DEEP SEA MINING AND MARINE ENVIRONMENT

@ THE 18TH SESSION OF INTERNATIONAL SEA BED AUTHORITY

Aphary Muyongo & Gabi Schneider
International Seabed Authority

- Autonomous international organization established under the 1982 United Nations Convention on the Law of the Sea (UNCLOS) and the 1994 Agreement.
- 1994 Agreement: relates to the Implementation of Part XI (Seabed mining provision) of the UNCLOS.
- Organization through which State Parties, in accordance with a regime for the seabed and ocean floor and subsoil thereof beyond the limits of national jurisdiction (“the Area”) organize and control activities in the Area, with a view to administering the resources of the Area.
- 162 parties (161 states and the European Union) are members of the ISA.
Earth Sciences for Namibia’s Sustainable Development
Prospects of deep sea mining (DSM) are moving rapidly and could begin in a few years.

17 prospecting & exploration contracts in the Area (12 in 2011)

Major Question of potential Environmental impact

Marine Ecosystem vs DSM

Environmental management and conservation
Minerals in the Area

Currently, known main minerals include:

- Poly-metallic nodules
- Cobalt-rich ferro-manganese crusts and
- Poly-metallic sulphides
- Rare earth elements—under evaluation as potential by-products of seafloor deposits.

History: DSM emerged in the 1960s, 1970s interest declined because of low metal prices, at present stimulated by metal demand from BRICS countries; surveys indicate 4-5 times the concentrations compared to land.
Poly-metallic Nodules

Metals are derived from erosion of rocks on land which are transported by rivers to oceans and precipitated on the deep sea floor. Discovered in 1968, in the Arctic ocean off Siberia. Polymetallic nodules occur in a single layer and contain metals of economic interest such as Ni, Cu, Co, and Mn (also Mo, V, Ti and REE).

Source: teara.govt.nz
Cobalt-rich Fe-Mn crusts

Discovered with poly-metallic nodules but distinguished from nodules in 1970, usually at shallow depth of ~370 m. This mineral resource precipitated over Ma from metals dissolved in seawater on submerged flanks of inactive volcanoes. Occurs throughout world oceans; potential resource of Co, Ni, Ce, Ta, Pt, Mn, and Fe.

Source: jcm.riken.jp
Poly-metallic Sulphides

Discovered in 1978, contain Cu, Fe, Zn, Ag, Au and other metals in varying amounts. Formed by leaching of oceanic crustal rocks and by Black smokers which discharge hot metal + sulphide-rich solutions into the ocean and subsequently precipitate clouds of metallic mineral particles.
The "Mining Code" refers to the whole of the comprehensive set of rules, regulations and procedures issued by the International Seabed Authority to regulate prospecting, exploration and exploitation of marine minerals in the international seabed Area (defined as the seafloor and subsoil beyond the limits of national jurisdiction).

All rules, regulations and procedures are issued within a general legal framework established by the 1982 United Nations Convention on the Law of the Sea and its 1994 Implementing Agreement relating to deep seabed mining.
Held from 15 – 27 July 2012 in Kingston Jamaica.

5 new applications for work in the Area were approved at the session bringing the total prospecting and exploration contracts to 17. These applications came from companies based in Korea, France, UK, Kiribati and Belgium. While the first one is for the central Indian Ocean, and the second one is for the Atlantic Ocean, the last three are for the Clarion-Clipperton Zone.
20 members of the 36-member Council were newly elected, amongst them Namibia and South Africa.

Regulations on prospecting and exploration for cobalt-rich ferromanganese crusts completed after 3 years of work.

Special session was held whereby various presenters highlighted the importance of environmental and biodiversity conservation. A video titled “Volcanoes of the deep sea”, was shown (film by Peter Rona, Rutgers University).

Highlight: commemoration of the 30th anniversary of the opening for signature of the 1982 UNCLOS in Montego Bay, Jamaica. Government of Jamaica in collaboration with ISA unveiled a plague at Hilton Rose Hall Hotel, Montego Bay, Jamaica.
Annual reports of contractors cover environmental aspects which include a section on baseline data and the reports are discussed at each session.

Significant scientific and technical baseline data on marine biodiversity have been obtained from contractors although not in a standard format. Baseline data are necessary to conduct environmental impact assessments.

The secretariat for the first time since issuing the first contract (in 2000), convened a meeting with all contractors in the Area on standardization of environmental data as well as taxonomy. Three workshops are planned in this regard.
ISA adapts a precautionary approach and recognizes the intimate association of biodiversity & deep sea Mineral resources.

During 18th session, the proposed EMP for the Clarion-Clipperton Fracture Zone (central Pacific) was discussed and it was suggested that the EMP be one of the priority issues for the next session.

It was noted that the ISA should develop and strengthen scientific collaboration with appropriate organisations in a quest for topics relevant to protection of the marine ecosystems.
There is a need to redesign the environmental database to accommodate new data formats.

The process of establishing a framework, including guidelines for EIA, standardization of environmental data & information, international cooperative scientific projects (awareness), and studies aimed at determining the natural variability of environmental baselines in the mineral provinces, is ongoing.
Conclusion

1. Substantial baseline environmental data exists and will be helpful in conducting EIAs.
2. More data is anticipated as the number of contracts in the Area is increasing.
3. ISA should play a central role in setting up instruments for the protection of marine ecosystems + biodiversity.
4. The EMP of the Clarion-Clipperton Fracture Zone should be finalized in the near future.
By August 2012 the ISA had received two new applications for seabed exploration licences.

The two new applications have been filed in respect of areas located in the West Pacific Ocean and are for exploration for cobalt-rich ferromanganese crusts.

The application from China Ocean Mineral Resources Research and Development Association (COMRA) was received 27 July 2012.

The application Japan Oil, Gas and Metals National Corporation (JOGMEC) was received 3 August 2012.

In accordance with the Regulations, the members of the Legal and Technical Commission will be notified of the above applications and consideration of these applications will be placed on the agenda of the Commission at its next meeting in 2013.
Geology underlies everything!

Thank you!