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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”). It provides an account of the work of the Authority since the tenth session as well as a discussion of current issues relevant to the work of the Authority and certain aspects of the 2005-2007 work programme of the Authority.

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 at 30 June 2005, 147 States and the European Community were parties to the Convention and therefore members of the Authority.¹

3. The Convention and the Agreement relating to the implementation of part XI of the Convention (“the 1994 Agreement”) adopted on 28 July 1994 by the General Assembly of the United Nations² together contain the regime for the administration of the deep seabed and its resources. As at 30 June 2005, the following 27 members of the Authority who became parties to the Convention prior to the adoption of the 1994 Agreement have not yet become parties to the 1994 Agreement: Angola, Antigua and Barbuda, Bahrain, Bosnia and Herzegovina, Brazil, Cape Verde, the Comoros, the Democratic Republic of the Congo, Djibouti, Dominica, Egypt, the Gambia, Ghana, Guinea-Bissau, Guyana, Iraq, Mali, the Marshall Islands, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Sao Tome and Principe, Somalia, the Sudan, Uruguay, Viet Nam and Yemen. As requested by the Assembly, each year since 1998, the Secretary-General has written to all members listed above urging them to consider becoming parties to the 1994 Agreement. This

is an important matter for these States, as their becoming parties to the 1994 Agreement would put all members of the Authority in the same position with respect to the current regime for the deep seabed and its resources, which governs the activities of the Authority.

III. Permanent representatives to the Authority

4. As at 30 June 2005, Argentina, Belgium, Brazil, Cameroon, Chile, China, Costa Rica, Cuba, France, Gabon, Germany, Haiti, Honduras, Italy, Jamaica, Mexico, Saint Kitts and Nevis, South Africa and Trinidad and Tobago had established permanent missions to the Authority.

IV. Sessions of the Authority

A. The tenth regular annual session

5. The tenth session of the Authority was held from 24 May to 4 June 2004. Mr. Dennis Francis (Trinidad and Tobago) was elected President of the Assembly for the tenth session. Mr. Baïdy Diène (Senegal) was elected President of the Council.

6. The work of the Assembly during the tenth session included a debate on the annual report of the Secretary-General, the adoption of the budget of the Authority for the financial period 2005-2006, the election of one half³ of the 36-member Council in accordance with article 161, paragraph 3, of the Convention, and the election of Mr. Satya N. Nandan to serve as the Secretary-General of the Authority for a further four-year term.

7. A special commemorative sitting was held by the Assembly during its tenth session to honour the memory of Mr. Helmut Beiersdorf, former Director-General of the Federal Institute for Geosciences and Natural Resources in Hanover, Germany and a member of the Legal and Technical Commission since 1998. Mr. Beiersdorf, who had been attending the tenth session of the Authority, died in a boating accident on 30 May 2004. Tributes were paid by the President of the Assembly, the Secretary-General, representatives of the five regional groups, members of the Legal and Technical Commission, and other members of the Assembly.

8. The Council received the report of the Chairman of the Legal and Technical Commission during the tenth session.⁴ Among the tasks accomplished by the Commission, the Council took particular note of the fact that the Commission had undertaken a further, more detailed, discussion of issues related to deep seabed biodiversity. The Council also expressed its support for the work of the Commission in protecting the marine environment and managing the biological resources of the world's oceans.⁵

9. Prior to the conclusion of the tenth session, the Council also had an opportunity to give preliminary consideration to the provisions of the draft regulations on prospecting and exploration for polymetallic sulphides and cobalt-rich crusts in the Area.⁶

B. The commemorative session

10. The year 2004 marked the tenth anniversary of the establishment of the International Seabed Authority, which came into existence upon the entry into force of the Convention on 16 November 1994. The Authority celebrated this event on 25 and 26 May by holding a two-day commemorative session. The commemorative session was marked by the addresses given by the President of the Assembly, the Secretary-General of the Authority, the Prime Minister of Jamaica, the Secretary-General of the United Nations through the Acting Legal Counsel, the President of the International Tribunal for the Law of the Sea and the Chairman of the Preparatory Commission for the International Seabed Authority and the International Tribunal for the Law of the Sea (the Preparatory Commission). Messages were also received from the President of the Third United Nations Conference on the Law of the Sea (UNCLOS III) and the First Chairman of the Preparatory Commission and statements were made by the Chairmen of the five regional groups. Two panel discussions were held on the achievements of the Authority in its first 10 years and on its future directions. This was followed by scientific presentations on the various mineral resources of the Area and the marine environment in which they are found. The proceedings of the commemorative session have now been published.⁷

V. Relations with the host country

11. During the tenth session, the Finance Committee examined the Supplementary Agreement between the International Seabed Authority and the Government of Jamaica regarding the headquarters of the Authority and the use of Jamaica Conference Centre,⁸ and decided to recommend it to the Council and the Assembly for approval. At its 91st meeting, on 31 May 2004, the Council considered the recommendation of the Finance Committee on the Supplementary Agreement, and recommended that the Assembly approve the Supplementary Agreement.⁹ Subsequently, at its 95th meeting, on 2 June 2004, the Assembly approved the Supplementary Agreement.¹⁰

12. In accordance with article 19 of the Supplementary Agreement, the entry into force of the Agreement requires approval by both the Assembly of the Authority and the Government of Jamaica. Pending approval by the Government of Jamaica, the Supplementary Agreement is being provisionally applied as it has been since its signature by both parties on 17 December 2003.¹¹

VI. Protocol on Privileges and Immunities

13. The Secretary-General is pleased to report that since the entry into force of the Protocol on Privileges and Immunities of the Authority on 31 May 2003, five more members of Authority have acceded to the Protocol. These are: Austria, Oman, Denmark, Mauritius and Chile.¹² As at 30 June 2005, the parties to the Protocol were: Austria, Cameroon, Chile, Croatia, the Czech Republic, Denmark, Egypt, Jamaica, Mauritius, the Netherlands, Nigeria, Oman, Slovakia, Spain and the United Kingdom of Great Britain and Northern Ireland.¹³ The Secretary-General urges other members of the Authority to give consideration to early ratification of or accession

to the Protocol which, inter alia, provides essential protection to representatives of members of the Authority who attend meetings of the Authority or who travel to or from those meetings.

VII. Relations with the United Nations and other bodies

A. Oceans and Coastal Areas Network (UN-Oceans)

14. In 2003, the United Nations General Assembly agreed to the establishment of a new inter-agency coordination mechanism, the Oceans and Coastal Areas Network (UN-Oceans).¹⁴ The objective of UN-Oceans is to enhance cooperation and coordination among the secretariats of the international organizations and bodies concerned with ocean-related activities, in particular by coordinating and harmonizing the activities of the agencies related to oceans; reviewing programmes and activities and identifying issues needing to be addressed, with a view to updating and enriching the relationship between the Convention and Agenda 21; ensuring integrated ocean management at the international level; and undertaking joint activities to address emerging challenges and issues like global marine environmental assessment, regional ocean governance and the development of guidelines for the application of the ecosystem approach.

15. The first meeting of UN-Oceans was held in Paris at the headquarters of the Intergovernmental Oceanographic Commission (IOC) of the United Nations Educational, Scientific and Cultural Organization (UNESCO) from 25 to 29 January 2005. It was attended by representatives from the secretariat of the Convention on Biological Diversity, the Food and Agriculture Organization of the United Nations (FAO), the International Atomic Energy Agency (IAEA), the International Maritime Organization (IMO), IOC, the International Seabed Authority, the Department of Economic and Social Affairs and the Division for Ocean Affairs and the Law of the Sea of the United Nations Secretariat, the United Nations Development Programme (UNDP), the Coordination Office of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, the World Meteorological Organization (WMO) and the World Bank. A second meeting of UN-Oceans was held in New York in May 2005 preceding the sixth meeting of the United Nations Informal Consultative Process on the Law of the Sea.

B. United Nations Office of Legal Affairs/Division for Ocean Affairs and the Law of the Sea

16. The Authority maintained its close relationship with the Division of Ocean Affairs and the Law of the Sea of the Office of Legal Affairs. That cooperation resulted in two joint publications: *Proceedings of the twentieth anniversary commemoration of the opening for signature of the United Nations Convention on the Law of the Sea and Marine Mineral Resources: Scientific Advances and Economic Perspectives*.¹⁵

VIII. Secretariat

17. As indicated in the two previous reports of the Secretary-General to the Assembly of the Authority (ISBA/9/A/3 and ISBA/10/A/3) there is a need for a significant strengthening of the technical capabilities of the secretariat due to the increasingly technical and scientific needs of the Authority. In the past year a Geographic Information Systems Officer (P-3), a Marine Geologist (P-4) and a Geostatistician (P-3) have been recruited. In addition, a Senior Security Officer (P-2) was recruited to replace the previous incumbent who reached the mandatory retirement age. All four vacancies were publicly announced on the website of the Authority.

IX. Budget and finance

A. Budget

18. For the financial period 2005 and 2006, the Assembly of the Authority adopted a budget of \$10,800,000.¹⁶ While this indicates a nominal average increase of 1.45 per cent for each year of the financial period in relation to the previous period, when inflationary factors are considered it represents another budgetary decrease in real terms.

19. For the financial period 2003-2004, the Authority expended 99 per cent of the contributions received. These totalled \$10,002,662 and represented 94 per cent of total assessed contributions. There remained a cumulative surplus for the period of \$114,816, which represented just 1 per cent of the available income.

B. Status of contributions

20. In accordance with the Convention and the 1994 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. The scale of assessments shall be based upon the scale used for the regular budget of the United Nations, adjusted for differences in membership. As at 30 June 2005, 66 per cent of the value of contributions due from member States and the European Community to the 2005 budget had been received from 30 per cent of the Authority's membership. The balance of the Working Capital Fund was \$437,588, which is 99 per cent of its approved ceiling (\$438,000). Contributions outstanding from member States for prior periods (1998 to 2003 and 2004) totalled \$447,193. Notices are regularly sent to member States reminding them of the arrears.

21. In accordance with article 184 of the Convention and rule 80 of the Rules of Procedure of the Assembly, a member of the Authority that 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 financial contribution due from it for the preceding two years. As at 30 June 2005, 37 members of the Authority were in arrears for a period of two years or more. They were: Antigua and Barbuda, Bahrain, Benin, Bolivia, Cape Verde, Comoros, Cook Islands, Côte d'Ivoire, the Democratic Republic of the Congo, Dominica, Egypt, Equatorial

Guinea, Gabon, Gambia, Georgia, Grenada, Guinea, Guinea-Bissau, Iraq, Luxembourg, Mali, Mauritania, Mongolia, Panama, Paraguay, Sao Tome and Principe, Seychelles, Solomon Islands, Somalia, Suriname, Togo, Uganda, Uruguay, Vanuatu, Serbia and Montenegro, Zambia and Zimbabwe.

C. Voluntary trust fund

22. The question of modalities for enhancing the participation of members from developing countries in the meetings of the Legal and Technical Commission and the Finance Committee was again discussed by the Finance Committee during the tenth session. The Finance Committee expressed appreciation for the assistance provided through the voluntary trust fund, which was established in 2002 following a request by the Assembly, and recommended that a strong appeal be made to members of the Authority to contribute. Notes verbale were subsequently sent to members of the Authority seeking contributions to the voluntary fund.

23. The Finance Committee also noted the balance of the previously authorized advance made to the voluntary trust fund and made a recommendation to the Assembly, through the Council, that a further \$10,000 be authorized in 2005, to the extent necessary, from interest from the Pioneer Investor Fund held by the Authority for the operation of the voluntary trust fund. The Assembly approved that recommendation. The Finance Committee decided to defer any recommendations on future funding of the voluntary trust fund until its next meeting in 2005.

24. As at 30 June 2005, the balance of the voluntary trust fund stood at \$71,387 made up as follows:

<i>Source</i>	<i>United States dollars</i>
Income from contributions ^a	37 800
Interest	698
Advance from the Pioneer Investor Fund	75 000
Balance	71 387

^a Angola \$300; Namibia \$1,300; Norway \$25,000; Oman \$10,000; Indonesia \$1,000; Dr. Y. Kazmin \$200.

Expenditure from the fund of \$42,111 was incurred in providing assistance to eligible participants in the meetings of the Finance Committee and the Legal and Technical Commission during the tenth session.

X. Library, publications and website

25. The library manages the Authority's specialized collection of reference and research materials focusing on matters relating to the law of the sea and deep seabed mining. The objective is to provide a comprehensive collection of reference materials on relevant subject matters. The library serves the needs of Members of the Authority, permanent missions and researchers interested in the law of the sea and ocean affairs. It also provides essential reference and research assistance to the staff of the Secretariat. In addition, the library is responsible for the archiving and

distribution of the official documents of the Authority and assists with the publication programme.

26. The regular publications of the Authority include an annual compendium of selected decisions and documents of the Authority (published in English, French and Spanish) and 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. Additional publications produced in 2005 were:

(a) Marine mineral resources: scientific advances and economic perspectives (in collaboration with the Division for Ocean Affairs and the Law of the Sea);

(b) Prospects for international collaboration in marine environmental research to enhance understanding in the deep sea environment: proceedings of the workshop of the International Seabed Authority, 29 July to 2 August 2002, Kingston, Jamaica;

(c) Proceedings of the tenth anniversary commemoration of the establishment of the International Seabed Authority;

(d) Proceedings of the twentieth anniversary commemoration of the opening for signature of the United Nations Convention of the Law of the Sea (a joint publication with the Division for Ocean Affairs and the Law of the Sea);

(e) Establishment of a geological model of polymetallic nodule deposits in the Clarion-Clipperton fracture zone of the equatorial north Pacific Ocean: proceedings of the workshop of the International Seabed Authority, 13 to 20 May 2003, Nadi, Fiji.

A complete list of all the current publications issued by the Authority may be found on the Authority's website, <http://www.isa.org.jm>.

27. During the period under review, in addition to the continued requests for publications and documents of the Authority, requests were also processed for information on a number of subject areas related to the Authority's activities, including international regime for the exploration and exploitation of the seabed; transfer of seabed technology to developing countries; protection of the marine environment from the seabed activities; history of negotiations on the mining code; and the role of the Authority. The requests came from individuals and a variety of academic and research institutions, including Cardiff Law School, Cardiff University, United Kingdom; International Global Change Institute, University of Waikato, New Zealand; the Ministry of Basic Industry of Cuba; Integrated Coastal and Marine Area Management, India; Faculty of Law, Utrecht University, the Netherlands; Congressional Research Service; Library of Congress, the United States of America; Panteios University at Law of the Sea, Greece; Mediterranean Academy of Diplomatic Studies, University of Malta; and academic institutions in Brazil.

28. The library's acquisition programme continued to build a comprehensive collection of reference materials and to strengthen the specialized research capability of the existing collection. During the reporting period, approximately 150 books, CD-ROMs, and over 400 journal issues were acquired. This includes donations from individuals as well as from institutions and libraries, including from the Division for Ocean Affairs and the Law of the Sea and the International Tribunal

for the Law of the Sea. The Secretary-General expresses his appreciation to all donors for their valuable contributions to the library.

29. The Authority's website contains essential information on the activities of the Authority, primarily in English, French and Spanish. The texts of all the official documents and decisions of the organs of the Authority are available in the six official United Nations languages. The press releases are available in English and French only. The Authority's workshop reports, technical reports and joint publications are also published electronically in a downloadable format to provide ready access for members of the Authority.

XI. Substantive work of the Authority

A. Contracts for exploration for polymetallic nodules

30. At its meeting during the tenth session, the Legal and Technical Commission considered and evaluated the third set of annual reports submitted by contractors pursuant to the Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area ("the Polymetallic Nodule Regulations"). Annual reports were received from all the seven contractors, namely, Deep Ocean Resources Development Ltd. (DORD), the Government of the Republic of Korea, China Ocean Mineral Resources Research and Development Association (COMRA), State Enterprise Yuzhmorgeologiya (Russian Federation), Interoceanmetal Joint Organization (IOM), l'Institut français de recherche pour l'exploitation de la mer/l'Association française pour l'étude et la recherche des nodules (IFREMER) and the Government of India. COMRA, the Government of the Republic of Korea and State Enterprise Yuzhmorgeologiya also submitted additional data and information which were not contained in their annual reports for 2002.

31. The Commission noted with appreciation that, in comparison with the two previous sets of annual reports for 2001 and 2002, most of the contractors followed the format and structure for annual reports recommended by the Commission during the eighth session (ISBA/8/LTC/2) and submitted data and information as required under the contracts for exploration. However, the Commission also noted that in the annual reports of certain contractors important data and information were not included, especially the financial statements, and recommended that the contractors be requested to submit this data and information as soon as possible. The report and recommendations of the Commission on the evaluation of the annual reports of the contractors are contained in document ISBA/10/LTC/3.

32. As of 30 May 2005, annual reports had been received from all seven contractors.

B. Prospecting and exploration for polymetallic sulphides and cobalt-rich ferromanganese crusts deposits in the Area

33. During the tenth session, the Legal and Technical Commission considered the draft regulations on prospecting and exploration for polymetallic sulphides and cobalt-rich ferromanganese crusts in the Area, as contained in document ISBA/10/LTC/WP.1, dated 30 January 2004. The Commission also had the benefit

of advice from three internationally renowned experts, Dr. James R. Hein,¹⁷ Dr. Peter Herzig¹⁸ and Dr. Kim Juniper.¹⁹ The experts had reviewed the draft regulations and participated in the discussions of the Commission during the first week of its meetings.

34. The Commission reviewed the draft regulations, which were based on the existing Polymetallic Nodule Regulations and the model clauses developed by the secretariat in 2001,²⁰ together with the elements that had emerged from the discussions in the Commission during 2002 and 2003. Intensive discussions followed on key issues concerning the definition of exploration blocks, size of the area for exploration, relinquishment and participation by the Authority. Based on these discussions, the Commission considered that, despite the differences in geometry and dimensions of the two types of deposits, estimations of the likely mineable ore indicated that the total exploration area should be the same for each deposit. Accordingly, the Commission proposed an exploration area for both resources of 10,000 square kilometres, consisting of 100 contiguous blocks, each of approximately 10 by 10 kilometres. For each resource, this would provide the potential for locating a mineable area with at least 40 million tons of ore capable of sustaining a mining operation for 20 years. It was further recognized that the likelihood of large areas of poor resources within an exploration area would suggest that a high relinquishment percentage is appropriate.²¹ In arriving at the system, account was taken of the fact that the Authority has a duty to administer the Area and its resources prudently and responsibly and therefore the system adopted should not allow for “high-grading” or “cherry-picking” of widely dispersed choice sites in different geographic regions leaving behind average deposits that may not be of interest to potential applicants. This would be a wasteful way of administering the resources of the Area and would be contrary to the provisions of article 150 (b) of the Convention. While the draft provides for the contiguity of blocks, before relinquishment, it is nevertheless flexible in recognizing that an applicant may retain, after relinquishment, several sites (clusters of blocks), which might not necessarily be contiguous.

35. The Commission completed its deliberations on the draft regulations on the general understanding that, as far as practicable, the new regulations should follow the framework of the Polymetallic Nodule Regulations and be in conformity with the provisions of the Convention and the 1994 Agreement.

36. At its 93rd meeting, on 2 June 2004, the Council took up the draft regulations on prospecting and exploration for polymetallic sulphides and cobalt-rich ferromanganese crusts contained in document ISBA/10/C/WP.1. Most members expressed the need for time to study the text prepared by the Legal and Technical Commission and to consult with their Governments. It was therefore not possible to discuss the details of individual provisions. Concerns were, however, raised regarding the responsibility of contractors for serious harm to the environment. One member of the Council noted that small coastal States might not be able to monitor sufficiently the environmental effects of prospecting or exploration by contractors within its proximity. Some members questioned the proposed size of blocks and the requirement for contiguity of such blocks. The Council also recognized the need to monitor the market for the deposits and techniques for mining given technological changes. Furthermore, it was recognized that the two resources, polymetallic sulphides and cobalt-rich ferromanganese crusts, were fundamentally different resources and as a consequence different provisions were required to regulate each.

The secretariat informed the Council that explanatory notes would be provided on some of the technical issues in the draft regulations to enable delegations to better understand the proposed regulations in preparation for its consideration at the eleventh session.²²

C. The protection of marine environment and biodiversity in the Area

37. Under article 145 of the United Nations Convention on the Law of the Sea, the Authority has a role in ensuring the protection and preservation of the marine environment from harmful effects that may arise from activities in the Area. Furthermore, article 165, paragraph 2 (e), of the Convention requires the Legal and Technical Commission to make recommendations to the Council on the protection of the marine environment, taking into account the views of recognized experts in that field. To address these requirements the Commission devoted 9 out of 43 regulations of the draft regulations on prospecting and exploration for polymetallic sulphides and cobalt-rich ferromanganese crusts to the protection and preservation of the marine environment. The Commission also included in these nine regulations a new regulation 5 which requires, inter alia, that prospectors shall “cooperate with the Authority in the establishment and implementation of programmes for monitoring and evaluating the potential impacts of the exploration and exploitation of polymetallic sulphides and cobalt crusts on the marine environment”. To assist the Commission in preparing guidelines for use by potential contractors in the establishment of environmental baselines and an associated monitoring programme, the Authority convened its seventh workshop in Kingston, Jamaica, in September 2004.

38. The objectives of the workshop were to determine what was currently known about the marine environment where these deposits are to be found, what needs to be measured to monitor impacts on the environment as a consequence of mining activity, and the nature and frequency of measurements.²³ The workshop was also expected to design a monitoring programme to be carried out during exploration and test mining of these resources and to determine any potential collaboration with researching institutions to reduce costs for future contractors. The results of the workshop, in the form of proposed guidelines for establishing environmental baselines and for subsequent environmental monitoring are to be submitted to the Legal and Technical Commission during the eleventh session (see ISBA/II/LTC/WP.1). Forty participants from 18 countries attended the workshop. The proceedings of the workshop, which contain the papers, presentations, discussions following the presentations as well as the proposed guidelines are being published and will be available for all members of the Authority.

39. To facilitate the development of the guidelines, the workshop divided itself into three working groups. One of the working groups, chaired by Dr. Andreas Thurnherr, considered the chemical and physical baseline requirements for both resources. The second working group, chaired by Professor Cindy Lee Van Dover, considered the biological baseline requirements for polymetallic sulphides, and the third working group, chaired by Dr. Anthony Koslow, considered the biological baseline requirements for cobalt-rich crusts. Unfortunately, although the workshop was scheduled to be held from 6 to 10 September 2004, the threat posed by Hurricane Ivan meant that it ended on 9 September 2004 and consequently the working groups were unable to complete their work. On 16 and 17 June 2005, the

chairs of the working groups together with a representative of Nautilus Minerals Ltd. met in New York to review the recommendations of the workshop, as well as some of the results of Nautilus Minerals Ltd.'s geophysics programme in the Eastern Manus Basin of Papua New Guinea.

40. It will be recalled that in 1997, Nautilus Minerals Ltd. was granted an exploration licence by the Government of Papua New Guinea to explore for and mine seafloor polymetallic sulphides deposits in its national waters. According to the information provided by Nautilus Minerals Ltd., the exploration licence covered a seabed area of 15,000 square kilometres. Earlier this year, Placer Dome, a gold mining company based in Vancouver, Canada, agreed to finance an exploration programme for these deposits. The general exploration plan is to gather data on the mineral resources and to establish environmental baseline parameters. The initial \$3 million funding by Placer Dome was utilized in applying geophysical methods to locate deposits of sulphides at depths of 1,800 metres and to initiate the engineering for trial mining. A concurrent environmental study is to assess the volcanic structures and other features for the unusual ecosystems that congregate around these sources of heated water on the seabed. The experience of exploration activities in national areas is of interest to the Authority in light of the similar deposits of similar mineral resources in the Area.

41. On 27 May 2004, an open session of the Legal and Technical Commission was held to discuss issues relating to biodiversity in the Area. The purpose of the open session, as agreed by the Commission at its preliminary discussion of the issue during the ninth session, was to gather information and improve understanding of seabed biodiversity, the management and legal status of the living marine organisms in the Area. Ms. Frida Armas Pfirter (Argentina) presented a paper on the legal implications related to the management of seabed living resources in the Area. The discussions revealed a need to address relevant issues, taking into account the work of other organizations.

D. Information and data relating to the international seabed area

42. As outlined in the Secretary-General's annual report to the tenth session of the Authority, one of the substantive tasks to be undertaken by the Secretariat during the three-year period 2005-2007 is to continue to develop the Central Data Repository. The Repository will facilitate the dissemination of the results of marine scientific research relevant to the future commercialization of deposits of polymetallic nodules, cobalt-rich ferromanganese crusts, seafloor massive sulphides and gas hydrates. The website of the Authority will provide members of the Authority, the scientific community, prospectors and potential applicants for plans of work for exploration with relevant information on:

- (a) Types of deposits, geographical location, the metal content of the items of commercial interest and any information on baseline environmental conditions, including biota;
- (b) A bibliographic database and recommendations for general reading;
- (c) A synthesis of research carried out on each mineral;
- (d) Lists of related projects and associated researchers;

- (e) Links to the websites of other institutions working on related subjects.

43. A prerequisite for this development is a reliable and efficient information technology (IT) foundation. Accordingly, the secretariat has upgraded its IT infrastructure and system architecture and migrated to a more current operating environment. In this regard the following tasks have been undertaken and completed by the Secretariat:

- (a) The design, establishment and equipping of a self-contained specific purpose computer room with appropriate electrical protection and automatic fire suppression systems to house the servers and the networking hardware;

- (b) The redesign of the network topology with an upgrade of the cabling system to Category 6, vertical and horizontal cable management and intelligent network devices;

- (c) The restructuring of the overall architecture with the isolation of publicly accessible data in a demilitarized zone (DMZ), and the dedication of entry-level servers to key functions and applications, such as the domain controllers, web server, mail server, anti-virus server, firewall, database server and map server;

- (d) The establishment of a fully fledged firewall to provide “policy-based” access, control and management of internetworking. It integrates both firewall functions and a caching server to accelerate Internet access and Internet publishing.

44. These structural and architectural changes were completed with the following additional features, aimed at improving user services:

- (a) A wireless access facility, with two access points (in the library and in the briefing room of the first floor), for the convenience of delegates and other users of the briefing room during the meetings;

- (b) A virtual private network to allow remote access to the Intranet for authorized persons; and

- (c) Web mail to allow access to the corporate electronic mail system from the Internet.

45. To complement the above upgrade of the Authority’s IT infrastructure, the secretariat also migrated the operating system from the obsolete Microsoft Windows NT/98 environments to a more advanced configuration by standardizing its servers to Windows Server 2003 and its workstations to Windows XP. The main applications were also upgraded to more current versions. In this regard, the electronic mail system was upgraded from exchange server 5.5 to exchange server 2003, the web server was upgraded from Microsoft Internet Server IV to Microsoft Internet Server VI, and the desktop applications were upgraded from Office 2000 to Office 2003. The result is a more reliable, stable and secure system. Out of the major applications, only the CDR is still on a Windows NT platform, and work is under way to upgrade its environment and to provide additional features.

E. Resource assessment and geologic model for the Clarion-Clipperton fracture zone

46. Following the Secretary-General’s report to the tenth session of the Assembly on the work of the Authority, a number of positive developments have taken place

with regard to the project to establish a geological model and prospectors guide of polymetallic nodule deposits in the Clarion-Clipperton fracture zone (CCZ) in the Pacific Ocean. It will be recalled that the Authority's workshop held at Nadi, Fiji, produced a number of recommendations on what the model should cover and how the work should proceed. The workshop also recommended a work programme leading to the establishment of a reliable geological model of polymetallic nodule deposits in the CCZ within three or four years.

1. Meeting with contractors 2003

47. In keeping with the workshop's recommendation regarding data acquisition, the Secretary-General convened a meeting with contractors in New York on 20 and 21 November 2003 to discuss additional grade and abundance data that could be made available by contractors, proxy data that they held and which they could make available for the project, and the extent of their participation in the development of the model. During the meeting, the Secretary-General stressed the importance of this project as a means of facilitating better knowledge of polymetallic nodule resources in the CCZ. He assured contractors that any data provided for the development of the model would be kept confidential. The six contractors whose exploration areas are located in the CCZ agreed to the use of their bathymetric data, specifically the bathymetric maps they had submitted with their applications for allocation of pioneer areas and the additional bathymetric data that they acquired following the allocation of these areas, whether in relinquished areas or in exploration areas. With the exception of available manganese/iron ratio data, the contractors did not agree to authorize the Authority to make use of nodule abundance and metal content data from their contract areas.

2. Report to the Legal and Technical Commission

48. During the tenth session in 2004, the Legal and Technical Commission was provided with a report containing a summary of the meeting and the status of the development of the geological model for the CCZ.²⁵ The report also included information on the future activities to be carried out by the secretariat in relation to the development of the model. The Commission noted the contents of the report and sought clarification on the procedures to be utilized by the secretariat in facilitating the development of the model and the future direction of the project. The Commission was of the view that a more detailed plan of work should be presented by the secretariat, and also requested that the members of the Commission should be kept informed during the intersessional period.

3. Meeting of technical experts

49. From 6 to 10 December 2004, a meeting of a group of technical experts was convened by the Authority to outline the scope of the work that would be involved, ascertain the availability of data on selected proxies, schedule the work required to gather, evaluate and incorporate suitable data sets into the model through mathematical algorithms and produce the first iterations of the geological model and draft of the prospector's guide. Taking into account the results of the Fiji workshop, the group of technical experts identified the approach that it would use to create the model, and specified which proxy data would be tested for use in predicting nodule grade and abundance.

50. It was agreed that the primary outputs from the project will be a geological model of polymetallic nodule deposits in the CCZ and a prospector's guide containing a narrative description of the key factors relevant to exploration for polymetallic nodules in the CCZ, including data and available information on known deposits. It was also agreed that the geological model will be developed using available data (proxies) with defined and readily testable quantitative links to the abundance and grade of polymetallic nodules in the CCZ. An iterative, statistically based approach will be used to construct the model.

51. As currently envisioned, the geological model of the polymetallic nodule deposits in the CCZ will consist of a set of digital and hard copy maps and tables describing predicted ore grade and abundance and associated error estimates as well as complete documentation that describes testing procedures for the model and all algorithms used in producing the final model results. No undisclosed or proprietary algorithms will be used in the model. In this way, the model can be subject to peer review in the short-term and can also be updated when better data or better algorithms become available. Part of the procedure for model development is that when a specific data set (which may include one or more candidate proxy variables) and associated mathematical algorithms are proposed for inclusion as a proxy for abundance and/or grade, it will be calibrated with one subset of the available nodule grade and abundance data and then tested with another subset. The results of the testing will be made available to all participants in the model's development and then, if appropriate, the algorithm can be modified and tested repeatedly until the specific data set is either included or excluded from the resulting model.

52. The prospectors' guide will include an examination of all the proxy data types identified as being important indicators of grade and abundance, the selected data sets that are used in the geological model, the complete documentation on model testing and all algorithms used to produce the final model results. The guide will also provide data and information on all known nodule deposits in the CCZ with a focus on the high-resolution characterization of specific deposit sites.

53. The group of technical experts recommended that while the model and guide are being developed, the secretariat should:

(a) Maintain an Internet site (ftp or http) that can be used by project participants to facilitate the timely and efficient exchange of data sets and draft reports;

(b) Provide periodic status reports to the Legal and Technical Commission, including written status reports and summary data sets on the Authority's Central Data Repository for browsing by members of the Commission, as well as for occasional oral presentations by expert group members to the Commission.

54. The group also requested a meeting with representatives of contractors within the first two months of the project's initiation to establish the nature and extent of the data and information that would be provided by contractors and the schedule of delivery, as well as to ascertain the involvement of contractors in establishing the geological model and prospector's guide. Accordingly, such a meeting was convened by the secretariat from 25 to 27 May 2005 in Kingston, Jamaica.

4. Meeting of contractors, May 2005

55. Representatives of the contractors who were able to attend the meeting responded individually to the data requests made by the secretariat, recalled the responses that they had provided to the secretariat's questionnaire and commented generally on the project. Each representative gave a presentation responding to the secretariat's requests for data and provided information on potential means for more extensive collaboration in the project.

56. The meeting agreed that the geological model project is a worthwhile effort that is an appropriate undertaking for the secretariat, that data that have been requested by the secretariat will be provided following internal reviews by contractor managements and that there should be direct collaboration involving the staff of the contractors in the implementation of the project in order to ensure that they can influence the way the work is completed, taking advantage of the extensive expertise available among their staff. The participants in the meeting agreed to the following actions to support implementation of the project:

(a) The secretariat will formally request from each contractor the data sets described below for completing the geological model;

(b) The contractors will work with the secretariat to define the individual scope of work for each contractor in support of the geological model;

(c) The secretariat will continue to work to complete establishment of a secure Internet website for exchange of data among the experts working on the project.

57. The meeting also agreed on the following key project milestones:

August 2005: The secretariat will present a description of the project and report on the progress to date to the Legal and Technical Commission and the Council at the eleventh session of the Authority

May 2006: The secretariat will convene a meeting of the participants to the project to review the progress of the project to date and to decide on the specific methods to be employed for completion of the project

May 2007: Final reports from the consultants will be submitted to the secretariat

July 2007: The secretariat will convene a workshop to examine the results of the project with participants in the project and independent experts.

58. Since the meeting, the secure Internet website for exchange of data among the professionals working on the project has been established, and steps have been taken to identify specific areas of the project for implementation by contractual staff.

F. International collaboration in marine scientific research

59. As indicated in the annual report of the Secretary-General to the tenth session, the Secretariat will, in the 2005-2007 period, further its efforts to promote international collaboration in marine scientific research related to minerals in the Area. In the same report, the Secretary-General also reported on progress with respect to international collaboration on, inter alia, the determination of levels of biodiversity, species range and gene flow, and disturbance and recolonization processes on the sea floor following mining track creation and plume resedimentation in the abyssal nodule provinces. It is envisioned that the collaborations are to be carried out through the Kaplan Project. This project had undertaken its first cruise for the study on the levels of biodiversity, species range and gene flow during 4 February and 8 March 2003. During the cruise, it examined a 100 square kilometres centred at 14° North and 119° West in the eastern part of the CCZ.

1. The Kaplan Project

60. The Authority recently received the second annual progress report on the Kaplan Project. The report deals with the third Kaplan cruise, which was completed in June 2004 under the auspices of IFREMER, one of the contractors with the Authority. The most recent cruise added to the samples collected previously so that samples have now been taken at the eastern, central and western zones of the CCZ. The animals or organisms have now been extracted from the sediment for all of the samples collected. In addition, during the cruise, mining tracks created 26 years ago by IFREMER were investigated to monitor the recovery and recolonization of the areas disturbed. This phase of the Kaplan Project addresses its second objective, which is to investigate and study disturbance and recolonization processes at the sea floor following mining track creation and plume resedimentation in the abyssal nodule provinces. Upon the completion of this phase, the Authority will be provided with recommendations regarding the recovery of the deep abyssal plain communities from disturbances by a test mining system.

61. With regard to levels of biodiversity, species range and gene flow, work is progressing well using both traditional morphological techniques and the newly developed DNA-based techniques for all animal groups being investigated (polychaetes, nematodes and foraminifera). To date, the Kaplan Project has resulted in three scientific, peer-reviewed, publications, and it is expected that there will be more.

62. The first set of detailed results and analyses from this project should be available by the end of the summer of 2005. The outputs will include a database of some of the important species found in the CCZ and their genetic sequences. This will be the first project of its kind to assess the genetic resources in the nodule province. The information on biodiversity derived from this project will be superimposed on the geological model that the Authority is developing for that zone. The model will considerably enhance the international community's knowledge of the geological and biological environment of that area.

2. Collaboration between the Chemosynthetic Ecosystems Group and the Seamounts Group

63. The Authority has also set up collaborations with the Chemosynthetic Ecosystems Group (ChEss) and the Seamounts Group (CenSeam). These programmes address environments where polymetallic sulphides and cobalt-rich ferromanganese crusts are found. The next workshop proposed by the Authority will be a collaboration with CenSeam and will focus on the distribution of potentially commercial deposits of cobalt-rich ferromanganese crusts in the Area, the conditions leading to the formation of such deposits, an assessment of the patterns of diversity, endemism and scales of seamount faunas and the factors that appear to drive these patterns. The workshop will result in a biogeographic synthesis of seamount fauna based on research conducted by scientists from Australia, France, Japan, New Zealand and the Republic of Korea and other countries. The workshop is scheduled for March 2006 in Kingston, Jamaica.

3. Participation of scientists from developing countries

64. As the Authority continues its effort to promote marine scientific research in the Area, the limited role of scientists from developing countries that are members of the Authority in these activities is becoming increasingly apparent. At this early stage of the process, the applicability of some of the techniques used for research in the Area to address similar matters in the exclusive economic zones of many developing countries is readily acknowledged, for instance the DNA techniques that are being utilized in the Kaplan Project. In order to facilitate the participation of scientists from developing countries, it is proposed that a trust fund be established. This trust fund will be used to promote marine scientific research and, inter alia, to provide opportunities for qualified scientists from institutions in developing countries to participate in research activities conducted by international scientists at sea or in laboratories of scientific institutions. Preference will be given to scientists affiliated with universities or researching institutions in developing countries who, in turn, could pass on the knowledge acquired or apply them to national endeavours. One source of funding for this could be from the funds accruing to the Authority from the fees paid for processing applications for the approval of plans of work.

XII. Future work

65. During the three-year period 2005-2007, as previously indicated in the annual report of the Secretary-General to the tenth session and as approved by the Assembly at the tenth session, the work programme of the Authority will continue to focus on the implementation of items (c), (d), (f), (g), (h), (i) and (j) in the list set out in paragraph 5 of section 1 of the annex to the 1994 Agreement. In particular, work will continue to focus in the following five main areas:

(a) The supervisory functions of the Authority with respect to existing contracts for exploration for polymetallic nodules;

(b) The development of an appropriate regulatory framework for the future development of the mineral resources of the Area, particularly hydrothermal polymetallic sulphides and cobalt-rich ferromanganese crusts, including standards for the protection and preservation of the marine environment during their development;

(c) Ongoing assessment of available data relating to prospecting and exploration for polymetallic nodules in the CCZ;

(d) The promotion and encouragement of marine scientific research in the Area through, inter alia, an ongoing programme of technical workshops, the dissemination of the results of such research, and collaborations with the Kaplan Project, ChEss and CenSeam;

(e) Information-gathering and the establishment and development of unique databases of scientific and technical information with a view to obtaining a better understanding of the deep ocean environment.

66. The immediate priority for the Authority is the development of a regulatory regime for prospecting and exploration of polymetallic sulphides and cobalt-rich ferromanganese crusts. The Council will continue its consideration of the draft regulations during the eleventh session. Meanwhile, the Legal and Technical Commission is expected to begin its consideration of environmental guidelines for future exploration contractors for deposits of sea floor massive sulphides and cobalt-rich ferromanganese crusts in the Area on the basis of the recommendations of the September 2004 workshop. It is expected that another workshop will be convened before the end of the 2005-2007 work programme to standardize the environmental data and information required under the regulations for polymetallic sulphides and cobalt-rich ferromanganese crusts and in the guidelines for the establishment of baselines for these two types of mineral resources. It is expected that the result of these two workshops will facilitate the acquisition of comparable environmental data and information by contractors that would facilitate the establishment of cohesive monitoring programmes by the Authority and contractors. Such monitoring programmes will result in the establishment of rigorous databases for the protection and preservation of the marine environment associated with mineral deposits.

67. During the first half of 2005, the Secretariat has continued with its efforts to develop a geological model of the polymetallic nodule deposits of the CCZ. This is one of the major projects in the 2005-2007 work programme. In keeping with the project milestones identified by contractor representatives and the team of technical experts assisting the Authority with the implementation of this project, a midterm meeting will be convened in 2006 to review the progress of the project and to decide on the specific methods to be employed to complete the project. It is also proposed that in 2007, a workshop will be held on the geological model and prospectors' guide, specifically to examine the results of the project with project participants and independent experts.

68. The Secretariat will also continue to study the developments relating to the exploration and exploitation of mineral resources of the continental shelf beyond 200 nautical miles in the light of the provisions of article 82, paragraph 4, of the Convention.

Notes

¹ www.un.org/Depts/convention_agreements/convention_agreements.htm.

² General Assembly resolution 48/263.

³ In order to achieve equitable geographical representation in the Council, the following allocation of seats were agreed to for the first election: Africa 10, Asia 9, East European 3, Latin

America and the Caribbean States 7, and Western European and others 8. This resulted in a total of 37 against the 36 members prescribed in the Convention. Therefore, it was further agreed that each regional group, other than the Eastern European, will relinquish in rotation one seat for one year during the four-year period in order to conform to the requirement of 36 members of the Council under the Convention. The State relinquishing its seat will participate in the meetings of the Council without the right to vote. It is in this context that 19 seats were elected at the last meeting instead of 18 seats.

⁴ ISBA/10/C/4.

⁵ ISBA/10/C/10.

⁶ ISBA/10/C/WP.1.

⁷ See *Proceedings of the Tenth Anniversary Commemoration of the establishment of the International Seabed Authority*, Kingston, International Seabed Authority, 2005 (ISBN: 976-95155-0-7).

⁸ ISBA/10/A/2-ISBA/10/C/2, annex.

⁹ ISBA/10/C/5.

¹⁰ ISBA/10/A/11.

¹¹ In accordance with article 19, the Supplementary Agreement shall enter into force on its approval by the Assembly of the Authority and the Government of Jamaica, and this Agreement shall be applied provisionally by the Authority and the Government of Jamaica upon signature by the Secretary-General of the Authority and on behalf of the Government of Jamaica.

¹² Austria (accession) 25 September 2003, Oman (ratification) 12 March 2004, Denmark (accession) 16 November 2004, Mauritius (accession) 22 December 2004, Chile (ratification) 8 February 2005.

¹³ <http://untreaty.un.org>.

¹⁴ General Assembly resolution 58/240. The establishment of such a mechanism had been called for by the General Assembly in its resolution 57/141.

¹⁵ See *Proceedings of the Twentieth Anniversary Commemoration of the opening for signature of the United Nations Convention on the Law of the Sea*, New York: UN.DOALOS; Kingston: ISA, 2003. *Marine Mineral Resources — Scientific Advances and Economic Perspectives*, New York: UN.DOALOS; Kingston, International Seabed Authority, 2004 (ISBN: 976-610-616-a).

¹⁶ ISBA/10/A/8.

¹⁷ President, International Marine Minerals Society/United States Geological Survey.

¹⁸ Leibniz Institute of Marine Sciences, University of Kiel, Germany.

¹⁹ Director, GEOTOP-UQAM-McGill Research Centre, University of Quebec, Montréal, Canada.

²⁰ ISBA/7/C/2, annex.

²¹ ISBA/10/C/4, paras. 11-17.

²² ISBA/10/C/10.

²³ It is to be noted that the original proposal for a seminar related to the protection of the marine environment and high seas biodiversity during prospecting and exploration of mineral resources in the Area, using lessons learned from scientific research programmes, was developed by the late Mr. Helmut Beiersdorf (Germany). Mr. Beiersdorf's proposal was taken as a basis for planning of the workshop by the Secretariat.

²⁴ For list of participants, see www.isa.org.jn/en/seabedarea/2004Wshop/PListing_23Sept04.pdf.

²⁵ ISBA/10/LTC/5.