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Analysis of reported expenditure by contractors

Note by the Secretariat

1. At its last session, in 2010, in the context of its review of the annual reports of contractors, the Legal and Technical Commission expressed concern that contractors had only partially followed the Recommendations for the guidance of contractors for the reporting of actual and direct exploration expenditures, issued by the Commission in 2009 (ISBA/15/LTC/7). The Commission also noted that there were significant variations in reported financial expenditure among contractors in respect of similar items, such as the cost per day of at-sea exploration. Moreover, the Commission expressed its concern that some reported expenditures could not be classified as "actual and direct exploration expenditure" as defined in the Regulations. The Commission therefore recommended that the contractors be requested to provide with their following annual report a revised historical breakdown of reported expenditure in accordance with the 2009 Recommendations. The Commission also requested the secretariat to prepare for its following session a detailed analysis of the reported expenditure by contractors against the recommended headings of expenditure set out in the 2009 Recommendations, in order to enable the Commission to provide further guidance to the incoming Legal and Technical Commission on the treatment of such expenditure.

2. In accordance with the Commission's request, the secretariat has prepared an analysis of reported and declared expenditure, with the assistance of a consultant from the Royal School of Mines of Imperial College, London. The complete analysis and report will be made available to the Commission for its consideration. The present document provides a brief summary of the main findings and recommendations contained in the report. The following text is taken directly from the consultant's report.

I. Report summary

3. A detailed analysis was undertaken of the declared expenditure by the eight contractors on work undertaken on exploration for marine minerals with specific

focus on polymetallic nodules. The contractors comprise Deep Ocean Resources Development Co. Ltd. (DORD), Bundesanstalt für Geowissenschaften und Rohstoffe (BGR), the Government of India, Interoceanmetal Joint Organization, the Ministry of Land, Transport and Maritime Affairs of the Government of the Republic of Korea, China Ocean Mineral Resources Research and Development Association, the Institut français de recherche pour l'exploitation de la mer and the State Scientific Centre Yuzhmorgeologiya of the Ministry of Natural Resources of the Russian Federation.

4. The current 15-year exploration contracts were issued around 2000, with substantial prospecting work having been done earlier. The review therefore falls in year 10 of the 15 years provided for the task. The approach used was to apply to the marine mineral resources that fall within the remit of the Authority the same technical and financial principles that influence the commercial viability of terrestrial mineral deposits.

5. The contracts have significantly reduced the technical risk inherent in the evolution of mineral projects from prospecting to production. In any mineral project, the detailed primary characteristics of the operation are only revealed once extraction has started. In many cases, technical risk has been mitigated. For example, the contractors have undertaken the equivalent of trial mining and pilot plant testing of marine minerals to determine optimum hydrometallurgical and pyrometallurgical extraction of the key metals, notably manganese, copper and nickel. Work undertaken by the contractors undoubtedly represents a valuable source of the primary technical information needed for a pre-feasibility study for any potential investor in a marine mining project.

6. Any financial modelling requires basic assumptions to be made in relation to the fiscal regime that would apply to a marine mining operation, taking into account the fundamental requirement that, under the 1970 United Nations Declaration of Principles governing the seabed and the ocean floor, as reflected in the 1982 United Nations Convention on the Law of the Sea, benefit should be allocated beyond simply the investors in the project. This can best be achieved through the imposition of a royalty on revenues but the level of royalty needs to ensure that the commercial viability of the project is not compromised. Available studies indicate that a marine mining operation would be associated with significant technical risks, and it is important that a favourable tax environment be established by the domicile of the commercial entity that will be developing the project. There is clearly going to be a link between the contractors, given that they are all State sponsored, and the commercial entity.

II. Key findings and recommendations

7. It is clear that all the contractors are in effect Government research and development bodies. The most transparent of these is BGR, whose work on marine minerals is considered part of a general policy of supporting federal ministries of the Government of Germany, such as that for Economic Cooperation and Development. Staff members from BGR have attended courses delivered by the consultant on the technical and financial appraisal of mineral projects, and are clearly seeking to expedite the process of developing their commercial potential. BGR is fulfilling the traditional role of a Government research and development

organization that is taking on the high-risk component of mineral project development, namely the prospecting and exploration stages. The issues of compliance with contractual obligations, meeting minimum expenditure commitments and future tax benefits then become irrelevant as they are unlikely to be evoked by a company developing a marine mining project.

8. Although the Recommendations of the Commission propose that expenditure should be reported, there is no requirement for contractors to undertake an economic evaluation of their areas. Nevertheless, DORD, in its report of work undertaken in 2009, makes specific reference to a preliminary economic evaluation of the mineral deposits present in its area. While the report estimates a massive and unsubstantiated capital cost of $7.7 billion, which would ensure that most mineral projects would not produce an adequate return on investment, that does represent an intelligent approach. Why spend public funds on further research and development to develop manganese nodules when a mining project would not be viable?

9. Some of the technologies and concepts developed for evaluating, excavating and processing manganese nodules could apply to marine polymetallic sulphides. Floating support is presumably very similar for both but differences would obviously apply to the mining stage. The most interesting and practical technology for excavating marine polymetallic sulphides involves mining with drum cutters that cut into the rock face in two-metre benches while advancing at about 7 metres per hour. This is analogous to terrestrial continuous mining applied to both salt and coal deposits. The most successful mining technology for the manganese nodules involves a hydraulic collecting and lifting system. A range of both hydrometallurgical and pyrometallurgical techniques has been tested to recover metal from manganese nodules and polymetallic sulphides. The final choice of techniques would have a major impact on the viability of projects and is likely to be commercially sensitive. The Authority would be well placed to expedite knowledge transfer under confidentiality arrangements. A case could also perhaps be made for a consortium to construct a central processing plant that might attract World Bank funding. That is an option that the Authority could have a role in promoting.

10. Many of the contractors represent countries that have a policy of procuring metals for downstream processing (China, Japan and the Republic of Korea). The Government of the Republic of Korea has effectively paid for all the technical studies needed for a pre-feasibility study, representing a very valuable asset to any future investor. Companies such as Samsung are known to be seeking investment opportunities in the mineral resources sector. While it might seem to be self-evident that good projects would be developed based on normal commercial merits, communication barriers between Government organizations and potential investors often exist. Work completed by contractors must be seen in the context of providing incentives to investors.

11. The principle recommendations of the report are as follows:

(a) The Authority enjoys a unique position in gathering research and development on marine mineral deposits. It is, however, constrained by confidentiality provisions and unable to release into the public domain results presented in the contractors' annual reports. There probably is an exchange of information presented in the annual reports between contractors. For example, it is both inevitable and desirable that a significant proportion of the higher quality marine studies will find its way into the scientific literature. It would clearly be to

the benefit of all if the Authority could act as a clearing house in which studies, particularly those involving technical and financial appraisal, which would be of general interest, could be shared;

(b) For the Authority to be able to encourage contractors to focus on securing the investment needed to develop the resources identified by their activities, there is a need for pre-feasibility-type studies that will provide an indication of the level of returns that can be generated for potential investors. These must include consideration of sources, the cost of capital and the distinction between equity and debt. This in turn is linked to the role of taxation in influencing the cost of debt and the way royalties will be applied, and the overall impact on profitability;

(c) This is probably best achieved by arranging a meeting of the contractors in which specific provision would be made on the agenda to include financial appraisal as one of the components of future reporting. Given that in 2011 the manganese nodule contracts will all be entering the final four years, such a meeting should probably be arranged before the end of the year.

III. Conclusion

12. The Commission is invited to consider the report prepared on behalf of the secretariat and to provide appropriate guidance and recommendations thereon.