

# INTERNATIONAL SEABED AUTHORITY

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INTERNATIONAL SEABED AUTHORITY  
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Report of the Secretary-General of the International Seabed Authority under article 166, paragraph 4, of the United Nations Convention on the Law of the Sea

### I. INTRODUCTION

1. The present report of the Secretary-General of the International Seabed Authority is submitted to the Assembly of the Authority under article 166, paragraph 4, of the 1982 United Nations Convention on the Law of the Sea ("the Convention"). The report covers the period from July 1998 to July 1999.

### II. MEMBERSHIP OF THE AUTHORITY

2. In accordance with article 156, paragraph 2, of the Convention, all States Parties to the Convention are *ipso facto* members of the Authority. As of 12 July 99 there were 130 States Parties to the Convention. Ukraine deposited its instrument of ratification of the Convention and the Agreement on 26 July 1999. Provisional membership of the Authority, in accordance with section 1, paragraph 12(a), of the annex to the Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea ("the Agreement"), terminated for all States on 16 November 1998. As at 16 November 1998, the following States were members of the Authority on a provisional basis: Bangladesh, Belarus, Canada, Qatar, Switzerland, Ukraine, United Arab Emirates and United States of America.

3. The Agreement was adopted on 28 July 1994 by General Assembly resolution 48/263 and entered into force on 28 July 1996. After the adoption of the Agreement, any instrument of ratification or formal confirmation of or accession to the Convention shall also represent consent to be bound by the Agreement. No State or entity may establish its consent to be bound by the Agreement unless it has previously established or establishes at the same time its consent to be bound by the Convention.

4. It should be noted that, as at 12 July 1999, 36 members of the Authority which became States Parties to the Convention prior to the adoption of the

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\* Includes text of ISBA/5/A/1/Corr.1 of 17 August 1999.

Agreement had not yet completed the necessary procedural steps to become parties to the Agreement. These States are: Angola, Antigua and Barbuda, Bahrain, Bosnia and Herzegovina, Botswana, Brazil, Cameroon, Cape Verde, Comoros, Costa Rica, Cuba, Democratic Republic of the Congo, Djibouti, Dominica, Egypt, the Gambia, Ghana, Guinea-Bissau, Guyana, Honduras, Indonesia, Iraq, Kuwait, Mali, Marshall Islands, Mexico, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Sao Tome and Principe, Somalia, the Sudan, Tunisia, Uruguay, Viet Nam and Yemen.

### III. SESSIONS OF THE AUTHORITY

5. The resumed fourth session of the Authority was held from 17 to 28 August 1998. A further resumed session of the Assembly was convened in New York from 12 to 13 October 1998 for the purpose of taking a decision on the scale of assessment of contributions of members of the Authority to the administrative budget for 1999.

### IV. RELATIONS WITH THE HOST COUNTRY

6. In the report of the Secretary-General presented to the Authority at its third session in 1997<sup>1</sup> it was noted that one of the urgent matters to be addressed upon the Secretary-General's taking up his duties was the matter of the headquarters agreement between the Government of Jamaica and the Authority. It was further noted that, following the establishment of the Authority and pending the identification of suitable premises, the Authority was continuing to use as its temporary office the premises in downtown Kingston adjacent to the Jamaica Conference Centre formerly occupied by the Kingston Office for the Law of the Sea. In August 1997, following concerns expressed by the members of the Authority, the Government of Jamaica offered, as an interim measure, to provide the secretariat with additional space in the premises it currently occupies pending a decision on the location of the permanent headquarters of the Authority. This additional space was urgently needed to accommodate the increased numbers of staff in the secretariat. Additional space was provided in October 1998 and the Authority undertook refurbishment of the area, at its own expense, between April and June 1999. The total cost of the refurbishment is estimated to be approximately \$240,000. This amount was met in part from the 1998 budget of the Authority, with the balance out of the 1999 budget. The refurbished area will adequately meet the present needs of the secretariat in terms of office space, although further funds will be required in the administrative budget for 2000 to properly equip and furnish the office. Much of the existing furniture and equipment in use dates back to 1983 and is in desperate need of replacement.

7. On 10 March 1998, the Minister of Foreign Affairs and Foreign Trade of Jamaica informed the Secretary-General by letter that the Government of Jamaica had decided to offer the building currently occupied by the Authority for the permanent use and occupation of the Authority as its headquarters. The Secretary-General informed the Assembly of the offer on 17 March 1998, noting that clarification would have to be obtained from the Government of Jamaica with respect to the terms and conditions of the offer and that a report on the financial and other implications for the Authority of the offer would be prepared as soon as relevant information was available. Of particular concern were the maintenance costs, the structural condition of the building, the condition of major equipment, and the question of refurbishment. As noted in the Statement of the President on the work of the Assembly during the resumed fourth session,<sup>2</sup> information on these matters was not forthcoming in time for the August 1998 session of the Authority. A full report on the

implications of the offer will be submitted to the Finance Committee during the fifth session.

8. In the circumstances, pending consideration by the Council and Assembly of the formal offer made by the Government of Jamaica, it has not been possible to make any further progress with the draft headquarters agreement between the Authority and the Government of Jamaica submitted to the Council during the first part of the third session of the Authority in March 1997.<sup>3</sup>

#### V. PROTOCOL ON PRIVILEGES AND IMMUNITIES

9. The Protocol on the Privileges and Immunities of the International Seabed Authority, adopted by the Assembly at its 54th meeting, on 26 March 1998,<sup>4</sup> was opened for signature in Kingston on 26 August 1998. The Protocol was signed on that day by the representatives of the Bahamas, Brazil, Indonesia, Jamaica, Kenya, the Netherlands and Trinidad and Tobago. Since then, the Protocol has been signed at United Nations Headquarters by Chile, Cote d'Ivoire, Finland, Ghana, Greece, Senegal, Slovakia, the Former Yugoslav Republic of Macedonia and Uruguay. In accordance with its article 16, the Protocol will be open for signature at United Nations Headquarters in New York until 16 August 2000. It is subject to ratification or accession and will enter into force 30 days after the date of deposit of the tenth instrument of ratification or accession. It is hoped that States members of the Authority will give consideration to the early signature of the Protocol and its ratification.

#### VI. PERMANENT REPRESENTATIVES TO THE AUTHORITY

10. As of 5 July 1999, the Ambassadors of Argentina, Brazil, Chile, China, Costa Rica, Cuba, Germany, Haiti, Italy, Jamaica, Mexico and the Netherlands had presented their credentials to the Secretary-General as permanent representatives to the Authority.

#### VII. RELATIONS WITH THE UNITED NATIONS AND OTHER INTERNATIONAL ORGANIZATIONS

11. No formal relationship agreements with other international and non-governmental organizations were entered into during the period under review. The secretariat continued informal discussions with the Registry of the International Tribunal for the Law of the Sea with a view to drafting an agreement which would provide for administrative cooperation between the two institutions. In accordance with the relevant provisions of the Convention, the Secretary-General will continue to pursue the development of cooperative arrangements between the Authority and other competent international organizations where appropriate and necessary in order to ensure the effective discharge of their respective responsibilities under the Convention.

#### VIII. THE SECRETARIAT

##### A. Staff

12. The secretariat is organized into four main functional areas; Office of the Secretary-General, Office of Administration and Management, Office of Legal Affairs and Office of Resources and Environmental Monitoring. The approved establishment of the secretariat for 1999 was 36 posts. However, on

the recommendation of the Finance Committee, and as an exceptional measure for 1999, recruitment against three of those posts (two at the Professional level and above and one General Service) was frozen for the year, with the proviso that the posts would be factored into the budget for 2000 as approved posts. In the meantime, recruitment against all other vacant posts was completed during 1998. In 2000, the three posts which were frozen in 1999 will be filled in order to complete the internal organization of the secretariat and advance the substantive work programme of the Authority. Further, one additional General Service post in the Office of Resources and Environmental Monitoring will be requested for 2000. Accordingly, the budget proposal for 2000 includes provision for full costing of a total of 37 established posts.

13. Pending the adoption of its own regulations, the Authority has been applying, *mutatis mutandis*, the Staff Regulations of the United Nations. Draft staff regulations were prepared in 1998. However, in view of the changes which were made to the Staff Regulations of the United Nations during 1998, the draft regulations were substantially revised. Consideration of the draft staff regulations will be placed on the agenda of the Council for the fifth session of the Authority in 1999. Staff rules, to give effect to the regulations, will be prepared during 1999.

#### B. Administrative matters

14. The Office of Administration and Management continued to develop policies and procedures for the effective management of resources. Procurement procedures were standardized and strengthened in accordance with the standards in use by the United Nations. Staff members were trained in human resource management, including the administration of the Staff Regulations and Rules. A computerized correspondence and assignment log system was installed to improve tracing of documents and monitoring of assigned tasks. To improve accounting procedures, the ACCPAC accounting package was installed and training in its use given to staff members. For General Service staff, a job description writing workshop was held in February 1999. It is expected that the initial job classification exercise for General Service staff will be completed by the end of July 1999.

IX. BUDGET AND FINANCE

A. Budget

15. In accordance with the Convention and the Agreement, the administrative expenses of the Authority shall be met by assessed contributions of its members, until the Authority has sufficient funds from other sources to meet those expenses.

16. The proposed budget for 1999 had amounted to \$5,604,100, comprising \$4,228,300 for the administrative expenses of the Authority and \$1,375,800 for conference-servicing requirements.<sup>5</sup> The draft budget was considered by the Finance Committee, which recommended certain amendments and submitted a report to the Council and the Assembly.<sup>6</sup> Subsequently, taking into account the recommendations of the Finance Committee and the Council, the Assembly adopted a revised budget for 1999 in the sum of \$5,011,700 (\$3,811,400 for the administrative expenses of the Authority and \$1,200,300 for conference services). The level of the Working Capital Fund established for the biennium 1998-1999 was maintained at \$392,000, with the second tranche of \$196,000 to be paid in 1999.

17. The proposed budget of the Authority for 2000 continues to follow the evolutionary approach reflected in the budget for 1997, which was endorsed by the Assembly. The evolutionary approach to the setting up and functioning of the organs of the Authority is also reflected in the Agreement. The estimated budgetary requirement of the Authority for 2000 is \$5,679,400, comprising \$4,304,400 for the administrative expenses of the Authority and \$1,375,000 for the conference-servicing requirements.<sup>7</sup> It is also proposed to increase the level of the working capital fund, so that it is maintained at approximately one twelfth of the approved budget for 2000.

B. Scale of assessment

18. For 1998, the Assembly had adopted for the first time a scale of assessment for the contributions of members of the Authority to the budget and the Working Capital Fund. In accordance with article 160, paragraph 2(e), of the Convention, the scale of assessment is to be based upon the scale used for the regular budget of the United Nations. The scale adopted by the Assembly at the resumed third session of the Authority in August 1997 was therefore based on that of the United Nations, but with adjustments to take account of differences in membership. For 1999, it was proposed, on the recommendation of the Council, that the Assembly adopt a scale of assessment based upon the scale used for the regular budget of the United Nations for 1998. However, one member State proposed that, instead of the 1998 scale, the Authority should use as a basis the scale used for the regular budget of the United Nations for 1999. As the Assembly was unable to reach a decision by consensus on the scale of assessment of contributions of members of the Authority at the resumed fourth session, it was agreed to defer the decision on both the proposal and the proposed amendment thereto to a resumed meeting of the Assembly to be convened in New York. The Assembly reconvened in New York on 12 and 13 October 1998. All efforts at reaching a decision by consensus having been exhausted, the Assembly voted on the proposal by the Russian Federation to use as the basis for the scale of assessment the scale used for the regular budget of the United Nations for 1999. The proposal was defeated by 76 votes to 5, with no abstentions. The Assembly then decided, by a vote of 76 to 3, with 2 abstentions, to authorize the Secretary-General to establish the definitive scale of assessment for 1999 after 16 November 1998, based on the scale used for the regular budget of the United Nations for

1998.<sup>8</sup> In accordance with that decision, a definitive scale of assessment was communicated to members of the Authority in November 1998.<sup>9</sup>

19. With respect to the administrative budget for 1998, the Finance Committee had been unable to make a recommendation to the Council and the Assembly with regard to the contribution to be paid by the European Community for 1998, as the provisions of the Convention as to whether the European Community was required to make an assessed contribution to the budget were unclear. The matter was taken up by the Finance Committee at the resumed fourth session of the Authority in August 1998. While the Finance Committee considered that the European Community's agreed contribution was obligatory, there was no agreement on how to treat such contribution for the purposes of establishing the scale of assessment. Following further discussion of this matter in the Council, the Council determined the contribution of the European Community to the budget for 1999 to be US\$80,000; that amount was reflected in the scale of assessment adopted by the Assembly.<sup>10</sup>

#### C. Status of contributions

20. As at 12 July 1999, contributions to the 1999 budget had been received from 54 members of the Authority. The total amount received was \$4,042,834 or 80.6 per cent of the total assessed contributions.

21. As at 12 July 1999, contributions to the 1998 budget had been received in full from 78 members of the Authority and in part from 7 members of the Authority. The total amount received was \$3,283,248 or 69.7 per cent of the total budget. Contributions of \$1,420,652 (30.2 per cent of the budget) remain outstanding from 60 members of the Authority, including four States which were members of the Authority on a provisional basis until 16 November 1998. The Working Capital fund as at 12 July 1999, inclusive of contributions received for 1999, stood at \$259,426 (66.1 per cent of the total).

22. In accordance with article 184 of the Convention and rule 80 of the Rules of Procedure of the Assembly, a member of the Authority which is in arrears in the payment of its financial contribution to the Authority shall have no vote if the amount of its arrears equals or exceeds the amount of the contribution due from it for the preceding two full years.

#### D. Audit

23. In accordance with article 175 of the Convention, the records, books and accounts of the Authority, including its annual financial statements, shall be audited annually by an independent auditor appointed by the Assembly. At the request of the Assembly, arrangements were made for the accounts of the Authority for 1998 to be audited by a United Nations external auditor. Having reviewed the accounts, transactions and operations of the Authority, the auditors were satisfied that the financial statements presented fairly, in all material respects, the financial position of the Authority. The auditors also provided useful advice on the internal procedures to be followed by the secretariat and drew attention to the need to streamline certain procedures in the future. Such recommendations have been acted upon by the Secretary-General.

24. At the end of the fourth session of the Authority, the Assembly requested the Secretary-General to make a proposal regarding the appointment of an auditor for the consideration of the Finance Committee in 1999, including the appointment of government auditors, or a private audit firm, in each case on the most cost-effective basis. A proposal will be submitted to the Finance Committee at the fifth session of the Authority.

E. Financial regulations

25. Pending the adoption of its own regulations consistent with the Financial Regulations of the United Nations, the Authority applies, mutatis mutandis, the Financial Regulations of the United Nations. The Finance Committee completed its work on the draft financial regulations of the Authority at the resumed fourth session of the Authority in August 1998. The draft financial regulations were taken up by the Council at its 40th meeting, on 27 August 1998. However, for lack of time, consideration of the draft was deferred to the fifth session of the Authority.

X. SUBSTANTIVE WORK OF THE AUTHORITY

A. Formulation of the rules, regulations and procedures for prospecting and exploration for polymetallic nodules in the Area

26. During the resumed fourth session of the Authority in August 1998, the Council commenced consideration of the draft regulations on prospecting and exploration for polymetallic nodules in the Area ("the mining code") proposed by the Legal and Technical Commission.<sup>11</sup> The Council held a number of informal meetings to examine the text regulation by regulation. In the light of the discussions, the secretariat, together with the President of the Council, prepared a revision of regulations 2 to 21 for the consideration of delegations.<sup>12</sup> It was not possible to complete the review of the mining code in the time available and it was therefore agreed to continue the examination of the text in informal meetings during the fifth session. The Council agreed that, in the organization of its work for the fifth session, priority should be given to the mining code.

27. Once adopted by the Council, the code will be provisionally applied pending its approval by the Assembly in accordance with article 162, paragraph 2(o) of the Convention. The Secretary-General will also then be able to issue contracts to the seven registered pioneer investors whose plans of work for exploration were considered to be approved by the Council on 27 August 1997.<sup>13</sup> The seven registered pioneer investors are: India, Institut Français de recherche pour l'exploitation de la mer/l'Association française pour l'étude et la recherche des nodules (IFREMER/AFERNOD) (France), the Deep Ocean Resources Development Company (DORD) (Japan), Yuzhmorgeologiya (Union of Soviet Socialist Republics [now the Russian Federation]), China Ocean Mineral Resources Research and Development Association (COMRA) (China), Interoceanmetal Joint Organization (Bulgaria, Cuba, the Czech and Slovak Federal Republic [now the Czech Republic and Slovakia], Poland and the Union of Soviet Socialist Republics [now the Russian Federation]) and the Republic of Korea.

B. Status of registered pioneer investors

28. Since its establishment in August 1997, the Legal and Technical Commission has considered the periodic reports and relinquishments submitted to the Authority by the registered pioneer investors pursuant to resolution II of the Third United Nations Conference on the Law of the Sea. Periodic reports on activities up to December 1997 have been submitted by India, Yuzhmorgeologiya, COMRA and Interoceanmetal Joint Organization. The Republic of Korea has submitted periodic reports on activities up to July 1998. The most recent reports submitted by DORD and IFREMER/AFENOD cover activities up to 1994 and 1993 respectively. All registered pioneer investors have completed the schedule of relinquishments specified in their certificates of

registration with the exception of Interoceanmetal Joint Organization and India. Interoceanmetal Joint Organization is due to relinquish the final portion of the area allocated to it by August 1999. India is yet to relinquish the final 20 per cent of the area allocated to it. Information of a general nature regarding the plans of work for exploration submitted by the registered pioneer investors, including details of all reports submitted both to the Preparatory Commission and to the Authority, is contained in ISBA/4/A/1/Rev.2.<sup>14</sup>

### C. Training

29. Resolution II, paragraph 12(a)(ii), requires every registered pioneer investor to provide training at all levels for personnel designated by the Preparatory Commission. The Special Commission for the Enterprise, Special Commission 2, was established in accordance with paragraph 8 of resolution I of the Third United Nations Conference on the Law of the Sea and was entrusted with the functions referred to in paragraph 12 of resolution II. All registered pioneer investors, with the exception of the Government of the Republic of Korea, had fulfilled their obligations with regard to training by the time the Preparatory Commission completed its work.

30. By paragraph 2 of LOS/PCN/L.115/Rev.1, annex, the Government of the Republic of Korea, as a registered pioneer investor, was required to provide training in conformity with the specific programme for training approved by the Preparatory Commission. It was agreed that the cost of such training shall be borne by the Government of the Republic of Korea. The precise number of trainees, the duration and the fields of training was to have been agreed upon between the Preparatory Commission and the Government of the Republic of Korea according to its capabilities. It was further agreed that the first group of trainees should consist of no less than four individuals. The Republic of Korea submitted its proposal for a training programme to the Authority on 6 March 1995; after the training panel had concluded its work and presented its final report to the General Committee of the Preparatory Commission.<sup>15</sup>

31. The proposal of the Republic of Korea was considered and approved by the Legal and Technical Commission at its meeting in August 1997.<sup>16</sup> Subsequently, the Secretary-General, by a note verbale dated 14 April 1998, requested members of the Authority to nominate candidates for training by, at the latest, 31 July 1998. A total of 60 applications were received by that date. On the basis of the nominations received, the Legal and Technical Commission, at its meetings on 24 and 25 August 1998, selected four candidates, and four alternate candidates for the training programme.<sup>17</sup> The programme, which is anticipated to last for 10 months, commenced in March 1999.

32. The secretariat will monitor the results of the training programme of the Republic of Korea and report to the Legal and Technical Commission in due course. At the same time, the secretariat is in the process of preparing an evaluation of the training carried out pursuant to resolution II, concentrating in particular on those training programmes which the training panel of the Preparatory Commission was unable to evaluate. The results of this study will also be presented to the Legal and Technical Commission.

### D. Draft guidelines for the assessment of the possible environmental impacts arising from exploration for polymetallic nodules

33. In June 1998, the Authority had convened a workshop on the development of guidelines for the assessment of the possible environmental impacts arising

from exploration for deep seabed polymetallic nodules in the Area. At the invitation of the Government of China, the workshop was held in Sanya, Hainan Island, China. It was attended by representatives of five of the registered pioneer investors - the China Ocean Mineral Resources Research and Development Association, Deep Ocean Resources Development Co. Ltd. (Japan), Interoceanmetal Joint Organization, India and Republic of Korea - as well as experts from Australia, Brazil, Cameroon, China, Fiji, Germany, Indonesia, Jamaica, Japan, Namibia, Papua New Guinea, Russian Federation and the United States of America. The major outcome of the workshop was a set of draft guidelines for the assessment of environmental impacts of exploration in the Area. The draft will be submitted to the Legal and Technical Commission for its consideration at its meeting in August 1999. The proceedings of the workshop, containing detailed presentations on past and current environmental studies related to deep seabed mining as well as papers and discussions on the biological, chemical and physical environment of the seabed, will be published during 1999.

34. The workshop identified a need for clear and common methods of environmental characterization so that explorers can achieve adequate environmental characterization of their exploration areas in the most efficient way possible. Such methods should be based on established scientific principles and the practical constraints of oceanographic operations. The purpose of the draft guidelines is to describe the procedures to be followed by contractors in acquiring baseline data, monitoring their exploration activities and reporting those activities to the Authority. The guidelines note that the exploratory period of seabed mining will contain two stages; the phase preceding pre-commercial mining and the pilot or pre-commercial mining phase. The first phase would typically involve testing of components of the mining system and would precede tests of integrated mining systems. The second phase would occur when the integrated mining system is tested for endurance and reliability and would involve large-scale test mining on a scale smaller than commercial mining but extending over several months. Until such pilot or pre-commercial mining takes place and there is sustained extraction of polymetallic nodules, it is not anticipated that exploratory activities will have the potential for causing serious harm to the marine environment. It was considered, however, that there was a need to clearly define the various stages of mining. Different environmental consequences would result from pre-commercial tests of mining equipment and pre-commercial tests of the integrated mining system. The scale of the tests is crucial to assessment of their environmental consequences.

35. The guidelines identify a number of exploration activities which are not considered to have the potential for causing serious harm to the marine environment and which will require no further environmental assessment on the part of the contractor. Activities with potential for causing environmental harm are also identified and categorized as potential benthic impacts, potential mid water column impacts and potential upper water column impacts. Technical guidelines, including parameters pertaining to oceanographic data, are included to assist contractors in developing environmental field plans for the collection of baseline data from potential mine sites. For the pre-commercial, or pilot, mining phase, the guidelines require contractors to submit a mining test plan to the Authority prior to the commencement of pilot mining. The mining test plan will include strategies to ensure that sampling is based on sound statistical and scientific methods and that specified parameters for environmental monitoring are observed throughout the pre-commercial mining phase. The guidelines also recommend the establishment of impact reference zones and preservation reference zones at this stage of exploration. The data to be collected, the frequency of collection and methodology is listed in the draft guidelines. It is recommended that

collection and analytical techniques follow best practices, such as those developed by the Intergovernmental Oceanographic Commission. The guidelines also recognize the value of cooperation between contractors and the Authority and recommend that certain experiments, observations and measurements may be carried out cooperatively, providing that all interested contractors have access to the results obtained. In this regard, one of the recommendations of the workshop was that the Authority needs to carry out further work to develop a data archival and recovery scheme and also to promote and develop a standardized system of data interpretation.

E. Scientific consultation

36. The Sanya workshop also recommended that the Authority should prepare an environmental studies model which would encourage cooperation among States, national scientific institutions and the pioneer investors in areas of environmental study and research. Such common studies would encourage cooperation and economy and would be cost-effective for all concerned. To consider this proposal further, the Authority invited six internationally-recognized experts in the deep sea marine environment to an informal consultation in Kingston from 24 to 26 March 1999. The invited experts were Jung-Ho Hyun, Deep Ocean Resources Research Centre, Republic of Korea; Gerd Schriever, BIOLAB Forschungsinstitut, Germany; Rahul Sharma, National Institute of Oceanography, India; Yoshihisa Shirayama, Seto Marine Biological Laboratory, Japan; Craig Smith, University of Hawaii, United States; and Huaiyang Zhou, Second Institute of Oceanography, China. The objective of the meeting was to formulate an environmental studies model to encourage cooperation among States, national scientific institutions, the registered pioneer investors and potential contractors in research on environmental predictions for deep seabed mining.

37. The scientific experts noted that a critical issue identified at the Sanya workshop was the lack of knowledge of resuspension of sediment on the benthic communities. While the general quality of the nodule ecosystems in the Clarion-Clipperton fracture zone is known, the actual community resistance, resilience and pattern of biodiversity are very poorly understood. This makes prediction and sound management of mining impacts difficult. Considering that commercial mining has the potential to impact vast areas of the seafloor, the scientific experts developed a proposal for a cooperative research project involving in situ manipulative field experiments under carefully controlled conditions. Such experiments would be conducted to achieve the following assessments:

(a) Evaluation of faunal sensitivity to rapid sediment burial simulating nodule mining effects;

(b) Evaluation of rates and patterns of community recovery following stripping of the top 3 to 5 centimetres of sediment;

(c) Evaluation of rates and patterns of community recovery following burial under 1 centimetre of redeposition;

(d) Evaluation of patterns of biodiversity within the large marine ecosystem of the Clarion-Clipperton fracture zone.

38. The anticipated outcomes of the proposed experiments would include environmental results, biodiversity characterization, synthesis of results and the development of management strategies. From the experimental results, it would be possible to predict the determination of the dose-response relationship for mortality of nodule-province fauna in response to acute

burial disturbance. It would also be possible to make estimates of the loss of local biodiversity as well as mortality from the mining induced redeposition of sediment. By combining this information with existing plume models and monitoring results from test mining, it is possible to calculate the spatial scale of acute burial resulting from mining and determine the minimum time scales and general pattern of community recovery following redeposition. Such information would aid in establishing time-spans for the biological recovery of the mined localities. At present, it is not known if such period would be in the order of a few years or several decades. The proposed project would allow an evaluation of the disturbance effects, minimum time scales and patterns of community recovery following stripping of surface sediments directly in the mining tracks. Local patterns of diversity within the experimental area and the relationship of fauna within the Clarion-Clipperton fracture zone would allow biodiversity characterization.

39. The scientific experts noted that international participation in the field experiments was important in developing the expertise within several research institutions. It was also noted that owing to the costs involved, as well as the long-term nature of the experiments and the need to have access to research submarines and research vessels, the success of the project was dependent upon the participation of multiple institutions.

40. The scientific experts noted that the Authority has a role in promoting marine scientific research and in disseminating such information. They suggested that the Authority could act to catalyze interaction between environmental scientists and mining engineers, produce scientific and technical handbooks and provide technical assistance to develop and conduct environmental studies. The Authority could also assist currently active researchers by collecting and cataloguing information for the creation of a database, disseminating such information, identifying research problems of common interest and providing a platform for joint research. In future activities the Authority could standardize methods, techniques and equipment for collection, analysis, storage and retrieval of data. Other possible areas of international cooperation were also identified, including projects on taxonomy of nematodes and polychaetes, disposal of tailings and waste processing, biodiversity gradients, natural variability and data standardization and protocols for submission of data and information.

#### F. Workshop on technology

41. During its meeting in March 1998, the Legal and Technical Commission recommended that, as a priority activity within its substantive work programme, the secretariat should organize two workshops: the first on the technologies envisaged for exploration and exploitation and for the protection of the environment, and the second covering the available knowledge on mineral resources other than polymetallic nodules found in the Area. The Council, acting on the recommendation of the Finance Committee, approved the convening of one workshop in 1999. Based on the priorities set by the Legal and Technical Commission, the Authority will convene a workshop on proposed technologies for deep seabed mining during the week of 2 to 6 August in Kingston, Jamaica. The objectives of the workshop are to define the present state of seabed mining technology, to identify future trends in the development of such technology and to promote cooperation in the development of technology. The workshop will be attended by developers of the various mining subsystems proposed for the recovery of polymetallic nodules, representatives of the registered pioneer investors and independent experts in technology used in the offshore mining industry.

#### G. Development of POLYDAT

42. The Authority's secure database of data and information on polymetallic nodules is known as POLYDAT. The information contained in the database comprises the coordinates of areas allocated to registered pioneer investors and reserved for the Authority, information on the geological, oceanographic and meteorological characteristics of such areas, details of the methodology and equipment used for data acquisition, and mining data relating to the nature, abundance, metal content and grade of resources. During 1998 the Office of Resources and Environmental Monitoring conducted a systematic review of POLYDAT, including a critical analysis of the data and information it contains relating to the areas reserved for the Authority. This analysis is essential in order to correct errors and inconsistencies in the data and link it to geological interpretations, particularly as the data supplied originated from different sources.

43. The review identified several areas in which POLYDAT needs to be improved if it is to be used effectively as a tool for resource assessment in the reserved areas. For example, insufficient information on topographic investigation methods and seabed topography is available to perform a proper analysis and correlation between seabed topography and nodule abundance. Further, since data and information on the reserved areas were acquired using different technologies, there are discrepancies between data sets provided by different registered pioneer investors. It is proposed therefore to establish a cooperative arrangement with the registered pioneer investors in order to obtain from them the necessary complementary mining data and information on the methodologies used for data collection in the reserved areas.

44. In addition, it is proposed during 2000 to increase the capability of POLYDAT to enable it to perform complex analytical processes and to allow customization and programming of additional modules. It is also proposed to update POLYDAT with relevant marine geological data available in the public and private domain.

#### H. Resource assessment of the areas reserved for the Authority

45. As noted in the report of the Secretary-General for 1997/98,<sup>18</sup> the Authority commenced work in 1998 on a detailed assessment of the resource potential of the areas reserved for the Authority. These areas are located in the Clarion-Clipperton fracture zone between latitudes 7°15' N and 17°15' N and longitudes 120° W and 156°40' W and in the Indian Ocean between latitudes 10° N and 17° N and longitudes 73° W and 82° W. In conjunction with the systematic review of POLYDAT, the Office of Resources and Environmental Monitoring reviewed the existing data on the reserved areas and divided the areas into different sectors and blocks according to their different geographical locations and characteristics. A detailed resource assessment is being conducted in respect of each sector. The assessment will review the available data and information relating to polymetallic nodules, evaluate the adequacy of the data, evaluate the resource potential of each sector, estimate the potential mining characteristics of each sector and identify prime areas for future exploration.

#### I. Rules, regulations and procedures for prospecting and exploration for resources other than polymetallic nodules

46. At the resumed fourth session of the Authority in August 1998, the representative of the Russian Federation made a request to the Authority to adopt rules, regulations and procedures for exploration for polymetallic sulphides and cobalt-rich crusts. In accordance with article 162, paragraph 2 (o) (ii) of the Convention such rules, regulations and procedures shall be

adopted within three years from the date of such a request. Polymetallic sulphide mineral deposits are formed by precipitation from hydrothermal solutions that convect through seafloor spreading centres driven by volcanogenic heat sources. The geographical distribution of deposits of polymetallic sulphides is less well known than that for polymetallic nodules, although it is understood that, compared to polymetallic nodules, deposits of sulphides are highly concentrated. Recent discoveries in areas under national jurisdiction have led to the suggestion that mining of such deposits may become technically and economically feasible in the relatively near future. In the light of the above request to the Authority by the Russian Federation, the secretariat has commenced work on a review of the status of knowledge and research on resources other than polymetallic nodules. It is also possible that, in developing rules, regulations and procedures for prospecting and exploration for polymetallic sulphides and cobalt-rich crusts, it will be necessary to take a slightly different approach to that used for polymetallic nodules, owing to the differences in distribution of the resources, as well as the different technological considerations involved in exploration and exploitation.

## XI. PUBLIC INFORMATION

### A. Web site

47. The Authority gives publicity to its work by means of press releases. The press releases may also be accessed through the Authority's Web site ([www.isa.org.jm](http://www.isa.org.jm)). The site also contains basic information about the Authority, as well as all the official documents and decisions it has issued. The documents and press releases are available in a downloadable format so as to enable ready access to them for members of the Authority. During 1999, it is planned to upgrade the Web by making information available in French as well as English.

### B. Publications

48. The Authority continued to expand its publications programme during 1998 and 1999. In 1998, the Authority published a compendium of selected decisions and documents from the first, second and third sessions in English, French and Spanish (ISA/98/01). This publication also includes an index to the main documents of the Assembly and the Council for the first three sessions of the Authority. In 1999, a compendium of selected documents and decisions from the fourth session was published in English, French and Spanish (ISA/99/01). In addition, the Authority published an unofficial consolidation of Part XI of the Convention and the 1994 Agreement (ISA/98/04) and a booklet containing information for delegates to meetings of the Authority (ISA/98/02). The Authority issues annually a Handbook, containing details of the membership of the Assembly and the Council, the names and addresses of permanent representatives and the names of the members of the Legal and Technical Commission and the Finance Committee.

### C. Library facilities

49. The specialized library of the Authority exists to serve the needs of member States, permanent missions and researchers interested in all aspects of the Convention and seabed and marine related affairs. It also provides reference and research assistance to secretariat staff. In addition, the library handles the storage, cataloguing and distribution of the official documents and publications of the Authority. During the period under review, the library received requests for information and documents from both staff

members and external sources, including by electronic mail. Information was sought on a wide range of subjects including general information on the work of the Authority, environmental issues related to seabed mining, consequences of seabed mining, hydrothermal vents, deep seabed biology and technology related to the recovery of polymetallic nodules.

50. During 1998 an acquisition programme was developed for the maintenance of a comprehensive collection of reference materials on the law of the sea and seabed oriented technical and scientific material. During the reporting period, over 200 books were acquired, as well as various CD-ROMs, maps and miscellaneous publications. Substantial progress was also made in updating the list of subscriptions to periodicals maintained by the library, many of which had not been maintained for several years. A number of items were acquired through donations, including from the Division for Ocean Affairs and the Law of the Sea of the Office of Legal Affairs of the United Nations, the Office of Ocean Affairs of the United States Department of State, Kluwer Academic Publishers, and through contacts with related institutions and libraries. An association with the International Association of Aquatic and Marine Science Libraries and Information Centers (IAMSLIC) has been of considerable benefit in terms of research assistance and acquisition of specialized technical publications. The Secretary-General expresses his appreciation to all donors for their valuable contributions to the library.

51. In the past, one of the major constraints to the improved organization of the library was the cramped accommodation and inadequate shelving available. With the relocation of the library in June 1999, these problems can be addressed. The process of cataloguing all material in the library has also commenced, using the CDS-ISIS computerized cataloguing software and the Dewey classification system. In future, it is proposed to establish links via the Internet between the Authority's library and related libraries, and to establish the capability to search for information through the Authority's Web site. It is also intended to catalogue and archive the documentation of the Seabed Committee and the Preparatory Commission using mass storage media.

## XII. FUTURE WORK

52. It is anticipated that most of the remaining major tasks for the internal organization of the Authority will be completed by the end of 1999. These include: consideration and adoption of the financial regulations, consideration and adoption of the staff regulations, and consideration and adoption of the rules of procedure of the Finance Committee and the Legal and Technical Commission. The finalization of the draft headquarters agreement between the Government of Jamaica and the Authority is subject to consideration by the Finance Committee and the Council of the offer made by the Government of Jamaica with regard to the location of the premises of the Authority.

53. With regard to the substantive work of the Authority, the priority is to complete work on the draft mining code so that contracts can be issued to each of the seven registered pioneer investors whose requests for approval of plans of work for exploration were considered approved in August 1997.

54. During 2000 it is intended to convene the second of the two workshops recommended by the Legal and Technical Commission. The workshop will cover the available knowledge on mineral resources other than polymetallic nodules found in the Area, with particular emphasis on polymetallic sulphides and cobalt-rich crusts. If possible, a further workshop will be held with the objective of developing a standardized system of data interpretation, as

recommended by the group of scientific experts convened by the Authority in March 1999.

55. To support the work of the organs of the Authority, in particular the Legal and Technical Commission, it is intended to develop environmental databases containing, inter alia, information on the basic biology of the deep sea benthos in the Clarion-Clipperton fracture zone, such as the distribution of fauna, faunal densities and spatial distribution of oceanographic parameters. Such databases will assist in the evaluation of data and information received from monitoring programmes established by contractors for the purpose of observing and measuring the effects of exploration activities on the marine environment.

56. In addition, the Authority will continue to develop its substantive work programme in order effectively to carry out the functions assigned to it by the Convention and the Agreement. In particular, it will:

(a) Promote and encourage the conduct of marine scientific research with respect to activities in the Area;

(b) Monitor trends and developments relating to deep seabed mining activities, including world metal market conditions;

(c) Establish a central repository of data and information on polymetallic nodules with a view to estimating the future economic potential of such resources;

(d) Establish and maintain a database on deep seabed exploration and mining technology;

(e) Acquire scientific knowledge and monitor the development of marine technology relevant to activities in the Area, in particular technology relating to the protection and preservation of the marine environment;

(f) Collect data and information on mineral resources other than polymetallic nodules in the Area which are subjects of research and investigation;

(g) Collect data and information relevant to the implementation of article 82 of the Convention.

Notes

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- <sup>1</sup> ISBA/3/A/4.
- <sup>2</sup> ISBA/4/A/18.
- <sup>3</sup> ISBA/3/A/L.3-ISBA/3/C/L.3.
- <sup>4</sup> ISBA/4/A/8.
- <sup>5</sup> ISBA/4/A/10-ISBA/4/C/6 and Add.1.
- <sup>6</sup> ISBA/4/A/13/Rev.1-ISBA/4/C/10/Rev.1.
- <sup>7</sup> ISBA/5/A/2-ISBA/5/C/2.
- <sup>8</sup> ISBA/4/A/21.
- <sup>9</sup> The scale is contained in document ISBA/4/A/23 issued on 14 January 1999.
- <sup>10</sup> ISBA/4/A/21.
- <sup>11</sup> ISBA/4/C/4/Rev.1.
- <sup>12</sup> ISBA/4/C/CRP.1.
- <sup>13</sup> ISBA/3/C/9.
- <sup>14</sup> Reproduced in Selected Decisions 4, 1.
- <sup>15</sup> LOS/PCN/150.
- <sup>16</sup> Re-issued under symbol ISBA/3/LTC/2.
- <sup>17</sup> ISBA/4/C/12 and Corr.1.
- <sup>18</sup> ISBA/4/A/11.