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Report of the Scientific and Technical Subcommittee on its fortieth session, held in Vienna from 17 to 28 February 2003

Contents

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I. Introduction

1. The Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space held its fortieth session at the United Nations Office at Vienna from 17 to 28 February 2003 under the chairmanship of Karl Doetsch (Canada).

2. The Subcommittee held 19 meetings.

A. Attendance

3. Representatives of the following member States of the Committee attended the session: Algeria, Argentina, Australia, Austria, Brazil, Bulgaria, Burkina Faso, Canada, Chile, China, Colombia, Cuba, Czech Republic, Ecuador, Egypt, France, Germany, Greece, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Italy, Japan, Kenya, Lebanon, Malaysia, Mexico, Morocco, Netherlands, Nicaragua, Nigeria, Pakistan, Peru, Poland, Portugal, Republic of Korea, Romania, Russian Federation, Saudi Arabia, Slovakia, South Africa, Spain, Sudan, Sweden, Syrian Arab Republic, Turkey, Ukraine, United Kingdom of Great Britain and Northern Ireland, United States of America, Uruguay, Venezuela and Viet Nam.

4. At the 580th meeting, on 17 February, the Chairman informed the Subcommittee that requests had been received from Angola, Azerbaijan, Israel, Switzerland and Thailand to attend the session. Following past practice, those States were invited to send delegations to attend the current session of the Subcommittee and address it as appropriate, without prejudice to further requests of that nature; that action did not involve any decision of the Subcommittee concerning status but was a courtesy that the Subcommittee extended to those delegations.

5. The following United Nations entities were represented at the session by observers: secretariat of the International Strategy for Disaster Reduction (ISDR), Office of the United Nations High Commissioner for Refugees (UNHCR), United Nations Educational, Scientific and Cultural Organization (UNESCO), World Meteorological Organization (WMO) and International Atomic Energy Agency (IAEA).

6. The session was also attended by observers for the Committee on Earth Observation Satellites (CEOS), the Committee on Space Research (COSPAR), the European Association for the International Space Year (EURISY), the European Space Agency (ESA), the International Astronautical Federation (IAF), the International Space University (ISU), the International Society for Photogrammetry and Remote Sensing (ISPRS), the Space Generation Advisory Council (SGAC) and Spaceweek International Association (SIA).

7. A list of the representatives of States, United Nations entities and other international organizations attending the session is contained in document A/AC.105/C.1/INF/32.

B. Adoption of the agenda

8. At its 580th meeting, on 17 February 2003, the Subcommittee adopted the following agenda:

1. Adoption of the agenda.
2. Statement by the Chairman.
3. General exchange of views and introduction to reports submitted on national activities.
4. United Nations Programme on Space Applications.
5. Implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III).
6. Matters relating to remote sensing of the Earth by satellite, including applications for developing countries and monitoring of the Earth's environment.
7. Use of nuclear power sources in outer space.
8. Means and mechanisms for strengthening inter-agency cooperation and increasing the use of space applications and services within and among entities of the United Nations system.
9. Implementation of an integrated, space-based global natural disaster management system.
10. Space debris.
11. Examination of the physical nature and technical attributes of the geostationary orbit and of its utilization and applications, including, inter alia, in the field of space communications, as well as other questions relating to developments in space communications, taking particular account of the needs and interests of developing countries.
12. Mobilization of financial resources to develop capacity in space science and technology applications.
13. The use of space technology for the medical sciences and public health.
14. Draft provisional agenda for the forty-first session of the Scientific and Technical Subcommittee.
15. Report to the Committee on the Peaceful Uses of Outer Space.

C. Documentation

9. A list of the documents that were before the Subcommittee is provided in annex I to the present report.

D. General statements

10. The Subcommittee expressed its sympathy and solidarity with the families and friends of the international crew of Space Shuttle Columbia, as well as with the international space community, for the recent tragic loss of Columbia during re-entry on 1 February 2003, which affected all humanity. The Subcommittee expressed its hope that this would not negatively affect international space programmes.

11. The Subcommittee expressed its sorrow at the recent passing away of Dimitar Mishev, Director and Founder of the Solar Terrestrial Influences Laboratory at the Bulgarian Academy of Sciences, and a pioneer who had made a significant contribution to the development of many fields of space research in Bulgaria. The Subcommittee recognized his efficient and constructive approach to the work of the Committee and in particular his diplomatic skills on sensitive topics.

12. The Subcommittee welcomed Algeria as a new member of the Committee and its subcommittees.

13. The Subcommittee expressed its gratitude to Petr Lála and Mazlan Othman for their exceptional service in the Office for Outer Space Affairs. The Subcommittee also expressed its satisfaction with the appointment of Sergio Camacho as Director of the Office.

14. Statements were made by representatives of the following member States during the general exchange of views: Algeria, Argentina, Austria, Brazil, Canada, Chile, China, Colombia, Czech Republic, Ecuador, France, Germany, Greece, Hungary, India, Indonesia, Iran (Islamic Republic of), Italy, Japan, Malaysia, Mexico, Morocco, Nigeria, Pakistan, Peru, Republic of Korea, Romania, Russian Federation, South Africa, Sudan, Turkey, United Kingdom and United States. The representative of Cuba made a statement on behalf of the Group of Latin American and Caribbean States. The delegate of Azerbaijan made a general statement. A general statement was also made by the observer for UNESCO. Statements were also made by the observers for COSPAR, EURISY, IAF, ISPRS and ISU.

15. The Subcommittee heard the following technical presentations under the general exchange of views:

(a) “An overview of HellasSAT”, by the representative of Greece;

(b) “Space weather forecasting using real-time solar wind data”, by the representative of the Russian Federation;

(c) “Southern African Large Telescope”, by the representative of South Africa.

16. At the 580th meeting, on 17 February, the Chairman made a statement outlining the work of the Subcommittee at its current session and reviewing space activities over the past year, including important advances that had been achieved as a result of international cooperation.

17. Also at the 580th meeting, the Director of the Office for Outer Space Affairs of the Secretariat made a statement reviewing the work programme of the Office.

18. The Subcommittee noted with appreciation that the Governments of France and the Republic of Korea had provided associate experts to assist the Office for Outer Space Affairs in carrying out its work relating to implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III).

19. The representative of Chile provided the Subcommittee with information on the Global Biotechnology Forum, to take place in Concepción, Chile, in March 2004.

20. The representative of Greece informed the Subcommittee that Greece had recently acceded to the Convention on Registration of Objects Launched into Outer Space (General Assembly resolution 3235 (XXIX), annex).

E. National reports

21. The Subcommittee took note with appreciation of the reports submitted by Member States (A/AC.105/788) and considered by the Subcommittee under agenda item 3, "General exchange of views and introduction to reports submitted on national activities". The Subcommittee recommended that the Secretariat continue to invite Member States to submit annual reports on their space activities.

F. Symposium

22. Pursuant to General Assembly resolution 57/116 of 11 December 2002, a symposium on the theme "Applications of satellite navigation and their benefits to developing countries" was organized by COSPAR and IAF. The first part of the symposium, entitled "Applications of satellite navigation and localization in environment monitoring and transport", was held on 17 February and was chaired by Y. Beguin of IAF. The second part of the symposium, entitled "Other applications of satellite navigation for developing countries", was held on 18 February and was chaired by L. Marelli of COSPAR.

23. The presentations to the symposium included the following: "Satellite navigation for civil aviation", by K. Edwards of IAF; "Satellite navigation in air traffic monitoring and its benefits for developing countries", by H. Blomenhofer of IAF; "Space for the benefits of users: localization and navigation for environmental monitoring and survey", by M. Cazenave of IAF; "Satellite navigation systems and remote sensing for agriculture management", by D. El Hadani of COSPAR; "Synergy between precise positioning and imagery", by L. Marelli of COSPAR; "Use of ARGOS satellite tracking and satellite oceanography for sustainable management of marine resources in the Atlantic Ocean", by J.-Y. Georges of IAF; "Seismology and geology monitoring using satellite navigation systems", by F. Webb of COSPAR; "Satellite positioning technologies for asset and environment management, river and geophysical mapping", by L. Szentpeteri of TTTC Ltd., Hungary; and "GLONASS: status, development, application", by S. Revnivykh of the Russian Aviation and Space Agency.

G. Adoption of the report of the Scientific and Technical Subcommittee

24. After considering the various items before it, the Subcommittee, at its 598th meeting, on 28 February 2003, adopted its report to the Committee on the Peaceful Uses of Outer Space, containing its views and recommendations as set out in the paragraphs below.

II. United Nations Programme on Space Applications

25. In accordance with General Assembly resolution 57/116, the Scientific and Technical Subcommittee continued its consideration of the item on the United Nations Programme on Space Applications.

26. At the 582nd meeting, on 18 February, the Officer-in-Charge of the Space Applications Section made a statement outlining the activities carried out and planned under the United Nations Programme on Space Applications.

27. The representatives of Bulgaria, Chile, China, Ecuador, India, Japan, Mexico, Nigeria and the United States made statements under this agenda item.

28. In accordance with resolution 57/116, the Subcommittee, at its 584th meeting, on 19 February, reconvened the Working Group of the Whole, under the chairmanship of Muhammad Nasim Shah (Pakistan). The Working Group of the Whole held 11 meetings from 19 to 27 February.

29. At its 596th meeting, on 27 February 2003, the Subcommittee endorsed the report of the Working Group of the Whole, which is contained in annex II to the present report.

A. Activities of the United Nations Programme on Space Applications

30. The Subcommittee had before it the report of the Expert on Space Applications (A/AC.105/790 and Corr.1). The Subcommittee noted that the United Nations Programme on Space Applications for 2002 had been carried out satisfactorily and commended the work accomplished by the Expert in that regard.

31. The Subcommittee noted with appreciation that, since its previous session, additional resources for 2002 had been offered by various Member States and organizations and had been acknowledged in the report of the Expert (A/AC.105/790 and Corr.1, paras. 41 and 42). The Subcommittee also noted with appreciation that the Government of France had provided an associate expert to support the implementation of the United Nations Programme on Space Applications in 2002.

32. The Subcommittee continued to express its concern over the still limited financial resources available for carrying out the United Nations Programme on Space Applications and appealed to Member States to support the Programme through voluntary contributions. The Subcommittee was of the view that the limited resources of the United Nations should be focused on the activities with the highest

priority; it noted that the United Nations Programme on Space Applications was the priority activity of the Office for Outer Space Affairs.

33. The Subcommittee noted that the United Nations Programme on Space Applications was assisting developing countries and countries with economies in transition in participating in and benefiting from space-related activities as proposed in the recommendations of UNISPACE III, in particular those contained in "The Space Millennium: Vienna Declaration on Space and Human Development."[1]

34. The Subcommittee noted that the United Nations Programme on Space Applications was aimed at promoting, through regional and international cooperation, the use of space science and technology and space-related data for sustainable economic and social development in developing countries by raising the awareness of decision makers of the cost-effectiveness and additional benefits to be obtained; establishing or strengthening the capacity in developing countries to use space technology; and strengthening outreach activities to disseminate awareness of the benefits obtained. The Subcommittee also noted that, in implementing the Programme, the Expert on Space Applications would take into consideration the guidelines provided by the Working Group of the Whole, contained in annex II to the present report.

35. The Subcommittee noted that although some progress had been made in bringing the benefits of the use of space applications for sustainable economic and social development and for the protection of the environment to the awareness of high-level decision makers, much more needed to be done. The Office for Outer Space Affairs should consider the possibility of arranging for keynote addresses on the issue on the occasion of some of the meetings of high-level governmental authorities.

36. The Subcommittee noted that, in addition to the United Nations conferences, training courses, workshops and symposiums planned for 2003 (see para. 42 below), there would be other activities of the Programme in 2003, which would place emphasis on:

(a) Supporting education and training for building capacity in developing countries, in particular through the regional centres for space science and technology education;

(b) Providing technical assistance to promote the use of space technologies in development programmes, in particular by continuing to support or initiate pilot projects as follow-up to past activities of the Programme;

(c) Enhancing access to space-related data and other information for dissemination to the general public and carrying out outreach activities to promote the participation of youth in space activities.

1. Year 2002

United Nations conferences, training courses and workshops

37. With regard to the activities of the United Nations Programme on Space Applications carried out in 2002, the Subcommittee expressed its appreciation to the following:

(a) The Government of India, for co-sponsoring the United Nations/India Workshop on Satellite-Aided Search and Rescue, hosted by the Indian Space Research Organization and held in Bangalore, India, from 18 to 22 March 2002;

(b) The Governments of Chile and the United States, as well as ESA, for co-sponsoring the Third United Nations/United States of America Regional Workshop on the Use and Applications of Global Navigation Satellite Systems, hosted by the International Air and Space Fair and held in Santiago from 1 to 5 April 2002;

(c) The Government of Sweden, for co-sponsoring the Twelfth United Nations/Sweden International Training Course on Remote Sensing Education for Educators, hosted by Stockholm University and Metria Satellus AB and held in Stockholm and Kiruna, Sweden, from 2 May to 8 June 2002;

(d) The Economic Commission for Africa, CEOS, ESA, the Ministry of Foreign Affairs of France and Space Imaging, for co-sponsoring the United Nations Regional Workshop on the Use of Space Technology for Disaster Management, hosted by the Commission and held in Addis Ababa from 1 to 5 July 2002;

(e) The Governments of the United States and Zambia and ESA, for co-sponsoring the Fourth United Nations/United States of America Regional Workshop on the Use and Applications of Global Navigation Satellite Systems, hosted by the Ministry of Science, Technology and Vocational Training of Zambia and held in Lusaka from 15 to 19 July 2002;

(f) The Government of South Africa, ESA, SunSpace Inc. and Astrium GmbH, for co-sponsoring the United Nations/South Africa/European Space Agency Workshop on the Use of Space Technology in Sustainable Development, hosted by the University of Stellenbosch and held in Stellenbosch, South Africa, from 21 to 23 August 2002;

(g) The Government of Austria, the State of Styria, the City of Graz, the Ministry of Transport, Innovation and Technology of Austria and ESA, for co-sponsoring the Third United Nations/Austria/European Space Agency Symposium on Enhancing the Participation of Youth in Space Activities, hosted by the Space Research Institute of Austria and held in Graz, Austria, from 9 to 12 September 2002;

(h) The Government of Argentina and ESA, for co-sponsoring the Eleventh United Nations/European Space Agency Workshop on Basic Space Science, hosted by the Teófilo Tabanera Space Centre of the National Commission on Space Activities (CONAE) of Argentina, and held in Córdoba, Argentina, from 9 to 13 September 2002;

(i) The National Aeronautics and Space Administration of the United States, ESA, UNESCO, COSPAR and the American Institute for Aeronautics and Astronautics, for co-sponsoring the United Nations/International Astronautical Federation Workshop on Space Solutions for Global Problems: Building Partnerships with All Stakeholders in Human Security and Development, hosted by the American Institute and held in Houston, Texas, United States, from 10 to 12 October 2002;

(j) The Government of the United States and the Subcommittee on Small Satellites for Developing Nations of the International Academy of Astronautics, for

co-sponsoring the Third United Nations/International Academy of Astronautics Workshop on Small Satellites in the Service of Developing Countries: Beyond Technology Transfer, hosted by the Government of the United States in Houston, Texas, United States, on 12 October 2002;

(k) The Government of the United States, and ESA, for co-sponsoring the United Nations/United States of America International Meeting of Experts on the Use and Applications of Global Navigation Satellite Systems, hosted by the United Nations Office at Vienna from 11 to 15 November 2002;

(l) The Government of Thailand, the Economic and Social Commission for Asia and the Pacific, CEOS, ESA and the Ministry of Foreign Affairs of France, for co-sponsoring the Second United Nations Regional Workshop on the Use of Space Technology for Disaster Management, hosted by the Government of Thailand in Bangkok from 11 to 15 November 2002;

(m) The Government of the Netherlands and the International Institute of Air and Space Law of Leiden University, for co-sponsoring the United Nations/International Institute of Air and Space Law Workshop on Capacity-Building in Space Law, hosted by the Ministry of Foreign Affairs of the Netherlands and held in The Hague from 18 to 21 November 2002.

Long-term fellowships for in-depth training

38. The Subcommittee expressed appreciation to ESA for having offered two fellowships for 2002 for research in remote sensing technology at the facilities of the European Space Research Institute of ESA in Frascati, Italy, and three fellowships for research in satellite communications and remote sensing technology at the facilities of the European Space Research and Technology Centre of ESA in the Netherlands. It was noted that for 2003 two fellowship opportunities in remote sensing technology would be available at the ESA institutions and three fellowships in satellite communications would be announced.

39. The Subcommittee noted that it was important to increase the opportunities for in-depth education in all areas of space science, technology and applications projects through long-term fellowships and urged Member States to make such opportunities available at their relevant institutions.

Technical advisory services

40. The Subcommittee took note of the following technical advisory services provided under the United Nations Programme on Space Applications in support of activities and projects promoting regional and global cooperation in space applications:[2]

(a) Providing assistance to the Asia-Pacific Satellite Communications Council in its efforts to promote development and cooperation in satellite communications in Asia and the Pacific;

(b) Collaboration with ESA and Japan on follow-up activities relating to the series of workshops on basic space science;

(c) Providing technical assistance to the Fourth Space Conference of the Americas, held in Colombia from 14 to 17 May 2002, which resulted in the Declaration of Cartagena de Indias and the Plan of Action of the Conference;

(d) Collaboration with the 21st plenary meeting of the Latin American Society on Remote Sensing and Spatial Information Systems (SELPER) and the 10th Latin American Symposium on Remote Sensing, held in Cochabamba, Bolivia, from 11 to 15 November 2002;

(e) Collaboration with the Panel on Space Research in Developing Countries, held at the 34th COSPAR Scientific Assembly during the World Space Congress 2002, held in Houston, Texas, United States, from 10 to 19 October 2002;

(f) Collaboration with ESA and the Department of Economic and Social Affairs of the Secretariat in providing technical and training assistance required for implementing projects on the use of Earth observation data aimed at strengthening the capacity of participating institutions in the use of Earth observation data for resource management;

(g) Collaboration with CEOS through the participation of the Office in the 16th plenary meeting, held in Frascati, Italy, on 20 and 21 November 2002, in which CEOS was briefed on the results of the workshops on the use of space technology for disaster management organized in 2002 and co-sponsored by CEOS. At the 16th plenary meeting, the Office also chaired the CEOS Ad Hoc Working Group on Education.

Promotion of greater cooperation in space science and technology

41. The Subcommittee noted that the United Nations Programme on Space Applications had co-sponsored the participation of scientists from developing countries in the United Nations/International Astronautical Federation Workshop on Space Solutions for Global Problems: Building Partnerships with All Stakeholders in Human Security and Development, held in Houston, Texas, United States, in October 2002, and the participation of those scientists in the World Space Congress 2002.

2. Year 2003

United Nations conferences, training courses, workshops and symposiums

42. The Subcommittee recommended the approval of the following programme of training courses, workshops and symposiums, to be organized jointly by the Office for Outer Space Affairs, host Governments and other entities in 2003:

(a) United Nations/European Space Agency Workshop on Remote Sensing Applications and Education, to be held in Damascus from 23 to 27 March 2003;

(b) United Nations/Romania/European Space Agency Regional Workshop on the Use of Space Technology for Disaster Management, to be held in Romania from 19 to 23 May 2003;

(c) Thirteenth United Nations/Sweden International Training Course on Remote Sensing Education for Educators, to be held in Stockholm and Kiruna, Sweden, from 5 May to 13 June 2003;

(d) United Nations/Thailand Workshop on the Contribution of Space Communication Technology to Bridging the Digital Divide, to be held in Thailand from 12 to 16 May 2003;

(e) Twelfth United Nations/European Space Agency Workshop on Basic Space Science, to be held in Beijing from 8 to 12 September 2003;

(f) United Nations/Austria/European Space Agency Symposium on the Use of Space Technology in Sustainable Development, to be held in Graz, Austria, in September 2003;

(g) United Nations/International Astronautical Federation Workshop on the Use of Space Technology for the Benefit of Developing Countries, to be held in Bremen, Germany, from 25 to 27 September 2003;

(h) Fourth United Nations/International Academy of Astronautics Workshop on Small Satellites in the Service of Developing Countries: a Contribution to Sustainable Development, to be held in Bremen, Germany, on 30 September 2003;

(i) United Nations/National Oceanic and Atmospheric Administration Workshop on Satellite-Aided Search and Rescue, to be held in Miami, Florida, United States, in October 2003;

(j) United Nations Workshop on Space Law, to be held in Daejeon, Republic of Korea, in the fourth quarter of 2003;

(k) United Nations/Saudi Arabia Regional Workshop on the Use of Space Technology for Disaster Management, to be held in Saudi Arabia in the fourth quarter of 2003;

(l) United Nations/United States of America International Workshop on the Use and Applications of Global Navigation Satellite Systems, to be held in Vienna from 8 to 12 December 2003;

(m) Workshops and training courses to be organized at the regional centres for space science and technology education affiliated to the United Nations.

3. Year 2004

43. The Subcommittee noted that the following activities had been proposed to be jointly organized by the Office for Outer Space Affairs, host Governments and other entities in 2004:

(a) Fourteenth United Nations/Sweden International Training Course on Remote Sensing Education for Educators, to be held in Stockholm and Kiruna, Sweden, in May-June 2004;

(b) United Nations/Austria Symposium on the Operational Use of Space Technology in Sustainable Development, to be held in Graz, Austria, in September 2004;

(c) United Nations/International Astronautical Federation Workshop on the Use of Space Technology for the Benefit of Developing Countries;

(d) United Nations Workshop on Earth Observation, for the benefit of developing countries, to be held in Germany;

(e) United Nations/Space and Upper Atmosphere Research Commission Seminar on Space Technology Applications: Monitoring and Protection of the Natural Environment, to be held in Karachi, Pakistan, from 11 to 15 October 2004;

(f) Several workshops to be organized at the regional centres for space science and technology education affiliated to the United Nations.

B. International space information service

44. The Subcommittee noted with satisfaction that the fourteenth in the series of documents containing selected papers from the activities of the Programme, entitled *Seminars of the United Nations Programme on Space Applications*,[3] had been issued. The Subcommittee also noted with satisfaction the publication of *Highlights in Space 2002*,[4] which had been compiled from a report prepared by COSPAR on space research and a report prepared by IAF on space technology and applications, and expressed its appreciation to COSPAR, IAF and the International Institute of Space Law for their contributions.

45. The Subcommittee noted with satisfaction that the Secretariat had continued to enhance the International Space Information Service and the web site of the Office for Outer Space Affairs (www.oosa.unvienna.org), which contained, among other things, a regularly updated index of objects launched into outer space. The Subcommittee also noted with satisfaction that the Secretariat was maintaining a web site on the coordination of outer space activities within the United Nations system (www.uncosa.unvienna.org).

C. Regional and interregional cooperation

46. The Subcommittee noted with appreciation the continuing efforts undertaken by the United Nations Programme on Space Applications, in accordance with General Assembly resolution 45/72 of 11 December 1990, in leading an international effort to establish regional centres for space science and technology education in existing national or regional educational institutions in developing countries, as contained in the document entitled “Regional centres for space science and technology education (affiliated to the United Nations)” (A/AC.105/782). The Subcommittee also noted that, once established, each centre could expand and become part of a network that could cover specific programme elements in established institutions related to space science and technology in each region.

47. The Subcommittee recalled that the General Assembly, in its resolution 50/27 of 6 December 1995, had endorsed the recommendation of the Committee that the centres be established on the basis of affiliation to the United Nations as early as possible and that such affiliation would provide the centres with the necessary recognition and would strengthen the possibilities of attracting donors and of establishing academic relationships with national and international space-related institutions.

48. The Subcommittee noted with satisfaction that the African Regional Centre for Space Science and Technology—in French Language had in 2002 completed a nine-

month course on satellite meteorology and global climate and started a nine-month training programme on satellite communications.

49. The Subcommittee noted with satisfaction that a nine-month training course on satellite communications had started in December 2002 at the African Regional Centre for Space Science and Technology Education—in English Language in Ile-Ife, Nigeria.

50. The Subcommittee noted with satisfaction that, since its establishment in 1995, the Centre for Space Science and Technology Education in Asia and the Pacific had held 15 nine-month postgraduate courses—7 courses on remote sensing and geographic information systems (GIS), 2 courses on satellite communications, 3 courses on satellite meteorology and global climate and 3 courses on space and atmospheric science. In 2002/03, the Centre was offering the following courses: (a) the third nine-month postgraduate course on satellite meteorology and global climate; (b) the third nine-month postgraduate course on space and atmospheric science; and (c) the seventh nine-month postgraduate course on remote sensing and GIS. A total of 405 scholars from 39 countries have benefited from the educational activities of the regional centre. The seventh meeting of the Governing Board of the Centre and the fourth meeting of its Advisory Committee were held in Dehra Dun on 23 and 25 April 2002, respectively.

51. The Subcommittee noted with satisfaction that Kazakhstan had ratified the Agreement of the Centre for Space Science and Technology Education in Asia and the Pacific, meaning that all the original 10 signatories had ratified the Agreement. As per the provisions of the Agreement, the host country would soon be announcing its entry into force.

52. The Subcommittee noted with satisfaction that the first nine-month courses on remote sensing and GIS would start in 2003 at the Regional Centre for Space Science and Technology Education for Latin America and the Caribbean at its Brazilian and Mexican campuses. The second meeting of the Governing Board of the Regional Centre had been held in Mexico City on 29 April 2002 and its third meeting in Brasilia on 5 and 6 August 2002. The Centre has now signed a host country agreement with the Governments of Brazil and Mexico.

53. The Subcommittee noted with satisfaction that the Programme was providing technical support to the Government of Jordan in its preparations for the establishment of the regional centre for space science and technology education for Western Asia.

54. The Subcommittee noted that in 2003 the Office for Outer Space Affairs and the international Support Group of the Fourth Space Conference of the Americas would provide technical advice to Colombia, the Pro Tempore Secretariat of the Fourth Space Conference of the Americas, in its implementation of the Plan of Action of the Conference. In that context, the pro Tempore Secretariat had held a meeting with the Office and international experts during the fortieth session of the Subcommittee to discuss follow-up actions proposed by the Conference.

55. Bearing in mind the provisions of paragraph 17 of the Declaration of Cartagena de Indias, which was made at the Fourth Space Conference of the Americas, held in Colombia in May 2002, and of paragraph 24 of General Assembly resolution 57/116, the Subcommittee noted with satisfaction the interest expressed

in taking steps to establish a cooperation and coordination mechanism for space activities in the region, a process on which the Pro Tempore Secretariat of the Fourth Space Conference of the Americas was conducting consultations.

III. Implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III)

56. In accordance with General Assembly resolution 57/116, the Scientific and Technical Subcommittee continued its consideration of the item on implementation of the recommendations of UNISPACE III. Pursuant to paragraph 19 of resolution 57/116, the Subcommittee requested the Working Group of the Whole, established at the 584th meeting of the Subcommittee, on 19 February, to consider the issue.

57. At its 596th meeting, on 27 February 2003, the Subcommittee endorsed the recommendations of the Working Group of the Whole concerning implementation of the recommendations of UNISPACE III, as contained in the report of the Working Group of the Whole (see annex II).

58. The representatives of China, the Czech Republic, France, Hungary, India, Iran (Islamic Republic of), Italy, Malaysia, Portugal, the United Kingdom and the United States made statements under this item. The observers for CEOS and SIA also made statements.

59. The Subcommittee heard a presentation by the observer for the International Astronomical Union (IAU) on "International Astronomical Union and Spaceguard Foundation work on near Earth objects".

60. The Subcommittee noted with satisfaction that, at the invitation of the Subcommittee (A/AC.105/786, annex II, para. 19), the observer for CEOS, on behalf of the Integrated Global Observing Strategy Partnership (IGOS-P), had made a presentation on the activities of the Partnership.

61. The Subcommittee noted that the Plan of Implementation of the World Summit on Sustainable Development[5] reflected the commitment of States to reduce the factors that were an obstacle to sustainable development. The Subcommittee also noted that space technologies could make important contributions to achieving those objectives, in particular through the implementation of those recommendations of UNISPACE III which had been identified as priorities by the Committee and for the implementation of which action teams had been established.

62. The Subcommittee noted with satisfaction that through the presentations made by national and international space agencies and organizations at the World Summit on Sustainable Development, the usefulness of space applications in advancing sustainable development had been demonstrated. That accomplishment was supportive of the recommendations of UNISPACE III, namely, those seeking to increase awareness among decision makers and the general public of the importance of space activities; to promote sustainable development by applying results of space research; to increase the use of space-related systems and services by the entities of

the United Nations system and by the private sector; and to improve the management of the Earth's natural resources.

63. The Subcommittee noted with appreciation the efforts made by the chairpersons and members of the 11 action teams established by the Committee at its forty-fifth session[6] in making progress in the implementation of the recommendations of UNISPACE III for which they were responsible. The Subcommittee noted with satisfaction the substantial progress achieved by many action teams. The Subcommittee agreed that a clear definition of actions or pilot projects was an important expected output to be obtained through the work of the action teams.

64. The Subcommittee noted that the recommendations of UNISPACE III were being implemented by Member States through both national programmes and bilateral cooperation, as well as international cooperation and integration facilitated by the Committee and its subcommittees at the regional or global levels, such as the work of the action teams.

65. The Subcommittee noted that CEOS would continue to contribute to the work of the action teams and that following the World Summit on Sustainable Development CEOS had established a follow-up programme to address the following five areas: (a) education, training and capacity-building; (b) water resource management; (c) disaster management and conflicts; (d) climate change; and (e) global mapping, land-use monitoring and GIS.

66. The Subcommittee had before it the annual report of the international celebration of World Space Week for the year 2002, prepared by SIA (A/AC.105/C.1/2003/CRP.3). The Subcommittee expressed its appreciation to the Governments of Austria and the Libyan Arab Jamahiriya for their financial contributions and to other member States, their space agencies and non-governmental organizations for their in-kind contributions in support of activities of the Office for Outer Space Affairs for the celebration of World Space Week. The Subcommittee noted that SIA had encouraged governmental and non-governmental organizations to make World Space Week the central timeframe of their annual outreach and education programmes and to support the coordination of events relating to World Space Week at the global and regional levels.

67. The Subcommittee welcomed the establishment by the Committee at its forty-fifth session of a working group under the chairmanship of Niklas Hedman (Sweden) to prepare a report of the Committee to the General Assembly at its fifty-ninth session of the progress made in the implementation of the recommendations of UNISPACE III.[7] The Subcommittee contributed to the work of the working group of the Committee by providing inputs for the report through the work of the Subcommittee and its Working Group of the Whole.

IV. Matters relating to remote sensing of the Earth by satellite, including applications for developing countries and monitoring of the Earth's environment

68. In accordance with General Assembly resolution 57/116, the Scientific and Technical Subcommittee continued its consideration of the item relating to remote sensing of the Earth.

69. In the course of the discussion, delegations reviewed national and cooperative programmes in remote sensing. Examples were given of national programmes and bilateral, regional and international cooperation. The representatives of Brazil, Canada, China, Cuba, France, India, Iran (Islamic Republic of), Japan, Malaysia, Nigeria, Peru, the Republic of Korea, the Syrian Arab Republic and the United States made statements under this agenda item.

70. The following technical presentations were made on the issue of remote sensing of the Earth by satellite:

(a) "Earth observation for sustainable development", by the representative of France;

(b) "Geographic information and refugee operations", by the representative of UNHCR.

71. The Subcommittee emphasized the importance of providing non discriminatory access to state-of-the-art remote sensing data and to derived information at reasonable cost and in a timely manner and of building capacity in the adoption and use of remote sensing technology, in particular to meet the needs of developing countries.

72. The Subcommittee emphasized that international cooperation in the use of remote sensing satellites should be encouraged and actively promoted, noting the importance of cooperation between Member States, organizations such as CEOS, ISPRS and IAF and the various United Nations entities, and also the importance of bilateral and multilateral initiatives such as the MEGHA TROPIQUES project, GlobeSAR-2, the Integrated Global Observing Strategy Partnership (IGOS-P) and Global Monitoring for Environment and Security (GMES).

73. The Subcommittee emphasized the great importance of remote sensing systems to support activities in a number of key development areas such as water management, including drought monitoring, geological studies, environmental monitoring, archaeological inventories, ocean colour and temperature monitoring, crop area monitoring and yield estimates, precision agriculture, large-scale mapping, fisheries, the management of Earth's resources, monitoring of global climate, monitoring of greenhouse gases, coal fire monitoring, coastal pollution monitoring and management, ice sheet monitoring, urbanization, soil degradation, vegetation maps and snow cover monitoring.

74. The Subcommittee highlighted the advancement in availability of new space-based sensors on board new satellites such as ADEOS-2, Spot 5, Aqua, FY-1D, HY 1A, GRACE, ENVISAT, INSAT-2E, Kalpana-1, SORCE, KOMPSAT-2, ICESAT, CBERS and NOAA 17, which will contribute further to supporting the various areas of sustainable development.

75. The Subcommittee took note of a number of initiatives in the area of small satellites such as the planned Brazilian SSR-1, the planned Malaysian small satellite programme and the various satellites of the planned Disaster Monitoring Constellation involving cooperation between Algeria, China, Nigeria, Thailand, Turkey, the United Kingdom and Viet Nam, with AlSat-1 already launched in 2002 and NigeriaSat-1 to be launched in 2003.

76. The view was expressed that, because of the increase in the capabilities of Earth observation satellites, it had become increasingly important that the space agencies implement joint observation on a global scale with multiple satellites in a coordinated manner through CEOS, which played an important role as an international framework for coordination of and cooperation between Earth observation plans.

77. The Subcommittee noted that all new achievements on Earth observation contributing to sustainable development, including agriculture, health and human security, should be carried out in the interests of all States, taking into particular account the needs of developing countries, as established in the Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries (General Assembly resolution 51/122, annex).

V. Use of nuclear power sources in outer space

78. In accordance with General Assembly resolution 57/116, the Scientific and Technical Subcommittee continued its consideration of the item on the use of nuclear power sources in outer space under the work plan adopted at its thirty-fifth session (A/AC.105/697 and Corr.1, annex III, appendix).

79. The Subcommittee had before it a note by the Secretariat, entitled “National research on space debris, safety of space objects with nuclear power sources on board and problems relating to their collision with space debris” (A/AC.105/789), as well as a working document submitted by the Russian Federation on “Prospects for the use of nuclear power sources in outer space” (A/AC.105/C.1/L.265 and Corr.1).

80. The Subcommittee also had before it the report of the Working Group on the Use of Nuclear Power Sources in Outer Space entitled “A review of international documents and national processes potentially relevant to the peaceful uses of nuclear power sources in outer space” (A/AC.105/781). According to its work plan, the Subcommittee considered whether or not to take any additional steps concerning the information in the report.

81. The representatives of Argentina, France, the Russian Federation, the United Kingdom and the United States made statements under this item.

82. Pursuant to an agreement of the Subcommittee at its thirty-ninth session (see A/AC.105/786, para. 77) and based on intersessional work of interested members of the Working Group on the Use of Nuclear Power Sources in Outer Space between the thirty-ninth and fortieth sessions of the Subcommittee, the Subcommittee had before it a working paper submitted by Argentina, France, the Russian Federation, the United Kingdom and the United States, entitled “Proposed work plan for developing an international technically based framework of goals and

recommendations for the safety of nuclear power source applications in outer space" (A/AC.105/C.1/L.261).

83. Based on that proposal, the Subcommittee adopted a further multi-year work plan on the "Use of nuclear power sources in outer space", covering the period 2003-2006, as contained in annex III to the present report.

84. The Subcommittee was informed of a new initiative contained in the NASA proposed budget for 2004, building on the Nuclear Systems Initiative recently approved by the United States Congress. The new initiative, called Project Prometheus, would develop advanced radioisotope-based power systems and nuclear fission-based power systems. The planned advances in radioisotope-based systems would enable an all-weather exploration of planetary systems, anywhere and at any time, which could be of potential use on the Mars Smart Lander Mission planned for launch in 2009. The initial activity for the nuclear fission-based power system would focus on defining the near-term technology research goals and on identifying planetary science missions uniquely enabled by nuclear fission electric power.

85. In accordance with General Assembly resolution 57/116, the Subcommittee, at its 581st meeting, on 17 February, reconvened its Working Group on the Use of Nuclear Power Sources in Outer Space under the chairmanship of Sam A. Harbison (United Kingdom). The Working Group held 10 meetings.

86. At its 597th meeting, on 28 February, the Subcommittee endorsed the report of the Working Group (see annex IV to the present report).

87. The Scientific and Technical Subcommittee agreed that the Working Group should be requested to continue its work between the current session and the forty-first session of the Subcommittee, in 2004, as described in the new work plan (see annex III) and as recommended in the report of the Working Group (see annex IV). This could be facilitated by informal discussions among interested members of the Working Group in Vienna on 10 June 2003, immediately prior to the forty-sixth session of the Committee on the Peaceful Uses of Outer Space.

VI. Means and mechanisms for strengthening inter-agency cooperation and increasing the use of space applications and services within and among entities of the United Nations system

88. In accordance with General Assembly resolution 57/116, the Scientific and Technical Subcommittee continued its consideration of the item on means and mechanisms for strengthening inter-agency cooperation and increasing the use of space applications and services within and among entities of the United Nations system. The work plan adopted at the Subcommittee's thirty-seventh session (A/AC.105/736, annex II, para. 40) called for the Subcommittee to develop specific and concrete proposals and action plans for strengthening inter-agency cooperation in the use of space within the United Nations system and for increasing the use of space applications and services within the system in general and among particular United Nations entities.

89. The Subcommittee had before it the following documents:

(a) Report of the Inter-Agency Meeting on Outer Space Activities on its twenty-third session, held in Vienna from 22 to 24 January 2003 (A/AC.105/791 and Corr. 1);

(b) Report of the Secretary-General on the coordination of outer space activities within the United Nations system: programme of work for 2003 and 2004 and future years (A/AC.105/792).

90. The representatives of Bulgaria, Mexico, the Syrian Arab Republic and the United States made statements under this item. The representative of WMO also made a statement.

91. The Subcommittee heard the following technical presentations under this agenda item:

(a) "The use of remote sensing in support of the Convention for the Protection of the World Cultural and Natural Heritage", by the representatives of ESA and UNESCO;

(b) "Report of the Chairman of the Inter-Agency Meeting", by the representative of WMO.

92. The Subcommittee noted with satisfaction that the Inter-Agency Meeting on Outer Space Activities had held its twenty-third session in Vienna from 22 to 24 January 2003. The Subcommittee noted that the next session of the Inter-Agency Meeting would be hosted by WMO in Geneva in early 2004, before the forty-first session of the Subcommittee.

93. The Subcommittee endorsed the recommendation of the Inter-Agency Meeting on Outer Space Activities that an open informal session, to which representatives of member States of the Committee would be invited, should be held in conjunction with the annual session of the Inter-Agency Meeting. The Subcommittee noted that, in view of the limited time available during the open session, its agenda should be focused on a particular topic, or topics, to be selected in advance through discussions among the focal points for the Inter-Agency Meeting (A/AC.105/791 and Corr.1, paras. 20 and 21).

94. Based on a recommendation of the Inter-Agency Meeting on Outer Space Activities (A/AC.105/791 and Corr.1, para. 30), the Subcommittee invited United Nations entities to submit annual reports to the Subcommittee on specific themes. The Subcommittee also encouraged United Nations entities to consider reporting on their work relevant to specific agenda items of the Committee and its subcommittees.

95. The Subcommittee had before it a document prepared by the Office for Outer Space Affairs containing a preliminary draft list of actions recommended in the Plan of Implementation of the World Summit on Sustainable Development with direct or potential relevance to space science and technology and their applications (A/AC.105/C.1/2003/CRP.12). The draft list also included actions that addressed cross-cutting issues to which the use of space science and technology and their applications could contribute. Based on a recommendation of the Inter-Agency Meeting (A/AC.105/791 and Corr.1, paras. 35 and 36), the Subcommittee invited member States of the Committee on the Peaceful Uses of Outer Space to complete

the list by submitting information on space-related initiatives and programmes that they would carry out in response to specific actions recommended in the Plan of Implementation of the World Summit. Information submitted by member States could also include links to web sites relevant to the listed initiatives and programmes to provide further information to those interested. The Subcommittee noted that, once completed, the list could serve as a comprehensive survey of the space community's response to the outcomes of the World Summit.

96. The Subcommittee noted that research and development satellite data and products contributed significantly to WMO programmes. While most operations of national meteorological and hydrological services depended critically on data and products from operational satellite missions, research and development systems had now become an integral part of some of their operations. The Subcommittee stressed the importance of international cooperation in that field.

VII. Implementation of an integrated, space-based global natural disaster management system

97. In accordance with General Assembly resolution 57/116, the Scientific and Technical Subcommittee continued its consideration of the item on the implementation of an integrated, space-based global natural disaster management system. In accordance with the work plan adopted at its thirty-eighth session (A/AC.105/736, annex II, para. 41), the Subcommittee reviewed possible global operational structures to handle natural disaster management, making maximum use of existing and planned space systems.

98. The representatives of China, Colombia, Cuba, Ecuador, France, Germany, India, Indonesia, Japan, Malaysia, Nigeria, Peru and the United States made statements under this item. The observer of the secretariat for ISDR also made a statement.

99. The Subcommittee heard the following technical presentations under this agenda item:

(a) "Earth observation data in seismic risk assessment", by the representative of Greece;

(b) "Small satellite constellations for monitoring of natural and man-made catastrophes", by the representative of the Russian Federation.

100. In the course of the discussion, delegations reviewed national and cooperative efforts in the implementation of space-based natural disaster management systems. Examples were given of national programmes and bilateral, regional and international cooperation.

101. Space technologies were highlighted by the Subcommittee as important tools to increase the capacity of all countries to respond effectively in case of natural disasters, in particular in developing countries, which were less prepared to face the costly economic consequences and development setbacks caused by natural disasters.

102. The Subcommittee noted with satisfaction the efforts of States to utilize scientific information, satellite data and space technologies, often in tandem with

other technologies such as GIS, as well as their global integrated approach throughout the disaster management cycle, from preparedness and prediction, to assessment of hazards and damage, to response and recovery and planning and mitigation.

103. The Subcommittee noted that achieving a global management infrastructure for natural disasters would require the use of a "system engineering" approach and appropriate resources, which could tie the existing satellite missions to various scientific models of natural phenomena and to decision support systems that would enhance decision-making capabilities during natural disasters. The Subcommittee further noted that such a collaborative "systems" approach would improve the process of implementing operational structures in support of a potential global network for disaster management.

104. The Subcommittee recognized the importance of the Political Declaration[8] and the Plan of Implementation of the World Summit on Sustainable Development, in which the fundamental link existing between disaster reduction and sustainable development was recognized. That link resided in the long-term nature of disaster reduction and its targeting the communities most at risk.

105. The Subcommittee noted with appreciation the important contribution that the Action Team on Disaster Management had made throughout the course of the Subcommittee's work plan on "Implementation of an integrated, space-based global natural disaster management system". The Subcommittee noted that the Action Team would continue to provide input both to the Subcommittee's work on disaster management and to the General Assembly's five-year review of UNISPACE III in 2004.

106. The Subcommittee recognized the importance of international initiatives, including the work of CEOS, and specifically its Disaster Management Support Group, which had prepared and published its *Final Report on the Use of Earth Observing Satellites for Disaster Support*. The final report described potential global structures for international cooperation and recommended necessary improvements to current and future satellite systems. In particular, the Subcommittee noted that the work of the Working Group was continuing in collaboration with other international partners such as the Office for Outer Space Affairs, the Committee on the Peaceful Uses of Outer Space, the ISDR secretariat, and IGOS-P.

107. The Subcommittee noted with satisfaction that progress toward an operational international structure for handling natural disaster management and making maximum use of existing and planned space systems had been achieved, in part, through the Charter on Cooperation to Achieve the Coordinated Use of Space Facilities in the Event of Natural or Technological Disasters (the "International Charter 'Space and Major Disasters'"), through which the satellites of ESA, CNES, the Canadian Space Agency, ISRO and NOAA could be used to provide Earth observation images to civil protection authorities responding to a major disaster. The Subcommittee also noted that, since its entry into force in November 2000, the Charter had been activated 27 times in a number of countries where natural disasters such as earthquakes, volcanic eruptions, landslides and floods had occurred. In that regard, the Subcommittee welcomed the efforts of civil protection agencies and their involvement in the Charter activities.

108. The Subcommittee took note that CONAE of Argentina and NASDA of Japan were in the final preparatory stage of joining the Charter. The Subcommittee also noted with satisfaction that the Office for Outer Space Affairs was in the process of becoming a cooperating body of the Charter and would serve as the focal point and authorized user for the Charter within the United Nations system.

109. The view was expressed that the International Charter "Space and Major Disasters" should be a part of the discussions of the Action Team on Disaster Management in order to identify the means that would allow the establishment of a global integrated system.

110. The Subcommittee noted that the International Satellite System for Search and Rescue (COSPAS-SARSAT), which was using satellites in low-Earth and geostationary orbits to detect and locate aviators, mariners and, just recently, land-based users in distress, could serve as another model for how a global operational management system for disaster support might work. Thirty States were participating in the system and more than 12,000 lives had been saved worldwide since the system became operational in 1982.

111. The Subcommittee also noted that Nigeria, through its National Emergency Management Agency, had joined the COSPAS-SARSAT system and approved the establishment of a COSPAS-SARSAT local user terminal and a mission control centre in the country, which should be in operation in 2003. Once it was operational, Nigeria would be able to receive and act as the hub for distributing alert distress data in the West African subregion so that ships, aircraft and any people in distress with the necessary beacons could be located and rescued.

112. The Subcommittee recognized the contribution of ISDR in the development of space programmes and applications that could bring natural disaster reduction to a higher level of efficiency in all countries and in all communities exposed to the risk of disaster, as well as the promotion by ISDR of a proactive approach to identify and manage vulnerability and risk rather than responding to the impact of disasters. The Subcommittee took note of the ISDR collaboration with the co-chairs of the Action Team on Disaster Management and its support of the Office for Outer Space Affairs in the organization of the ongoing series of regional workshops on space applications and disaster management.

113. The Subcommittee noted that several objectives foreseen in its work plan on "Implementation of an integrated, space-based global natural disaster management system" for the years 2001 and 2002 had been addressed by a number of States, including the examination of existing satellite and data distribution systems that could be used for disaster management.

114. The Subcommittee noted with satisfaction the efforts of several States aimed at creating national, regional or international satellites and microsatellite constellations for disaster monitoring.

115. The view was expressed that the development of regional or international integrated space-based disaster management structures would require serious efforts to seek international common standards and protocols, as these could result in significant reduction of development costs while at the same time ensuring maximum utilization of all available systems.

VIII. Space debris

116. In accordance with General Assembly resolution 57/116, the Scientific and Technical Subcommittee continued its consideration of the item on space debris in accordance with the work plan adopted at its thirty-eighth session (A/AC.105/761, para.130).

117. The representatives of China, the Czech Republic, France, Germany, India, Italy, Japan, Mexico, the Russian Federation and the United States made statements on this item.

118. The Subcommittee heard the following scientific and technical presentations on the subject of space debris:

(a) "Inter-Agency Space Debris Coordination Committee space debris mitigation guidelines", by the representatives of the United Kingdom and the Inter-Agency Space Debris Coordination Committee (IADC);

(b) "Space debris research in the United States", by the representative of the United States;

(c) "Space debris research at the European Space Agency", by the representative of the ESA.

119. The Subcommittee received a national report on space debris research in the Russian Federation (A/AC.105/C.1/L.267).

120. The Subcommittee had before it a note by the Secretariat entitled "National research on space debris, safety of space objects with nuclear power sources on board and problems relating to their collision with space debris", containing replies received from member States on the issue (A/AC.105/789). The Subcommittee invited member States and regional space agencies to continue to provide reports on this issue in future years.

121. The Subcommittee noted with satisfaction that, in accordance with its work plan on space debris, IADC had presented its proposals on debris mitigation (A/AC.105/C.1/L.260), based on consensus among the IADC members. According to its work plan, the Subcommittee began its review of the IADC proposals and discussed means of endorsing their utilization.

122. The Subcommittee thanked IADC for its proposals on debris mitigation and placed on record its deep appreciation for the efforts of IADC.

123. The Subcommittee requested and encouraged all member States of the Committee to study the IADC proposals and to provide their possible comments to the Office for Outer Space Affairs before the forty-first session of the Subcommittee, in 2004.

124. The Subcommittee noted that, based on the scope of the comments received, it might consider the formation of a formal working group at its forty-first session to review the comments and consider further progress on the subject, including continuing discussions on means of endorsing utilization of the guidelines.

125. The Subcommittee agreed that member States, in particular space-faring countries, should pay more attention to the problem of collisions of space objects, including those with nuclear power sources on board, with space debris and to other

aspects of space debris, as well as their re-entry into the atmosphere. It noted that the General Assembly, in its resolution 57/116, had called for the continuation of national research on the question, for the development of improved technology for the monitoring of space debris and for the compilation and dissemination of data on space debris. The Subcommittee agreed that national research on space debris should continue and that member States and international organizations should make available to all interested parties the results of that research, including information on practices adopted that had proved effective in minimizing the creation of space debris.

126. The Subcommittee noted that, although adequate attention was being paid by member States and space agencies to the above-mentioned issues, further research would be needed to determine whether identified mitigation measures were cost-effective and could minimize the short-term cost while maximizing the long-term benefit for the space environment.

127. The Subcommittee noted that a detailed presentation on Germany's consolidated national project entitled "Space Debris End-to-End Service" would be made at the forty-first session of the Scientific and Technical Subcommittee.

128. Some delegations expressed the view that the IADC guidelines should be implemented expeditiously on a voluntary basis through national mechanisms and that there were no international legal impediments to that process.

129. The view was expressed that, in parallel to the Subcommittee's work on fine-tuning the debris mitigation guidelines, the Subcommittee should analyse ways of implementing the IADC guidelines on a voluntary basis. Such an analysis should also be made at the national level.

130. The view was expressed that design and operation of space debris mitigation measures did not necessarily have a great cost impact if they were considered and implemented early in the process of the space system design. First indications gave a value of about 1 to 3 per cent of the cost of the mission. Only when measures had to be taken for de-orbit or re-orbit manoeuvres might the costs increase up to nearly 10 per cent.

131. Some delegations expressed the view that the protection of the space environment was a collective responsibility of space-faring countries and that as measures to mitigate the effects of space debris were costly, it was necessary to share resources through cooperation and coordination among them.

132. Some delegations expressed the view that the timely and systematic provision of official information on the functional status of space objects would offer a better factual basis for studies of orbital debris. Those delegations expressed the view that the recent report of the Italian Space Agency (A/AC.105/803) and the information provided in real time via the Internet (www.asdc.asi.it/bepposax/reentry/) on the change of the satellite BeppoSAX into space debris and on its expected re-entry into the Earth's atmosphere was an important step in that direction.

133. Some delegations expressed their concern at the risks that the re-entry of the BeppoSAX posed for equatorial countries. Those delegations indicated that it was highly desirable that information on the re-entry of the satellite be provided in a timely fashion.

134. Some delegations expressed the view that the topic of space debris should be considered by the Legal Subcommittee, either to address specific legal questions or to move towards principles on space debris. Those delegations informed the Scientific and Technical Subcommittee that they would submit a formal proposal in that regard at the forty-second session of the Legal Subcommittee.

135. However, the view was expressed that such a step would not be constructive at the present time. That delegation expressed the view that the fastest way to reduce the space debris population was for space-faring nations to implement immediately the measures contained in the IADC space debris mitigation guidelines.

IX. Examination of the physical nature and technical attributes of the geostationary orbit and of its utilization and applications, including, inter alia, in the field of space communications, as well as other questions relating to developments in space communications, taking particular account of the needs and interests of developing countries

136. In accordance with General Assembly resolution 57/116, the Scientific and Technical Subcommittee continued its consideration of the item relating to the geostationary orbit and space communications.

137. The representatives of Chile, Colombia, Ecuador, Greece, Mexico, Peru and South Africa made statements on this item.

138. The Subcommittee heard a presentation under this item on "Technical considerations of future geostationary orbit broadband satellites servicing tropical zones", by the representative of Colombia.

139. The Subcommittee noted with satisfaction that, following the invitation of the Subcommittee at its thirty-ninth session (A/AC.105/786, para. 131), IAU made a special presentation on the status of its work on frequency interference with radio astronomy and radio interference-free zones.

140. Some delegations reiterated the view that the geostationary orbit was a limited natural resource with a number of sui generis characteristics, which risked saturation, and that, therefore, it was necessary to ensure that its use was rationalized and extended to all countries, especially those which did not currently have the technical and scientific capacity within their reach. Those delegations expressed the view that access to the geostationary orbit should be granted to all countries under equitable conditions, taking particular account of the needs and interests of developing countries, as well as the geographical position of certain countries, bearing in mind the support of the International Telecommunication Union.

141. The Subcommittee underlined the importance of the forthcoming World Summit on the Information Society and recommended the active participation of the Committee on the Peaceful Uses of Outer Space and the Office for Outer Space Affairs in both phases of the Summit (Geneva, December 2003, and Tunis, November 2005).

142. Some delegations noted the serious threat posed by space debris in the geostationary orbit.

143. The view was expressed that, since services such as tele-health and telemedicine for rural areas required access to broadband satellite communications, and because of existing allocations of the radiofrequency spectrum and reduced signal strength due to rain attenuation, access to those services in tropical zones could be provided most effectively through a few specific positions in the geostationary orbit. For those reasons, it was emphasized that tropical countries should be given priority in the allocation of the geostationary orbit positions in question.

144. The view was expressed that the Committee on the Peaceful Uses of Outer Space should pay increasing attention to legal issues and scientific and technical issues relating to equitable access to the geostationary orbit.

X. Mobilization of financial resources to develop capacity in space science and technology applications

145. In accordance with General Assembly resolution 57/116, the Scientific and Technical Subcommittee considered an agenda item on mobilization of financial resources to develop capacity in space science and technology applications.

146. The representatives of Indonesia, Pakistan and the United States made statements under this agenda item.

147. The Subcommittee noted with appreciation the important contribution made by the Action Team on Innovative Sources of Funding and noted that the Action Team would continue to provide input both to the Subcommittee and to the General Assembly's five-year review of UNISPACE III in 2004 on new and innovative sources of funding to implement the recommendations of UNISPACE III.

148. The Subcommittee noted that the mobilization of financial resources to develop capacity in space science and technology applications could be achieved, among other ways, through partnerships between technical agencies, donor countries and organizations, the private sector and users in developing countries involved in sustainable development projects that could serve to build capacity. Some examples of such partnerships included the Global Climate Observing System; the provision of ground stations and training to States in Africa and the Indian Ocean region under a WMO programme operated by the European Organization for the Exploitation of Meteorological Satellites (EUMETSAT); the Congo Basin Forest Partnership, supported by the National Aeronautics and Space Administration (NASA) of the United States and the United States Agency for International Development (USAID); and the USAID Afghanistan Spring Wheat Project.

149. The Subcommittee also noted that development banks and other international funding institutions that financed development projects in developing countries were not always aware of the immense potential of space applications. It was important that the attention of the above-mentioned institutions should be drawn by the Committee on the Peaceful Uses of Outer Space to that potential.

150. The Subcommittee noted that the use of space applications by developing countries faced obstacles owing to the lack of qualified personnel and equipment and the absence of adequate financial resources. The Subcommittee emphasized the significance of cooperation between developing and developed countries, in particular to promote opportunities for greater access to space science and technology and thereby building and strengthening capacity.

151. The view was expressed that specific measures to address those obstacles could include the following: contributions from industry working in the telecommunication satellite business; an invitation from the United Nations to Member States and other international entities to make contributions to the Trust Fund of the United Nations Programme on Space Applications; public-private partnership in space-related areas; introduction of clauses in national legislation providing a fiscal incentive to contribute to United Nations development activities; and support from international development banks and other financial institutions. The view was expressed that the Office for Outer Space Affairs should prepare a document for submission to industries, containing the recommendations of UNISPACE III and respective concrete proposals for the implementation of recommendations through partnerships.

XI. The use of space technology for the medical sciences and public health

152. In accordance with General Assembly resolution 57/116, the Scientific and Technical Subcommittee considered a single issue/item for discussion on the use of space technology for the medical sciences and public health.

153. The representatives of Austria, Canada, China, France, Germany, India, Italy, Romania and the United States made statements on this item.

154. The Subcommittee heard the following scientific and technical presentations on the subject of the use of space technology for the medical sciences and public health:

(a) “A novel path to tele-health services in developing countries”, by the representative of Canada;

(b) “Space technology and public health”, by the representative of France;

(c) “Use of telemedicine in India”, by the representative of India;

(d) “Results and methods of research of vestibular function in space useful in clinical practice”, by the representative of Slovakia;

(e) “Health Improvement Through Space Technologies and Resources (HISTAR)”, by the representatives of the ISU.

155. The Subcommittee was informed of several initiatives involving the use of space technology for the medical services and public health in areas such as telemedicine, space technology for epidemiology and the control of infectious diseases and medical and pharmacological research in microgravity.

156. The Subcommittee noted that telemedicine could be of great importance in providing medical expertise to remote locations not connected to the terrestrial network.

157. The Subcommittee noted that novel satellite-based telemedicine systems had been developed for use in the case of natural disasters and were being used for high-speed data transfer of diagnostic data, such as electronic X-ray and computer tomography images, supported by high-quality video conferencing services to facilitate discussion and decision-making by medical experts.

158. The Subcommittee noted that space technologies such as remote sensing and satellite navigation could help to identify and predict outbreaks of diseases such as malaria, dengue fever, Rift Valley fever and West Nile virus.

159. The Subcommittee noted that research in microgravity could increase medical and pharmacological knowledge by using methods that could not be duplicated on Earth.

160. The Subcommittee also noted that many technologies developed in connection with space exploration had terrestrial spin-offs in the area of the medical sciences and public health.

161. For those reasons, the Subcommittee encouraged continued international cooperation in the use of space technology for the medical sciences and public health and expressed the belief that the number of examples and noteworthy successes of the use of space technology in that area would continue to rise.

XII. Draft provisional agenda for the forty-first session of the Scientific and Technical Subcommittee

162. In accordance with General Assembly resolution 57/116, the Scientific and Technical Subcommittee considered proposals for a draft provisional agenda for its forty-first session, in 2004, to be submitted to the Committee on the Peaceful Uses of Outer Space. Pursuant to paragraph 19 of that resolution, the Subcommittee requested the Working Group of the Whole, established at its 584th meeting, on 19 February, to consider the draft provisional agenda for the forty-first session of the Subcommittee.

163. At its 596th meeting, on 27 February 2003, the Subcommittee endorsed the recommendations of the Working Group of the Whole concerning the draft provisional agenda for the forty-first session of the Subcommittee, as contained in the report of the Working Group of the Whole (see annex II to the present report).

Notes

[1] *Report of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space, Vienna, 19-30 July 1999* (United Nations publication, Sales No. E.00.I.3), chap. I, resolution 1.

[2] See the report of the Expert on Space Applications (A/AC.105/790 and Corr.1).

[3] United Nations publication, Sales No. E.03.I.9.

[4] United Nations publication, Sales No. E.03.I.10.

[5] *Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26 August-4 September 2002* and corrigendum (United Nations publication, Sales No. E.03.II.A.1 and corrigendum), chap. I, resolution 2, annex.

[6] *Official Records of the General Assembly, Fifty-sixth Session, Supplement No. 20* and corrigendum (A/56/20 and Corr.1), paras. 50 and 55.

[7] Ibid., *Fifty-seventh Session, Supplement No. 20* (A/57/20), para. 37

[8] *Report of the World Summit* ..., chap. I, resolution 1, annex.

Annex I

Documents before the Scientific and Technical Subcommittee at its fortieth session

Symbol	*Agenda item*	*Title or description*
A/AC.105/776	4	Report of the Second United Nations/United States of America Regional Workshop on the Use and Applications of Global Navigation Satellite Systems (Vienna, 26-30 November 2001)
A/AC.105/781	7	Review by the Working Group on the Use of Nuclear Power Sources in Outer Space of international documents and national processes potentially relevant to the peaceful uses of nuclear power sources in outer space
A/AC.105/783	4	Report of the United Nations/India Workshop on Satellite-Aided Search and Rescue (Bangalore, India, 18-22 March 2002)
A/AC.105/784	4	Report of the Eleventh United Nations/European Space Agency Workshop on Basic Space Science (Córdoba, Argentina, 9-13 September 2002)
A/AC.105/785 and Corr.1	4	Report of the Fourth United Nations/United States of America Regional Workshop on the Use and Applications of Global Navigation Satellite Systems (Lusaka, 15-19 July 2002)
A/AC.105/788	3	International cooperation in the peaceful uses of outer space: activities of Member States
A/AC.105/789	7 and 10	National research on space debris, safety of space objects with nuclear power sources on board and problems relating to their collision with space debris
A/AC.105/790 and Corr.1	4	Report of the Expert on Space Applications
A/AC.105/791 and Corr. 1	8	Report of the Inter-Agency Meeting on Outer Space Activities on its twenty-third session (Vienna, 22-24 January 2003)
A/AC.105/792	8	Report of the Secretary-General on the coordination of outer space activities within the United Nations system: programme of work for 2003 and 2004 and future years
A/AC.105/793	4	Report of the United Nations/Austria/ European Space Agency Symposium on Enhancing the Participation of Youth in Space Activities (Graz, Austria, 9-12 September 2002)

Symbol	*Agenda item*	*Title or description*
A/AC.105/794	4	Report of the United Nations Regional Workshop on the Use of Space Technology for Disaster Management for Africa (Addis Ababa, 1-5 July 2002)
A/AC.105/795	4	Report of the Third United Nations/United States of America Regional Workshop on the Use and Applications of Global Navigation Satellite Systems (Santiago, 1-5 April 2002)
A/AC.105/796	4	Report of the Twelfth United Nations/Sweden International Training Course on Remote Sensing Education for Educators (Stockholm and Kiruna, Sweden, 2 May-8 June 2002)
A/AC.105/799	4	Report of the Third United Nations/ International Academy of Astronautics Workshop on Small Satellites in the Service of Developing Countries: Beyond Technology Transfer (Houston, Texas, United States of America, 12 October 2002)
A/AC.105/C.1/L.259	1	Provisional agenda and annotations
A/AC.105/C.1/L.260	10	Inter-Agency Space Debris Coordination Committee space debris mitigation guidelines
A/AC.105/C.1/L.261	7	Working paper submitted by Argentina, France, the Russian Federation, the United Kingdom of Great Britain and Northern Ireland and the United States of America on a proposed work plan for developing an international technically based framework of goals and recommendations for the safety of nuclear power source applications in outer space
A/AC.105/C.1/L.262	5	Note by the Secretariat on the implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III)
A/AC.105/C.1/L.263	5	Implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III): progress report of the Action Team on Disaster Management
A/AC.105/C.1/L.264	5	Implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III): final report of the Action Team on Sustainable Development
A/AC.105/C.1/L.265 and Corr.1	7	Working document submitted by the Russian Federation on prospects for the use of nuclear power sources in outer space
A/AC.105/C.1/L.266 and Add.1 and 2	15	Draft report

Symbol	*Agenda item*	*Title or description*
A/AC.105/C.1/L.267	10	National report on space debris research in the Russian Federation in 2002
A/AC.105/C.1/NPS/2003/L.1	7	Draft report of the Working Group on the Use of Nuclear Power Sources in Outer Space
A/AC.105/C.1/WGW/2003/L.1	4, 5 and 14	Draft report of the Working Group of the Whole
Conference room papers		
A/AC.105/C.1/2003/CRP.1		Information for participants
A/AC.105/C.1/2003/CRP.2		Provisional list of participants
A/AC.105/C.1/2003/CRP.3	5	Report on World Space Week 2002
A/AC.105/C.1/2003/CRP.4	5	Meetings planned during the fortieth session of the Scientific and Technical Subcommittee by action teams to implement recommendations of UNISPACE III
A/AC.105/C.1/2003/CRP.5	5	Interim report of the Action Team on the Management of the Earth's Natural Resources (Recommendation 2 of UNISPACE III)
A/AC.105/C.1/2003/CRP.6 and Add.1	5	Progress report of the Action Team on Weather and Climate Forecasting (Recommendation 4 of UNISPACE III)
A/AC.105/C.1/2003/CRP.7	5	Interim report of the Action Team on Innovative Sources of Funding (Recommendation 32 of UNISPACE III)
A/AC.105/C.1/2003/CRP.8	5	Contributions received from entities of the United Nations system and organizations with permanent observer status with the Committee on the Peaceful Uses of Outer Space towards preparations for the review by the General Assembly in 2004 of the progress made in the implementation of the recommendations of UNISPACE III
A/AC.105/C.1/2003/CRP.9		Proceedings of the 18th COSPAR/IAF Symposium on Applications of Satellite Navigation and Their Benefits to Developing Countries (17 and 18 February 2003)
A/AC.105/C.1/2003/CRP.10	5	List of issues to be considered in the Working Group of the Whole
A/AC.105/C.1/2003/CRP.11	5	List of priority project proposals
A/AC.105/C.1/2003/CRP.12	8	List of recommendations of the World Summit on Sustainable Development relating to the use of space science and technology and their applications

Symbol	*Agenda item*	*Title or description*
A/AC.105/C.1/2003/CRP.13	5	Progress report of the Action Team on Environmental Monitoring Strategy (Recommendation 1 of UNISPACE III)
A/AC.105/C.1/2003/CRP.14	14	Draft provisional agenda for the forty-first session of the Scientific and Technical Subcommittee, in 2004
A/AC.105/C.1/2003/CRP.15	4, 5 and 15	Draft report of the Working Group of the Whole
A/AC.105/C.1/2003/CRP.16	5	Progress report of the Action Team on Capacity-Building (Recommendation 17 of UNISPACE III)
A/AC.105/C.1/2003/CRP.17	14	Amendments to the draft report of the Subcommittee (A/AC.105/C.1/L.266)
Background documents		
ST/SPACE/12 (United Nations publication, Sales No. E.03.I.9)		Seminars of the United Nations Programme on Space Applications

Annex II

Report of the Working Group of the Whole

1. In accordance with paragraph 19 of General Assembly resolution 57/116 of 11 December 2002, the Scientific and Technical Subcommittee at its fortieth session reconvened the Working Group of the Whole. The Working Group of the Whole held 11 meetings, from 19 to 27 February 2003. It considered the United Nations Programme on Space Applications, the implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III) and the draft provisional agenda for the forty-first session of the Subcommittee, in 2004. At its 11th meeting, on 27 February 2003, the Working Group of the Whole adopted the present report.

2. Muhammad Nasim Shah (Pakistan) was elected Chairman of the Working Group of the Whole at the 584th meeting of the Scientific and Technical Subcommittee, on 19 February. The Chairman, in his opening remarks, reviewed the mandate of the Working Group of the Whole at its session in 2002. The Working Group of the Whole had before it the list of issues that it should consider (A/AC.105/C.1/2003/CRP.10).

A. United Nations Programme on Space Applications

3. The Working Group of the Whole had before it the report of the Expert on Space Applications (A/AC.105/790 and Corr.1) and noted that the Officer-in-Charge of the Space Applications Section of the Office for Outer Space Affairs had supplemented that report by a statement.

4. The Working Group of the Whole noted the workshops, training courses, long-term fellowships for in-depth training, as well as technical advisory services as proposed to the Subcommittee in the report of the Expert on Space Applications (A/AC.105/790 and Corr.1, paras. 25-38). The Working Group of the Whole also noted the list of projects and activities that had been recommended by the Committee on the Peaceful Uses of Outer Space at its forty-third session[a] and that had been included in the letter of the Secretary-General inviting Member States to contribute voluntarily to the Trust Fund for the United Nations Programme on Space Applications (A/AC.105/C.1/2003/CRP.11).

5. The Working Group of the Whole agreed that the United Nations Programme on Space Applications should, through its technical advisory services and to the extent possible, assist developing countries in strengthening their national institutions that used space technology or could benefit from space applications to carry out their work to enhance economic and social development.

B. Implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space

6. The Working Group of the Whole had before it a note by the Secretariat (A/AC.105/C.1/L.262) that summarized progress in the implementation of the recommendations of UNISPACE III.

١. Progress made by the action teams established by the Committee on the Peaceful Uses of Outer Space at its forty-fourth session

7. The 11 action teams that had been established by the Committee on the Peaceful Uses of Outer Space at its forty-fourth session[b] reported to the Working Group of the Whole on the work that they had conducted to date.

	Recommendation[a]	*Chair(s)*	*Oral report on behalf of the action team*	*Written reports submitted*[b]
1.	Develop a comprehensive, worldwide environmental monitoring strategy	Islamic Republic of Iran, Syrian Arab Republic	Islamic Republic of Iran	A/AC.105/C.1/2003/CRP.13
2.	Improve the management of Earth's natural resources	India	India	A/AC.105/C.1/2003/CRP.5
4.	Enhance weather and climate forecasting	Portugal	Portugal	A/AC.105/C.1/2003/CRP.6
6.	Improve public health services	Canada	Canada	
7.	Implement an integrated, global system to manage natural disaster mitigation, relief and prevention efforts	Canada, China and France	France	A/AC.105/C.1/L.263
10.	Improve universal access to and compatibility of space-based navigation and positioning systems	Italy and United States of America	United States of America	
11.	Promote sustainable development by applying the results of space research	Nigeria	Nigeria	A/AC.105/C.1/L.264
14.	Improve the international coordination of activities related to near-Earth objects	United Kingdom of Great Britain and Northern Ireland	United Kingdom of Great Britain and Northern Ireland	
17.	Enhance capacity-building by developing human and budgetary resources	Japan	Japan	A/AC.105/C.1/2003/CRP.16

	Recommendation[a]	*Chair(s)*	*Oral report on behalf of the action team*	*Written reports submitted*[b]
18.	Increase awareness among decision makers and the general public of the importance of space activities	Austria and United States of America	United States of America	
32.	Identify new and innovative sources of financing to support the implementation of the recommendations of UNISPACE III	France	Germany	A/AC.105/C.1/2003/CRP.7

[a] The recommendations are numbered in the order of their appearance in the Vienna Declaration, which contains the full text of each recommendation (see *Report of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space, Vienna, 19-30 July 1999* (United Nations publication, Sales No. E.00.I.3), chap. I, resolution 1).

[b] The work plans of some action teams did not call for the submission of written reports at the present stage.

8. The Working Group of the Whole expressed its appreciation to all the chairpersons of the action teams, who had exercised leadership in conducting the work associated with the recommendations and coordinated the activities of the action teams.

9. The Working Group of the Whole noted that the action team for recommendation 4 would be chaired jointly by Portugal and the World Meteorological Organization.

10. The Working Group of the Whole noted that the action team for recommendation 11 had submitted its final report (A/AC.105/C.1/L.264) and that the action team considered the present phase of its work complete. The following corrections to the final report were made by the Working Group of the Whole:

(a) Paragraph 9 (b) should read as follows:

"(b) Emissions from the exhaust systems of motor vehicles;"

(b) The second sentence of paragraph 26 (b) should read as follows:

"Provide greater support for local education and training at the regional centres for space science and technology education that have been established by the United Nations in Brazil/Mexico, India, Morocco and Nigeria;"

٢. Establishment of an action team for recommendation 9

11. Following the offer by Malaysia, the Working Group of the Whole agreed that an action team should be established under the chairmanship of Malaysia to implement recommendation 9, "Improve knowledge-sharing through the promotion of universal access to space-based communication services". The Working Group of the Whole noted that there was a link between the work to be done by the action team and the preparation activities for the World Summit on the Information

Society, the first phase of which would be held in Geneva, from 10 to 12 December 2003.

12. The Working Group of the Whole agreed that all Member States should be invited to indicate their interest in joining the action team for recommendation 9 and to provide the Office for Outer Space Affairs with their points of contact. The Working Group of the Whole agreed that the action team should submit to the Committee on the Peaceful Uses of Outer Space, at its forty-sixth session, a document containing the objectives, work plan and principal products to be delivered.

13. The Working Group of the Whole noted that one of the products that could be delivered by the action team for recommendation 9 could be the draft of a statement of the Committee on the Peaceful Uses of Outer Space that might be delivered at the World Summit on the Information Society, to highlight the role of space technology in bridging the digital divide. The draft statement, if developed, could be reviewed by the Committee as its input for the second phase of the World Summit, to be held in Tunis from 16 to 18 November 2005.

٣. Inputs for the report of the Committee on the Peaceful Uses of Outer Space to the General Assembly at its fifty-ninth session, in 2004, for its review of the implementation of the recommendations of UNISPACE III

14. The Working Group of the Whole noted that the Committee on the Peaceful Uses of Outer Space, at its forty-fifth session, had established a Working Group to prepare a report for submission to the General Assembly, in order for the Assembly to review and appraise, at its fifty-ninth session, in 2004, the implementation of the recommendations of UNISPACE III.[c] The Working Group of the Whole also noted that the report of the Working Group of the Committee contained a list of sources of information that should be taken into account in preparing the report as well as an indicative, preliminary draft outline of the report.[d] The Working Group of the Whole further noted that the Committee had agreed that the chairpersons of the Scientific and Technical Subcommittee and its Working Group of the Whole should assist the Chairperson of the Committee's Working Group in ensuring the preparation of the entire draft report for consideration by the Working Group in 2004.

15. With regard to the reports and recommendation of the action teams to be considered for incorporation into the report to the General Assembly, the Working Group of the Whole agreed to circulate a template to the chairpersons of the action teams. The template, as agreed upon by the Working Group of the Whole, is attached as appendix I to the present document. The Working Group of the Whole agreed that the action teams, in particular those which would have completed their work by June 2003, should complete and submit the template by the beginning of May 2003, for consideration by the Committee at its forty-sixth session.

16. The Working Group of the Whole had before it a list of agenda items of the Committee and its subsidiary bodies that had relevance to the implementation of the recommendations of UNISPACE III (A/AC.105/C.1/L.262, annex I). The Working Group of the Whole noted that, in addition to the agenda items indicated in the list, the item entitled "Matters relating to remote sensing of the Earth by satellite, including applications for developing countries and monitoring of the Earth's

environment", which was being considered by the Scientific and Technical Subcommittee, had relevance to recommendations 1-4 of UNISPACE III.

17. The Working Group of the Whole agreed that the results of the following global conferences organized by entities of the United Nations system should be taken into account in the preparation of the report to the General Assembly for its review of the progress made in the implementation of the recommendations of UNISPACE III: (a) the United Nations Millennium Summit, held in New York, from 6 to 8 September 2000; (b) the World Summit on Sustainable Development, held in Johannesburg, South Africa, from 26 August to 4 September 2002; and (c) the World Summit on the Information Society (first phase), to be held in Geneva from 10 to 12 December 2003. The Working Group of the Whole agreed that the recommendations or action items resulting from those global conferences should be correlated with specific recommendations of UNISPACE III.

18. The Working Group of the Whole agreed that the following space-related regional entities should be invited to provide inputs for the report to the General Assembly:

African Association of Remote Sensing of the Environment	European Organization for the Exploitation of Meteorological Satellites (EUMETSAT)
Asia-Pacific Multilateral Cooperation in Space Technology and Applications	European Space Science Committee
Asia-Pacific Regional Space Agency Forum	International Conference on Science and Technology Education, to be held in Africa in September 2003
Asia-Pacific Satellite Communications Council	Space Conferences of the Americas

19. The Working Group of the Whole had before it a compilation of contributions from entities of the United Nations system and organizations with permanent observer status with the Committee to the preparations for the review by the General Assembly in 2004 of the progress made in the implementation of the recommendations of UNISPACE III (A/AC.105/C.1/2003/CRP.8). The Working Group of the Whole noted that the Inter-Agency Meeting on Outer Space Activities, at its twenty-third session, had agreed that United Nations entities should be provided with guidelines on the inputs from them that would best assist the Working Group of the Committee in preparing its report (A/AC.105/791 and Corr.1, para. 49).

20. The Working Group of the Whole agreed to circulate guidelines to the United Nations entities, to the organizations with observer status with the Committee and to the regional entities. The guidelines, as agreed upon by the Working Group of the Whole, are contained in appendix II to the present document. The Working Group of the Whole agreed that, for consideration by the Committee at its forty-sixth session, in 2003, inputs to be provided in accordance with the guidelines by United Nations entities, organizations with observer status with the Committee and regional entities should be submitted by the beginning of May 2003.

C. Draft provisional agenda for the forty-first session of the Scientific and Technical Subcommittee, in 2004

21. The Working Group of the Whole noted that, in accordance with General Assembly resolution 57/116, the Scientific and Technical Subcommittee would submit to the Committee its proposal on the draft provisional agenda for the forty-first session of the Subcommittee, in 2004.

22. The Working Group of the Whole noted that the following items to be considered under work plans had been proposed by India for possible inclusion in the agenda for the forty-first session of the Subcommittee: (a) space-systems-based telemedicine; and (b) implementation of an integrated space-based global natural disaster management system. The Working Group of the Whole also noted that the following single issues/items for discussion had been proposed by the United States of America for possible inclusion in the agenda for the forty-first session of the Subcommittee: (a) solar-terrestrial physics; and (b) space solar power.

23. The Working Group of the Whole recommended the following draft provisional agenda for the forty-first session of the Scientific and Technical Subcommittee:

1. General exchange of views and introduction to reports submitted on national activities.
2. United Nations Programme on Space Applications.
3. Implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III).
4. Matters relating to remote sensing of the Earth by satellite, including applications for developing countries and monitoring of the Earth's environment.
5. Items to be considered under work plans:
   (a) Space debris;

   (Third year of the work plan: The Inter-Agency Space Debris Coordination Committee (IADC) continues to present to the Subcommittee its proposals on debris mitigation (as required), based on consensus among IADC members; member States continue to review the IADC proposals on debris mitigation.)[e]

   (b) Use of nuclear power sources in outer space;

   (Work for the year 2004 as reflected in the multi-year work plan contained in annex III.)

   (c) Space-systems-based telemedicine.

   (Presentation by member States on the status of telemedicine applications in general and space-based telemedicine applications in particular in use in their countries; presentations on commercially available telemedicine systems and their capacity to

use space systems by different private industries and research organizations.)

6. Single issues/items for discussion:

   (a) Examination of the physical nature and technical attributes of the geostationary orbit and its utilization and applications, including, inter alia, in the field of space communications, as well as other questions relating to developments in space communications, taking particular account of the needs and interests of developing countries;

   (b) Implementation of an integrated, space-based global natural disaster management system;

   (c) Solar-terrestrial physics.

7. Draft provisional agenda for the forty-second session of the Scientific and Technical Subcommittee, including identification of subjects to be dealt with as single issues/items for discussion or under multi-year work plans.

8. Report to the Committee on the Peaceful Uses of Outer Space.

24. The Working Group of the Whole recalled its agreement at its thirty-ninth session that, owing to the limited time available during the fortieth and forty-first sessions of the Subcommittee, in 2003 and 2004, in view of the review by the Subcommittee of the reports of the action teams to implement the recommendations of UNISPACE III, the organization of the symposium by the Committee on Space Research and the International Astronautical Federation and the industry symposium to strengthen the partnership with industry should alternate each year. In 2004, the industry symposium would be organized and the organization of the symposium by the Committee on Space Research and the International Astronautical Federation would be suspended.

25. The Working Group of the Whole recommended that the next industry symposium to be held during the forty-first session of the Subcommittee, in 2004, should address small satellite applications in agriculture, health and human security. The Working Group of the Whole agreed that the symposium should be organized during the first week of the forty-first session of the Subcommittee.

D. Other matters

26. The Working Group of the Whole recommended that it be reconvened during the forty-first session of the Scientific and Technical Subcommittee, in 2004.

Notes

[a] *Official Records of the General Assembly, Fifty-fifth Session, Supplement No. 20* and corrigendum (A/55/20 and Corr.1), para. 87.

[b] Ibid., *Fifty-sixth Session, Supplement No. 20* and corrigendum (A/56/20 and Corr.1), paras. 50 and 55.

[c] Ibid., *Fifty-seventh Session, Supplement No. 20* (A/57/20), para. 12.
[d] Ibid., annex I.
[e] A/AC.105/761, para. 130.

Appendix I

Template for submissions by action teams: inputs for the report of the Committee on the Peaceful Uses of Outer Space to the General Assembly at its fifty-ninth session for its review of the implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III)[a]

Action team number:	*Chairperson(s):* *Secretariat:*
1. Membership Countries Organizations	
2. Brief mission statement: overall goal and focus of work of the action team (maximum 50 words)	
3. Findings (list three findings)	
(a)	
(b)	
(c)	

4. Recommendations for further action (identify who should take what action, how and when)
(a)
(b)
(c)
5. Implementation already initiated
6. Indication of impediments to implementation (gaps, difficulties and so forth)
7. Benefits to be derived from the implementation
8. Progress made by the Action Team

[a] The page limit for submissions is two standard pages.

Appendix II

Guidelines for the preparation of the report to the General Assembly at its fifty-ninth session for its review of the progress made in the implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III)

1. The following entities are being invited to provide inputs in response to the questions listed below:

(a) Entities of the United Nations system (paras. 11 (c) and 12 (III) (C);[a]

(b) Intergovernmental organizations having observer status with the Committee on the Peaceful Uses of Outer Space (paras. 11 (c) and 12 (III) (D);[a]

(c) Non-governmental organizations having observer status with the Committee (paras. 11 (c) and 12 (III) (D);[a]

(d) Regional mechanisms (paras. 11 (f) and 12 (III) (B).[a]

2. The page limit for the submissions is 1 ½ standard pages.

3. In the activities of your organization on behalf of users and society at large:

(a) Describe a few major initiatives, programmes or projects being undertaken by your organization that complement the implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III) by the action teams (recommendations 1, 2, 4, 6, 7, 9-11, 14, 17, 18 and 32);

(b) Indicate which other recommendations of UNISPACE III and their implementation are being supported through initiatives, programmes or projects;

(c) Indicate, if appropriate, gaps and problems encountered in implementing those initiatives, programmes or projects;

(d) Indicate, if possible, other major activities being undertaken by your organization that would increase the benefits of the work of the action teams.

Notes

[a] See *Official Records of the General Assembly, Fifty-seventh Session, Supplement No. 20* (A/57/20), annex I, paras. 10-14.

Annex III

Work plan for developing an international technically based framework of goals and recommendations for the safety of nuclear power source applications in outer space

1. At its fortieth session, in 2003, the Scientific and Technical Subcommittee adopted the following work plan for the period 2003-2006:

2003

(a) Adopt a schedule of work;

(b) Invite national and regional space agencies to present information to the Scientific and Technical Subcommittee in 2004 and 2005 on the content of relevant national (including bilateral or multilateral) space nuclear power source (NPS) programmes and applications planned or currently foreseeable;

(c) Invite national and regional space agencies to present information to the Scientific and Technical Subcommittee in 2004 on the space applications enabled or significantly enhanced by NPS;

(d) Conduct preliminary discussions on objectives and attributes for an international technically based framework of goals and recommendations for the safety of planned and currently foreseeable space NPS applications;

(e) Invite the International Atomic Energy Agency (IAEA) by June 2003 to define the specific processes and mechanisms (including their timeframe, resources and administrative requirements) that the Agency could use to participate with the Subcommittee in developing space NPS technical safety standards;

(f) Request the Office for Outer Space Affairs and IAEA by September 2003 to jointly prepare possible organizational plans providing for (i) potential co-sponsorship of an effort to develop an international space NPS technical safety standard and (ii) potential IAEA advice to the Scientific and Technical Subcommittee in the preparation of such a standard.

2004

(a) Review information from national and regional space agencies on the content of relevant national (including bilateral and multilateral) space NPS programmes and applications planned or currently foreseeable;

(b) Review information from national and regional space agencies on the applications enabled or significantly enhanced by space NPS;

(c) Review IAEA-specific processes and mechanisms (including their timeframe, resources and administrative requirements) that the Agency could use to participate with the Scientific and Technical Subcommittee in developing space NPS technical safety standards;

(d) Prepare a draft outline of the objectives, scope and attributes for an international technically based framework of goals and recommendations for the safety of planned and currently foreseeable space NPS applications;

(e) Prepare a draft set of potential implementation options for establishing an international technically based framework of goals and recommendations for the safety of planned and currently foreseeable space NPS applications;

(f) If appropriate, make a preliminary decision on whether to recommend co-sponsorship with IAEA of a technical standard development effort starting in 2006.[a]

2005

(a) Review information from national and regional space agencies on the content of relevant national (including bilateral and multilateral) space NPS programmes and applications planned or currently foreseeable;

(b) Prepare a final outline of the objectives, scope and attributes of an international technically based framework of goals and recommendations for assuring the safety of planned and currently foreseeable space NPS applications;

(c) Prepare a draft report based on the final outline, including potential implementation options.

2006

Prepare the final report and provide a recommended implementation option to the Scientific and Technical Subcommittee.

2. To the extent appropriate, the Working Group on the Use of Nuclear Power Sources in Outer Space will attempt to hold intersessional meetings to facilitate or accelerate the successful completion of the work plan.

[a] Such a preliminary decision would allow for the inclusion of any necessary provisions in the IAEA programme and budget for the biennium 2006-2007.

Annex IV

Report of the Working Group on the Use of Nuclear Power Sources in Outer Space

1. At its 581st meeting, on 17 February 2003, the Scientific and Technical Subcommittee convened its Working Group on the Use of Nuclear Power Sources in Outer Space under the chairmanship of Sam A. Harbison (United Kingdom of Great Britain and Northern Ireland).

2. At the 1st meeting of the Working Group, on 18 February 2003, the Chairman recalled the tasks before the Working Group, as contained in the work plan approved by the Scientific and Technical Subcommittee at its thirty-fifth session (A/AC.105/697 and Corr.1, annex III, appendix), and in the agreement of the Scientific and Technical Subcommittee at its fortieth session (A/AC.105/786, para. 77).

3. The Working Group had before it a working paper submitted by Argentina, France, the Russian Federation, the United Kingdom and the United States of America, entitled "Proposed work plan for developing an international technically based framework of goals and recommendations for the safety of nuclear power source applications in outer space" (A/AC.105/C.1/L.261). The Working Group recommended that the Subcommittee endorse the work plan for the period 2003-2006 contained in section III of the working paper.

4. The Working Group noted that the proposed work plan called for national and regional space agencies to present information to the Scientific and Technical Subcommittee at its forty-first session, in 2004, on the applications enabled or significantly enhanced by space nuclear power sources.

5. The Working Group recommended that presentations on this topic be given during the Subcommittee meetings on the afternoons of Monday, 23 February, and Tuesday, 24 February 2004, during the second week of the forty-first session of the Subcommittee. The Working Group noted that presentations on the topic would be made by the Russian Aviation and Space Agency, the National Aeronautics and Space Administration of the United States and possibly the European Space Agency and other national and regional space agencies.

6. The Working Group noted that member States and regional space agencies could also submit information on the above topic for inclusion in the annual document entitled "National research on space debris, the safety of space objects with nuclear power sources on board and problems relating to their collision with space debris".

7. The Working Group identified the following preliminary objectives for an international technically based framework of goals and recommendations for the safety of planned and currently foreseeable nuclear power source applications in outer space:

(a) To provide a common basis for assuring the safety of nuclear power source applications in outer space;

(b) To give confidence to the international community that States using nuclear power sources in outer space are adhering to appropriate nuclear safety, radiation protection and environmental protection objectives.

8. The Working Group identified the following preliminary attributes of an international technically based framework of goals and recommendations for the safety of planned and currently foreseeable nuclear power source applications in outer space:

(a) Providing high-level guidance for the use of nuclear power sources in outer space;

(b) Comprehensive enough to encompass all foreseeable nuclear power source applications in outer space;

(c) Relatively independent of evolving technology;

(d) Facilitating the harmonization of bilateral and multilateral nuclear power source applications in outer space;

(e) Providing a mechanism for updates;

(f) Providing a basic structure for the development of national standards;

(g) Relevant to all the stages of the life-cycle of a nuclear power source, including post-operation;

(h) Consistent with requirements laid down in relevant international and national technical standards.

9. The Working Group recommended that it continue intersessional work on the topics described in the draft work plan for the period 2003-2006. It also recommended that its next informal meeting be held on 10 June 2003 in Vienna, immediately before the forty-sixth session of the Committee on the Peaceful Uses of Outer Space. The Working Group held discussions with the International Atomic Energy Agency on the information that would be most helpful to the discussions on 10 June.

10. At its 10th meeting, on 25 February 2003, the Working Group adopted the present report.