic worth will be more easily determined.

In order to contribute to the development of the mineral resources of the Area, the International Seabed Authority is in the process of developing a central data repository on mineral resources of the international seabed area. In the first phase in development of the central data repository will consist of compilations of all public and private data and information on polymetallic nodules, cobalt-bearing ferromanganese crusts and polymetallic sulphides. The purpose of the central data repository is to provide the international community with a reading available source of information on, inter alia, occurrences of all mineral resources of the Area and resource assessment of known deposits.

The International Seabed Authority will also convene a workshop, in 2000, to identify the technical parameters of some marine mineral resources, especially polymetallic sulphides and cobalt-bearing manganese crusts. The workshop will also seek to identify institutional factors that have facilitated continuing research on these deposits. It is expected that the proceedings of the workshop³ will serve as a guide for drafting rules, regulations and procedures for prospecting and exploring for these mineral deposits.

Conclusions

The activities that the Authority is carrying out are to facilitate the development of exploration and exploitation of mineral resources in the international seabed area. The Authority is currently finalizing rules and regulations governing the exploration for and guidelines for the assessment of the environmental impact from the exploration for polymetallic nodules to be found in the international seabed area. Upon conclusion of the rules and regulations, the Authority will issue contracts to seven registered pioneer investors which have submitted plans of work for exploration on polymetallic nodules.

The future mining of marine mineral deposits was certainly one of the rationales behind the jurisdictional claims made during the Third United Nations Conference on the Law of the Sea. Improvements and advances in technology are still needed before the marine mining industry can fulfill aspirations to extract mineral resources. In any case, the 21st century is expected to mark the beginning of a worldwide systematic effort to exploit these resources in marine areas beyond the limits of national jurisdiction.

The Authority has a long way to go but one can hope that this organization which has been founded on the noble concept of the common heritage of mankind will be of great value for future generations and contribute to a more peaceful world.

References

1 Proceedings of the International Seabed Authority's Workshop on Deep-Seabed Polymetallic Nodule Exploration: Development of Environmental Guidelines. Sanya. Hainan Island, People's Republic of China. 1-5 June 1998.

2 Proceedings of the International Seabed Authority Workshop on Proposed Technologies for Deep Seabed Mining of Polymetallic Nodules.

3 International Seabed Authority Workshop on Mineral Resources of the International Seabed Area. To be held in Kingston, Jamaica. 26-30 June 2000.