COUNCIL HEARS CANADIAN EXPERT ON MODELS FOR MARINE SULPHIDE EXPLORATION

The Council of the International Seabed Authority this afternoon heard expert presentation on the technical and other factors on which regulations on the prospecting and exploration for marine sulphides could be based.

The Council, which began a substantive debate on draft regulations on mining polymetallic sulphides in the international seabed area, invited Professor Mark Hannington, a geological expert from the University of Ottawa, Canada, to present his research on Global Exploration Models for Polymetallic Sulphide Deposits in the Area.

Prof. Hannington’s paper examined criteria and possible models for allocation of lease blocks for exploration in the Area and provided scientific rationale for the selection of areas for prospecting and for a schedule of relinquishment during the exploration phase.

Beginning with a brief history of the research into hydrothermal vents, Prof. Hannington explained that scientists had identified more than 300 sites of submarine hydrothermal venting, of which approximately 100 were host to polymetallic sulphides. Some 40% of those sites, characterised by black smoker vents which could reach temperatures of 350°C, were located within the Area. He added that polymetallic sulphides had specific characteristics, in terms of geological settings, distribution and continuity, that distinguished them from ferromanganese crusts and polymetallic nodules. Those specifics must be considered in allocating areas for exploration, he said.

Two models for the allocation of areas were compared, using contiguous and non-contiguous blocks. The study encompassed 32 different areas, including 12 located in the Area, known to contain at least one occurrence of polymetallic sulphides. Due account was taken of geological limitations on prospective areas; the distribution of polymetallic sulphides and the characteristics of individual sulphide occurrences.
In his conclusion, Prof. Hannington noted that the permissive areas for polymetallic sulphides - areas where they were likely to be found - were large. However, the occurrences were localized and the areas likely to be considered for exploitation relatively small. His findings suggested that in most cases, a single exploration area of 10,000 square kilometers would be too small to encompass all of the polymetallic sulphide deposits that might be located within an area of 5 degrees by 5 degrees.

Therefore, he said that the use of 100 contiguous blocks in a plan of work for exploration, as defined in the draft regulations, would most likely be insufficient for long-term exploitation. His study recommended that the regulations should allocate areas that were large enough to contain a number of occurrences and that applications comprising non-contiguous blocks should be permitted throughout the exploration and exploitation stages.

The discussion following the presentation highlighted the problems associated with ascertaining grades of metal content in the deposits, their estimated market value, once mined, and the difficulty of conducting any economic analysis on the viability of mining sulphides before further testing and analysis of samples. Some delegations were concerned about the impact of sulphide exploration on the environment and one member inquired about the possibility of restricting exploration to non-smoking vents to preserve the high level of biodiversity typically found in hydrothermal vents.

Before adjourning the meeting, the Council president commended Professor Hannington on his useful presentation.

The Council will meet tomorrow morning to resume its deliberations on the draft regulations for polymetallic sulphides.

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