SEABED COUNCIL HEARS TECHNICAL AND ECONOMIC PRESENTATION ON COBALT CRUST MINING AND PROCESSING; CONTINUED DEBATE ON CRUST REGULATIONS

The Council of the International Seabed Authority meeting in Kingston today heard a technical presentation from Chinese experts on cobalt crust mining and processing, and resumed work on formulating rules, regulations and procedures for prospecting and exploration for cobalt-rich ferromanganese crusts that occur on seamounts in the deep oceans.

China introduced a team of experts from the Beijing General Research Institute of Mining and Metallurgy for a presentation on the “Technical and Economic Evaluation of Cobalt-Crust Mining and Processing.” China was making good on a promise to have the experts make the presentation on the technical aspects of its proposed revision to Regulation 12 – Total area covered by the application – and allow Council members to ask questions.

The first presentation, made by Kaixi Jiang, highlighted the economic viability of a mining operation for cobalt-rich ferromanganese crusts for 20 years with annual crust production of one million wet tones (Assumed scale in ISBA/12/C/3/Part 1). It covered market trends of the related metals and minerals, investments estimation, operation costs estimation, and analysis on investment effects.

Market trends showed cobalt price average in the last 10 years at $19.0/lb, rising to an average of $24.5/lb in the last 5 years, leveling off at a price of $20.6/lb in 2010; there was an average increase in consumption of 7.1% in the last 20 years. Nickel price averaged $16976/t, and $23764/t for last 10 and 5 years, respectively, and was $21570/t in 2010; consumption of nickel showed average increase of 3.1% in the last 20 years. Copper prices rose from a 10 rear average of $4510/t to $7534/t in 2010, and a 3.1% average increase in consumption. The price of Manganese Ore averaged $5.4/t.1%Mn in last 10 years; $4.1/t.1%Mn in last 5 years, and was $5.5/t.1%Mn in 2010. Consumption of the Ore increased at an average of 5.6% YoY in last 10 years.

Among the conclusions from the presentation:

- The current metal price is near the 5 year average, and much higher than 10 year average. Metal price may become lower in future.
- Total CAPEX are $888 million for 1 million wet tones crust for which total annual operation costs are $236.9million.
- The capacity has big influence on the project profile.
From the technical and economic evaluation, it should be recognized that crust mining is a future project with a big risk.

In the second presentation, Professor Gaowen He outlined the components used to construct the Model Mine Site: crust grade, crust thickness and slope. He stated that only areas having a grade of at least 0.5 per cent cobalt, a thickness of 4 cm and a slope equal to or less than 20 degrees were considered “mineable areas”, that is, viable for exploitation.

The model mine site was conceived on the basis of seamounts surveyed and it was estimated that approximately 60 per cent of an area would have an adequate crust thickness; 75 per cent of an area would have a crust grade of 0.5 per cent; and 75 per cent would have a mineable slope. By multiplying these three coefficients, the mineable area was calculated to be 33.7 per cent.

The recovery efficiency was calculated to be 70 per cent based on estimates of un-mined loss of 10 per cent (this arises from the inability to fully mine all ore from a site), and mined loss at 26 per cent (small ore loss, collecting loss and vertical transportation loss). Using these coefficients, it was concluded that the smallest economically viable exploitation area was 1058 km².

In the ensuing discussion, the Russian Federation said the presentation demonstrated that the Chinese proposal to change Regulation 12 was based on specific economic and geological analysis. The representative said his country had also conducted similar analysis and while different estimates of mineable area and recovery efficiency might have been used, the results were likely to be similar. However, he saw the need to conduct further studies before drawing conclusions relevant to regulation 12.

Argentina and Brazil called for more technical analyses and said they needed to return to their capitals before making an informed decision. Chile pointed out that the issues of size of areas and relinquishment requirements were not minor so more time was needed to consider any changes.

Nigeria suggested that the matter should be referred back to the Legal and Technical Commission as the body mandated to examine such technical issues. However, China said it could not accept such a proposal; if delegations needed to seek instructions from their governments the issue should be discussed at the level of the Council next year. The representative expressed the view that if the matter was to be referred to the Commission because of its technical nature, then he could cite many issues in the regulations which could be referred to that body on account of their legal nature.

Fiji made an appeal to the Council to push forward to adopt the draft regulations on crusts. The representative said that his delegation had come to Kingston fully expecting to have the regulations approved at this session. He pointed out that there would be an opportunity to review the provisions in five years. (The code for polymetallic sulphides adopted in 2010 included a review clause, Regulation 44, to facilitate such revisions to the Regulations as might be deemed necessary as in the light of improved knowledge of technology.) Pakistan and Germany endorsed Fiji’s position. On the other hand, Trinidad and Tobago warned against too much haste towards adoption. He pointed out that the two Regulations in question dealt with substantive issues and reminded the Council that the multilateral process of decision-making was not known for its brevity.

At the suggestion of South Africa, the Council then resumed its consideration of the draft regulations on cobalt-rich ferromanganese crusts. Brazil had suggestions for new wording in Regulation 1, paragraph 3 and Regulation 2 paragraph 2, which were circulated to Council members to be discussed at a later meeting. With regard to Regulation 1, that delegation offered to meet informally with South Africa and any other interested delegations to discuss their different viewpoints on deletion of paragraph 4 from that Regulation.
Regulation 5 deals with the protection and preservation of the marine environment during prospecting. It requires prospectors “as far as reasonably possible” to take measures to prevent, reduce and control pollution and other hazards to the marine environment arising from prospecting. South Africa suggested deleting the word “reasonably” in that paragraph as well as in Regulation 33 paragraph 5 which contains the same phrase. This change would be in keeping with the wording in the Convention.

No consensus was reached during the discussion on any suggested amendments to the Regulations.

The Council will meet next Tuesday 19 July to consider the applications for approval of plans of work of four entities: Nauru Ocean Resources Inc. (NORI), Tonga Offshore Mining Limited (TOML), China Ocean Minerals Resources Research and Development Association (COMRA), and the Ministry of Natural Resources and the Environment of the Russian Federation.

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