



ENVIRONMENTAL, LEGAL AND TECHNICAL CHALLENGES FOR DEEP SEA MINING

Sensitization Seminar

The International Seabed Authority (ISA) sensitization seminar on the Work of the International Seabed Authority and the Environmental, Legal and Technical Challenges for Deep Sea Mining was held between 5 and 6 November 2015 in Santiago, Republic of Chile. The seminar was jointly organized by the Ministry of Foreign Affairs of Chile, the Embassy of Chile in Jamaica and the ISA. This was the tenth in the series of sensitization seminars convened by the ISA and the second in South America. Sensitization seminars have been held in Indonesia, Brazil, Nigeria, Spain, Jamaica, New York (2), Mexico and South Africa. The seminars are requested by ISA member States and organized by the host country in partnership with the ISA. The seminars aim to bring together experts from the legal and scientific community with national and regional government officials, scientists, researchers and academics to discuss scientific, legal and environmental research on marine minerals and improve regional cooperation in scientific research in marine development.

INTRODUCTION

The 60 participants at the seminar included representatives from the Ministry of Mining, Economy and Environment, Comisión Chilena del Cobre (COCHILCO), Chilean Navy, Shoa, Dirección General del Territorio Marítimo y de Marina Mercante (DIRECTEMAR), Mining Commission, Mining Council, Chilean National Congress, Valparaiso University, ANEPE, SONAMI, WWF, the British High Commission, other private and public sector bodies, and non-governmental organizations.

In his opening address, HE Mr Eduardo Bonilla, Permanent Representative of Chile to the Authority, pointed out the need for Chile to be informed and involved in the activities that were taking place in the Area. He felt this was important not only because Chile was one of the major copper producers in the world, but also because the activity of future mining for seabed minerals might have a worldwide impact on its economy, both environmentally and legally. He acknowledged that Chile had not been sufficiently involved with the ISA and its work on deep sea mining.

HE Alfredo Labbe, Sub-Secretary of the Ministry of Foreign Affairs, recognized the importance of the activities currently being carried out in the Area, mainly exploration of minerals in the deep sea. He said that because of the nature of such resources, any

exploitation activity must be done in a rational and respectful manner to ensure the protection of the marine environment in keeping with the precautionary principle for the common heritage of mankind.

In his address, sub-Secretary of the Ministry of Mines of Chile, Mr Ignacio Moreno, recognized the passivity of the Mining Industry towards deep sea mining in the Area. He acknowledged that a traditional mining country such as Chile should play a more active role in the discussion and decisions taken by the ISA, because in the short and long term it would impact the Chilean economy. He added that mining activities worldwide were important to Chile because of the business opportunities that Chile might realize from various aspects of mining.

In his opening address, Secretary General Nii A. Odunton echoed the words of Ambassador Labbe, noting that Chile as a major copper producer in the world must be more actively involved in the Authority's work. He noted that not only would Chile's interest actively promote the preservation of the environment but it would also allow the country to provide expertise in mining management and strategies.

THE UNITED NATIONS CONVENTION ON THE LAW OF THE SEA (UNCLOS)

The Work of the Division for Ocean Affairs and the Law of the Sea (DOALOS)

The functions of the UN Division for Ocean Affairs and the Law of the Sea were presented by Ms Charlotte Salpin. She explained that DOALOS is one of the Divisions of the Office of Legal Affairs of the UN Secretariat. The others are: Treaty Section, Office of the Legal Counsel, International Trade Law Division, General Legal Division and the Codification Division. DOALOS supports the secretariat, depositary and publicity functions for States Parties to UNCLOS, as well as servicing the Commission on the Limits of the Continental Shelf (CLCS), UN Fish Stocks Agreement, the Regular Process Secretariat, liaison with UN-Oceans focal points, publications and capacity building. The CLCS also provides fellowship programmes, and a well-developed technical cooperation unit to provide capacity building on Law of the Sea legal and technical issues to developing countries.

The International Seabed Authority

Secretary-General Odunton presented the overarching issues for which the ISA has responsibility. He mentioned the major achievements of the ISA in the last 20 years including: the adoption of the rules and regulations for the exploration of polymetallic nodules, cobalt rich ferromanganese crusts and polymetallic sulphides; the ongoing standardization of environmental data among contractors; and the recent process towards a mining code for deep sea minerals in the Area. The Secretary-General said the ISA was entering a phase in which some contractors had reached the end of their exploration contract term (15 years), and were in the process of submitting applications for extensions.

The International Tribunal for the Law of the Sea (ITLOS)

ITLOS Senior Legal Officer, Dr Ximena Hinrichs, made a presentation on the work of ITLOS. She said the Tribunal is composed of 21 independent members elected by the States Parties to the Convention and deals with boundaries, privileges and disputes in international waters as stated in Part XV of the Convention on the Law of the Sea. The core competence of the Tribunal is to deal with disputes concerning the interpretation or application of the provisions of the Convention (contentious jurisdiction). The Tribunal, which has jurisdiction to deal with legal questions

submitted to it (advisory jurisdiction), is also open to entities other than States Parties in any case submitted pursuant to any other agreement-conferring jurisdiction on the Tribunal, which is accepted by all the parties to that case. Disputes relating to activities in the Area are submitted to the Seabed Disputes Chamber of the Tribunal, consisting of 11 of the Tribunal's judges. Parties to such disputes may include States Parties, the ISA, state enterprises and natural or juridical persons referred to in article 153, paragraph 2 (b), of the Convention. In addition to its contentious jurisdiction, the Chamber is also competent to give advisory opinions on legal questions arising within the scope of activities of the Authority, as it did in 2011 in a case regarding the Responsibilities and Obligations of States sponsoring persons and entities with respect to activities in the Area. To date, 24 cases have been filed with the Tribunal. Through its judicial work, the Tribunal has pronounced itself on a variety of issues under the Convention and made an important contribution to the development of international law and the peaceful settlement of disputes.

Commission on the Limits of the Continental Shelf (CLCS)

Ms Charlotte Salpin of DOALOS also made a presentation on CLCS. She said the Commission considers submissions by coastal States in respect of the establishment of the outer limits of the continental shelf beyond 200 miles; makes recommendations regarding the outer limits and provides scientific and technical advice to member states. To date the Commission had received 77 submissions of which four were revised; 47 were preliminary information of which 25 had become submissions; and 22 recommendations had since been approved with four deposited with the Secretary General of United Nations ([Figure 1](#)).

National and International Law Regime of Chile and the Convention of the Law of the Sea

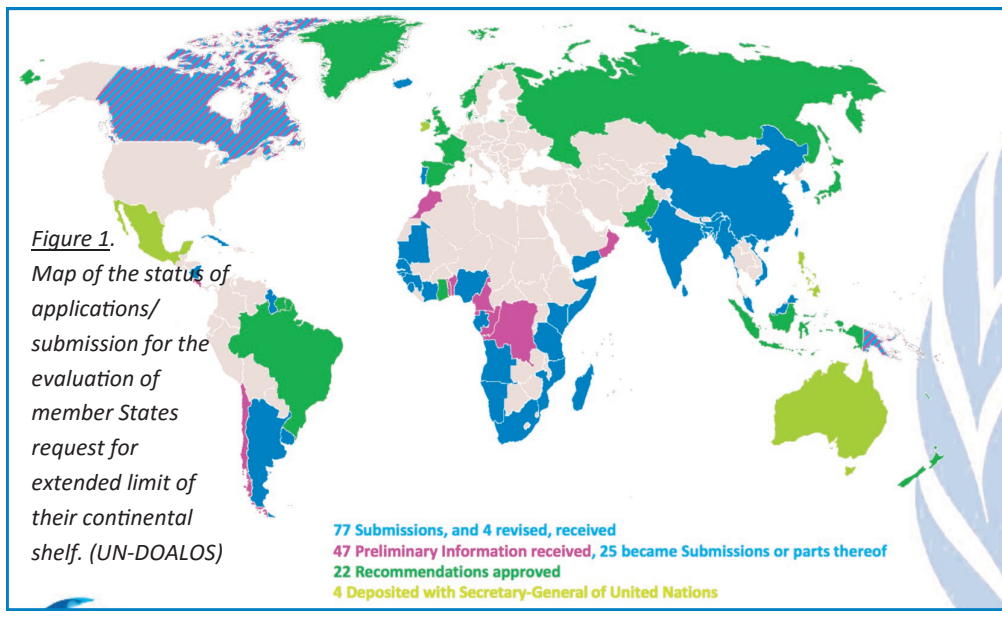
Dr Sergio Hernandez of INCAR/Universite de Concepción gave an evaluation of the South East Pacific perspective on the work of the Authority. He noted that institutionalization forced individuals to participate as a right, but that it also imposed responsibilities and liabilities. He referred to the work of the ISA and called on citizens to participate in



Speakers: L-R Dr Gordon Paterson, Ms Charlotte Salpin, Ambassador Rodrigo Perez, Ambassador Jose Manuel Silva and Dr Ximena Hinrichs

**Deep Sea Mining:
Environmental Monitoring
Assessment Challenges**

Dr Gordon Paterson of the National History Museum of London spoke about the environmental challenges of deep sea mining. He said it was clear that the tax to develop a much needed environmental baseline study for the area would be difficult based on complexity of the environment. In addition to the methodological constraint for sampling, there was the distance from land and the inherent characteristics of deep



deciding the future of environmental conservation deep sea mining of minerals.

Role, Functions and Structure of the International Seabed Authority

Mr Michael Lodge, Deputy to the Secretary General of ISA spoke of the roles and functions of the ISA. Mr. Lodge presented the historical evolution of the activities at the Clarion Clipperton Zone as well as the increasing number of applications for exploration for cobalt crusts and polymetallic massive sulphides. To date, there are regulations for prospecting and exploration for polymetallic, for cobalt crusts and for polymetallic sulphides. He also mentioned that the ISA was developing a regulatory code for exploitation and welcomed participation by all stakeholders, including Chilean institutions, towards this effort.

Deep Sea Mining in the Area

The Head of the Office of Resources and Environmental Monitoring Department, Dr Sandor Mulsow, discussed the main characteristics (orogeny, habitat) of the mineral ores being explored, as well as giving a description of the different environments of the deep sea where they are found. He said it was important that the advancement on exploration was in tandem with the acquisition of much needed fundamental environmental data to ensure a rational and sustainable use of the common heritage of mankind. Without the environmental data, it would be impossible for the ISA to regulate and evaluate the impact on marine habitat. To date there are 24 contractors: 15 for polymetallic nodules; five for polymetallic sulphides and four for cobalt crusts. It was noted that there was more than one contract per country; China (4), Russia (3); Korea, Japan, Germany, India and France have two contracts (different ores). UK has two contracts for the same ore, polymetallic nodules. There was also a new series of contracts with private international companies, sponsored by developing countries. This allows them to have access to reserved areas held by the ISA as prescribed in the rules and regulations for exploration.

sea habitat. Dr Paterson pointed out that there were difficulties and limitations in conducting an assessment for the Area. This could hinder the ISA mandate to regulate and protect the marine environment from mining in areas beyond national jurisdiction. Not only did methodological challenges exist, there was the lack of man power, specifically taxonomists to analyze the collected biological samples, evaluate loss of diversity and describe and record species levels.

PERSPECTIVES OF DEEP SEA MINING

Mineral Resources of CODELCO, History and Strategy

The public mining group of Chile, CODELCO, presented a perspective for the future activities of Chile’s public mining sector. Mr Jose Pesce, Vice president of Resources and Development, presented the mining strategy program of CODELCO; which produces eight per cent of world reserves of Copper (*Figure 2*).

Corporación Nacional del Cobre

(CODELCO) has extensive experience in land mining and producing high purity copper (Cu “A”, 99.997% Cu). It has

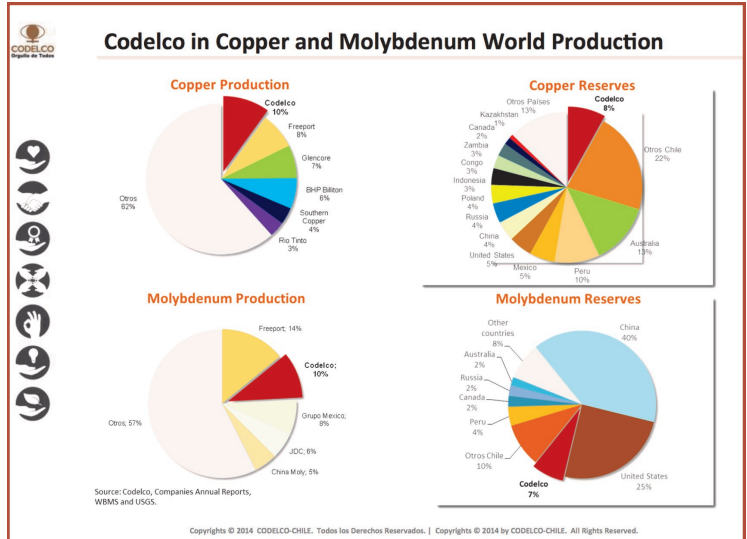


Figure 2. CODELCO copper and molybdenum world production. ©CODELCO 2014.



Seminar Participants

diversified its efforts based on technology and the global market. Currently, 75 per cent of CODELCO's efforts are centred in Chilean sources and recently (25%), in Ecuador and Brazil. The future planning and development does not include deep sea mining. One of reasons noted was that there is no mining legislation to allow underwater concessions within 12/200 miles. Another important reason was the "know how" needed to do deep sea mining.

In his talk, the representative of the Committee for Mineral Reserves International Reporting Standards (CRIRSCO) of Chile mentioned that deep sea mining would need to follow international standards in reporting resource classification to seriously develop a financially viable plan of work for the exploitation of minerals.

Deep Sea Mining Potential in the Pacific Ocean and the implications for land-based mining

- **COCHILCO: Regulation and Royalties Regime Implementation**

Dr Sergio Hernandez, Vice President of COCHILCO, provided the audience with an exhaustive and clear analysis on the origin, development and generation of the specific tax regime implemented by Chile to miners in 2007. He noted that one of the steps the ISA would need to take towards exploitation of natural resources of the Area would be the development of a mining code and a financial regime of collecting revenue from the

resources exploited that are the common heritage of mankind.

- **A Review of the Scientific and Environmental Challenges for the Region on Other Uses of the Deep Sea Environment**

Dr Bernard Dold, Universidad de Chile, presented the challenges and constraints in using deep sea habitats for disposal of mining tailing from land-based miners. Chile has a serious need to dispose of Cu mine tailings. In the north of Chile, there has been a geomorphological change caused by passive tailing migration from land-based mines in the coastal area. Dr Dold pinpointed that it was crucial to define the geochemical characteristics of the tailing as well as the environmental condition of the deep sea habitat (reducing vs oxidizing geochemical conditions). He also mentioned that climate change, as well as the poor understanding of the deep sea and oceanographic conditions made the execution of sound environmental impact assessment studies difficult. Consequently, there were challenges in relation to approval for deep sea tailing placement in countries, like Chile, which were in close proximity to the deep sea from the coast and subduction areas in the Pacific Ocean.

CONCLUSION

In his closing address, Mr Michael Lodge noted the interesting perspective of Chile as one of the major mineral producers and active members of the Council at the ISA. He said Chile's presence every year at the ISA Annual Sessions reflected their interest in the activities of the ISA. He also thanked the seminar hosts and advised them that ISA looked forward to Chile's continuous involvement in ISA's activities.

In his closing statement, Ambassador Eduardo Bonilla, on behalf of the Government of Chile, called for more proactive involvement in increasing the mission of Chile to the ISA and to be more informed of both the positive and negative effects impacts that deep sea mining can have as compared to land-based mining countries. He reminded seminar participants of the need to consider future active participation of Chilean experts to support the ISA activities in areas beyond national jurisdiction. §

For complete copies of the seminar presentations, visit <http://bit.ly/1TmNVmb>



The International Seabed Authority 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 Authority is the organization through which States Parties to the Convention shall, in accordance with the regime for the seabed and ocean floor and subsoil thereof beyond the limits of national jurisdiction (the Area) established in Part XI and the Agreement, organize and control activities in the Area, particularly with a view to administering the resources of the Area.

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