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Report of the Scientific and Technical Subcommittee on its forty-second session, held in Vienna from 21 February to 4 March 2005

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 forty-second session at the United Nations Office at Vienna from 21 February to 4 March 2005 under the chairmanship of Dumitru-Dorin Prunariu (Romania).

2. The Subcommittee held 20 meetings.

A. Attendance

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

4. At the 618th, 620th and 630th meetings, on 21 and 22 February and 1 March, the Chairman informed the Subcommittee that requests had been received from Angola, Azerbaijan, Bolivia, Côte d'Ivoire, Israel, Slovenia, Switzerland, Tunisia and Yemen to attend the session as observers. 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: the United Nations Educational, Scientific and Cultural Organization (UNESCO), the World Health Organization (WHO), the World Meteorological Organization (WMO) and the International Atomic Energy Agency (IAEA).

6. The following international organizations were also represented by observers: the Association of Space Explorers (ASE), the Committee on Earth Observation Satellites (CEOS), the Committee on Space Research (COSPAR), the European Space Agency (ESA), the International Astronautical Federation (IAF), the International Astronomical Union (IAU), the International Mobile Satellite Organization (IMSO), the International Society for Photogrammetry and Remote Sensing (ISPRS), the International Space University (ISU), the Space Generation Advisory Council (SGAC) and the 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 A/AC.105/C.1/INF/34.

B. Adoption of the agenda

8. At its 618th meeting, on 21 February 2005, 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. Space debris.
8. Use of nuclear power sources in outer space.
9. Space-system-based telemedicine.
10. Near-Earth objects.
11. Space-system-based disaster management support.
12. 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.
13. Support to proclaim the year 2007 International Geophysical and Heliophysical Year.
14. Draft provisional agenda for the forty-third session of the Scientific and Technical Subcommittee.
15. Report to the Committee on the Peaceful Uses of Outer Space.

C. General statements

9. The Subcommittee conveyed its condolences to the States that had suffered from the impact of the tsunami disaster and its aftermath in the Indian Ocean. It noted the critical role that space-system-based disaster management support could play in preventing and managing the consequences of natural disasters, and stressed the importance and urgency of the work undertaken by the Subcommittee in this regard.

10. Statements were made by representatives of the following member States during the general exchange of views: Argentina, Austria, Brazil, Canada, Chile,

China, Colombia, Cuba, Czech Republic, France, Hungary, India, Indonesia, Iran (Islamic Republic of), Italy, Japan, Libyan Arab Jamahiriya, Malaysia, Mexico, Morocco, Nigeria, Pakistan, Portugal, Republic of Korea, Romania, Russian Federation, Syrian Arab Republic, Thailand, United Kingdom and United States. The observer for Bolivia made a statement on behalf of the States Members of the United Nations that are members of the Group of Latin American and Caribbean States. The observer for Azerbaijan made a general statement. General statements were also made by the observers for COSPAR, IAF, IAU, ISPRS and SGAC.

11. At the 618th meeting, on 21 February, the Chairman made a statement outlining the work of the Subcommittee at its current session and reviewing space activities of the previous year, including important advances that had been made as a result of international cooperation.

12. Also at the 618th meeting, the Director of the Office for Outer Space Affairs of the Secretariat made a statement reviewing the work programme of the Office.

13. The Subcommittee noted with appreciation that the Government of the Republic of Korea had provided an associate expert to assist the Office for Outer Space Affairs in carrying out its work.

14. The view was expressed that the organizations having permanent observer status with the Committee had vast space-related, scientific, technical and legal knowledge and, in order for that knowledge to enrich the work of the Committee, it was important that those organizations participate throughout the entire sessions of the Committee and its subsidiary bodies.

15. The view was expressed that the sessions of the various intergovernmental bodies held in Vienna should be organized in such a way that they would not be held simultaneously. That delegation was also of the view that the work of the working groups established by the Committee and its subsidiary bodies should be carried out with full interpretation services in the official languages of the United Nations.

D. National reports

16. The Subcommittee took note with appreciation of the reports submitted by Member States (A/AC.105/832 and Add.1 and 2 and A/AC.105/C.1/2005/CRP.5 and Add.1 and 2) 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.

E. Symposium

17. Pursuant to General Assembly resolution 59/116 of 10 December 2004, a symposium on the theme “High-resolution and hyperspectral satellite data integration for precision farming, environmental monitoring and possible new applications” was held on 21 and 22 February 2005. The first session of the symposium covered high-resolution and hyperspectral satellite data integration for precision farming and environmental monitoring and was chaired by D. Vidal-Madjar (COSPAR), while the second session covered possible new applications of

high-resolution and hyperspectral satellite data and was chaired by M. J. Zimmerman (IAF).

18. The presentations to the symposium included the following: “Use of high-resolution and hyperspectral satellite data for precision farming and environmental monitoring”, by G. Saito, Tohoku University, Japan; “Use of very high resolution ortho-imagery in the European Land Parcel Identification System for agriculture”, by O. Léo, Joint Research Centre of the European Commission, Italy; “Technologies for data fusion and applications for satellite observation systems”, by A. Azcárraga Arana, SENER, Spain; “Operational applications from super-spectral data for precision farming and environmental monitoring”, by P. Houdry, European Aeronautic Defence and Space Company (EADS) Astrium, France; “IRS images: an input to decision-making for agricultural and environmental applications”, by V. Sundararamaiah, Indian Space Research Organisation, India; “Examples of high-resolution image applications in Morocco”, by M. Merdas, Royal Centre for Remote Sensing, Morocco; “New applications for monitoring soil-supported environmental systems in urban landscapes”, by G. A. Wood, Cranfield University at Silsoe, United Kingdom; and “The contribution of Earth observations to humanitarian aid and disaster reduction: lessons learned from GMES”, by P. Bally, ESA. The presentations were followed by a discussion.

F. Coordination of space activities within the United Nations system and inter-agency cooperation

19. The Subcommittee noted with satisfaction that the Inter-Agency Meeting on Outer Space Activities had held its twenty-fifth session in Vienna from 31 January to 2 February 2005. The Subcommittee had before it the report of the Meeting on its deliberations (A/AC.105/842), the report of the Secretary-General on the coordination of space-related activities within the United Nations system: directions and anticipated results for the period 2005-2006 (A/AC.105/841) and the report on new and emerging technologies, applications and initiatives for space-related inter-agency cooperation (A/AC.105/843). The Subcommittee noted that the twenty-sixth session of the Inter-Agency Meeting would be hosted by UNESCO in Paris in late January 2006.

20. The Subcommittee noted with appreciation that the Inter-Agency Meeting had updated the list of major space-related initiatives and programmes of the member States of the Committee on the Peaceful Uses of Outer Space and the entities of the United Nations system that had responded to specific recommendations contained in the Plan of Implementation of the World Summit on Sustainable Development[1] (see A/AC.105/C.1/2005/CRP.4). The Subcommittee noted that the list had grown substantially over the previous year and that it served as a useful tool to avoid duplication of efforts and to create synergies among end-users and space-capability providers interested in implementing actions called for in the Plan of Implementation.

21. The Subcommittee noted that, immediately following its twenty-fifth session, on 2 February 2005, the Inter-Agency Meeting had held its second informal open session for the member States and observers of the Committee. The informal open

session discussed the theme "Space technology for disaster management: opportunities within the United Nations system".

22. The Subcommittee noted with satisfaction that, in response to a request by the Committee, the Inter-Agency Meeting had considered the enhancement of the participation of United Nations entities in the work of the Committee and its subcommittees. The Subcommittee noted the agreement of the Meeting that informal open sessions, held in conjunction with the annual sessions of the Inter-Agency Meeting, provided a constructive mechanism for promoting dialogue between United Nations entities and the member States of the Committee. The Subcommittee endorsed the recommendation of the Meeting to continue holding such informal open sessions. The Subcommittee also noted that United Nations entities would consider enhancing their participation in the work of the Committee and its subcommittees by preparing written reports on matters related to specific agenda items, when requested, and by submitting information and reports on their activities related to the work of the Committee and its subcommittees.

23. The Subcommittee noted that the Inter-Agency Meeting had considered the reduced participation of some United Nations entities in the sessions of the Inter-Agency Meeting. The Subcommittee agreed with the suggestion of the Meeting that the Committee might consider encouraging those entities to participate in the work of the Inter-Agency Meeting.

24. The Subcommittee welcomed the consideration by the Inter-Agency Meeting of the matter of establishing inventories of space-related resources, in particular satellite data sets, space-based devices and educational and training materials. The establishment of such inventories would assist United Nations entities in utilizing existing resources more effectively.

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

25. After considering the various items before it, the Subcommittee, at its 637th meeting, on 4 March 2005, 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

26. In accordance with General Assembly resolution 59/116, the Scientific and Technical Subcommittee continued its consideration of agenda item 4, "United Nations Programme on Space Applications".

27. At the 620th meeting, the Expert on Space Applications made a statement outlining the activities carried out and planned under the United Nations Programme on Space Applications.

28. The representatives of Brazil, Colombia, India, Japan and the United States made statements under this agenda item. The observer for Switzerland also made a statement.

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

(a) "New space application initiatives of ISRO: Village Resource Centres (VRC) and Edusat networks", by the representative of India;

(b) "System of aerospace education in the Russian Federation", by the representative of the Russian Federation;

(c) "Satellite communications in support of remote sensing applications and disaster management", by the representative of Austria.

30. In accordance with General Assembly resolution 59/116, the Subcommittee, at its 622nd meeting, on 23 February, reconvened the Working Group of the Whole, under the chairmanship of Muhammad Nasim Shah (Pakistan). The Working Group of the Whole held 10 meetings from 23 February to 4 March. At its 636th meeting, on 4 March, the Subcommittee endorsed the report of the Working Group of the Whole, which is contained in annex I to the present report.

A. Activities of the United Nations Programme on Space Applications

31. The Subcommittee had before it the report of the Expert on Space Applications (A/AC.105/840). The Subcommittee noted that the United Nations Programme on Space Applications for 2004 had been carried out satisfactorily and commended the work accomplished by the Expert in that regard.

32. The Subcommittee noted with appreciation that, since its previous session, additional resources for 2004 had been offered by various Member States and organizations and had been acknowledged in the report of the Expert (A/AC.105/840, paras. 50 and 51).

33. The Subcommittee expressed 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.

34. 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"[2] and those contained in the plan of action contained in the report of the Committee on the Peaceful Uses of Outer Space on the review of the implementation of the recommendations of UNISPACE III (A/59/174).

35. 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 promote 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 I to the present report.

36. The Subcommittee noted that, in addition to the United Nations conferences, training courses, workshops and symposiums planned for 2005 (see para. 42 below), there would be other activities of the Programme in 2005, 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, affiliated to the United Nations;

(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 materials 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 2004

Meetings, seminars, symposiums, training courses and workshops

37. With regard to the activities of the United Nations Programme on Space Applications carried out in 2004, the Subcommittee expressed its appreciation to the Governments of Austria, Brazil, Canada, China, Germany, Iran (Islamic Republic of), Nepal, Pakistan, Saudi Arabia, the Sudan, Sweden, Switzerland, the United States, as well as to ESA, the International Academy of Astronautics, IAF, International Strategy for Disaster Reduction (ISDR), Space Imaging Middle East and UNESCO, for co-sponsoring the various workshops, symposiums and training courses that had been held within the framework of the Programme, referred to in the report of the Expert on Space Applications (A/AC.105/840, para. 51 and annex I).

Long-term fellowships for in-depth training

38. The Subcommittee expressed appreciation to the Government of Italy, which, through the Politecnico di Torino and the Istituto Superiore Mario Boella and with the collaboration of the Istituto Elettrotecnico Nazionale Galileo Ferraris, had offered five 12-month fellowships for 2004 for postgraduate studies in global navigation satellite systems and related applications at the Politecnico di Torino in Turin, Italy.

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 (see A/AC.105/840, paras. 37-46):

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

(b) Participating in an ongoing survey on satellite broadband resources in the Asian and Pacific region, conducted jointly by the Economic and Social Commission for Asia and the Pacific, the International Telecommunication Union and APSCC;

(c) Planning to organize activities in the field of space-based tele-health, entering into a partnership with the International Society for Telemedicine and identifying, in cooperation with India and the United States, areas suitable for a project on space-based tele-health;

(d) Participating in the United Nations Institute for Disarmament Research (UNIDIR) conference and advising the member States of UNIDIR on the current status of space technologies applied in the civil and peaceful uses of outer space;

(e) Assisting the Government of Colombia, the pro tempore secretariat for the Fourth Space Conference of the Americas, in identifying and structuring pilot projects in application areas included in the plan of action of the Conference, as well as assisting the Government in organizing a seminar entitled “Agenda of Space Activities for Colombia: the Latin American Experience” and in preparing a white paper on the need to establish a national entity to coordinate space activities in Colombia and the benefits of appointing a focal person to act as a counterpart in international cooperation activities;

(f) Co-sponsoring the Space Camp of the Americas, an event organized by the Chilean Space Agency within the framework of the Fourth Space Conference of the Americas;

(g) Providing the chairperson of the Working Group on Education, Training and Capacity-Building of CEOS;

(h) Continuing to support the joint United Nations and ESA follow-up programme on the use of remote sensing technology in sustainable development;

(i) Collaborating with ESA in carrying out a project in Africa on the development of an information system for determining, monitoring and assessing flood areas and compiling an inventory of superficial waters in the Nakambé river basin of Burkina Faso;

(j) Participating in the work of the intergovernmental ad hoc Group on Earth Observations as a member of the subgroup on capacity-building, by creating synergy between the efforts made by the Group on Earth Observations and those made by the Committee on the Peaceful Uses of Outer Space, in particular through its action teams to implement recommendations of UNISPACE III;

(k) Assisting the Government of Chile in the organization of the regional conference entitled “Space and Water: towards Sustainable Development and Human Security”, held in Santiago on 1 and 2 April 2004 within the framework of the International Air and Space Fair (FIDAE).

2. Year 2005

Meetings, seminars, symposiums, training courses and workshops

41. The Subcommittee expressed its appreciation to the Government of Sweden and the Regional Centre for Space Science and Technology Education in Latin America and the Caribbean, affiliated to the United Nations, for jointly organizing with the Office for Outer Space Affairs the Second Regional Workshop on Evaluating the Impact of the 1990-2004 Series of the United Nations/Sweden International Training Course on Remote Sensing Education for Educators, held in São José dos Campos, Brazil, from 21 to 25 February 2005.

42. The Subcommittee recommended the approval of the following programme of meetings, seminars, symposiums, training courses and workshops, to be organized jointly by the Office for Outer Space Affairs, host Governments and other entities in 2005:

(a) United Nations/Australia Training Course on Satellite-Aided Search and Rescue, to be held in Canberra from 14 to 18 March;

(b) United Nations/Algeria/European Space Agency International Seminar on the Use of Space Technology for Disaster Management: Prevention and Management of Natural Disasters, to be held in Algiers from 22 to 26 May;

(c) United Nations/Austria/European Space Agency Symposium on Space Applications for Sustainable Development: Supporting the Plan of Implementation of the World Summit on Sustainable Development, to be held in Graz, Austria, in September;

(d) United Nations/Argentina/European Space Agency Training Course on Applications of Space Information and Technology to Health Issues, to be held in Cordoba, Argentina, from 19 to 23 September;

(e) United Nations/Greece Regional Workshop on the Use of Space Technology for Disaster Management: Monitoring and Assessing Seismic and Volcanic Hazards, to be held in Athens in September;

(f) United Nations/International Astronautical Federation Workshop on Space Education for Sustainable Development, to be held in Kitakyushu, Japan, on 14 and 15 October;

(g) Sixth United Nations/International Academy of Astronautics Workshop on Small Satellites in the Service of Developing Countries, to be held in Fukuoka, Japan, on 19 October;

(h) United Nations/European Space Agency/Switzerland Expert Group Meeting on Remote Sensing in the Service of Sustainable Development in Mountain Areas, to be held in Nepal in October;

(i) United Nations/European Space Agency Workshop on Basic Space Science: International Heliophysical Year, to be held in Al-Ain, United Arab Emirates, from 20 to 23 November;

(j) United Nations/Nigeria Workshop on Space Law, to be held in Abuja in November;

(k) United Nations/China Workshop on Tele-health, to be held in China from 5 to 9 December;

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

B. International space information service

43. The Subcommittee noted with satisfaction that the sixteenth 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 2004*,[4] which had been compiled from a report prepared by COSPAR and IAF, in cooperation with the International Institute of Space Law. The Subcommittee expressed its appreciation to the contributors for their work.

44. The Subcommittee noted with satisfaction that the Secretariat had continued to enhance the International Space Information Service and the website of the Office for Outer Space Affairs (www.unoosa.org). The Subcommittee also noted with satisfaction that the Secretariat was maintaining a website on the coordination of outer space activities within the United Nations system (www.uncosa.unvienna.org).

C. Regional and interregional cooperation

45. The Subcommittee noted with appreciation the continued work of 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. 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.

46. 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.

47. The Subcommittee noted with satisfaction that in 2004 the Programme had made efforts (a) to support the development of web pages for all the regional centres; (b) to disseminate information on the educational activities of the regional

centres worldwide through established mail and e-mail databases; (c) to submit information on the regional centres for inclusion in international directories; (d) to develop information panels on the regional centres for incorporation in the permanent space exhibit of the Office for Outer Space Affairs at the United Nations Office at Vienna; (e) to arrange for presentations on the accomplishments of the regional centres to be made at the sessions of the Committee on the Peaceful Uses of Outer Space and during activities organized under the United Nations Programme on Space Applications; and (f) to establish a common accounting mechanism for the financial resources provided by the Programme to the regional centres.

48. The Subcommittee also noted that the highlights of the activities of the regional centres supported under the Programme in 2004 and planned activities for 2005 and 2006 were included in the report of the Expert on Space Applications (A/AC.105/840, annex III).

49. The Subcommittee noted with satisfaction that India, the host country of the Centre for Space Science and Technology Education in Asia and the Pacific, was providing substantial support for resource requirements to enable the Centre to carry out its planned activities.

50. The Subcommittee noted with satisfaction that, as noted by the General Assembly in its resolution 59/116, the Government of Ecuador had announced its intention to organize the Fifth Space Conference of the Americas, which would be held in Quito in July 2006, and that a group of international experts had been established to assist the Government in the organization of the Conference. The Subcommittee further noted that the Government of Chile would organize a preparatory meeting for the Conference during the International Air and Space Fair (FIDAE) to be held in Santiago in March 2006. The Subcommittee also noted the offer of the Government of Colombia to extend its support to those two events.

51. The Subcommittee also noted with satisfaction the intention of the Government of Nigeria, in collaboration with the Governments of Algeria and South Africa, to organize the first African Space Conference in 2005.

52. The Subcommittee noted with satisfaction that, as declared by the Fourth Space Conference of the Americas, Latin American States were willing to closely cooperate with Nigeria in all activities that might be useful in promoting interregional cooperation, in accordance with the recommendations of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE 82).

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

53. In accordance with General Assembly resolution 59/116, the Scientific and Technical Subcommittee continued its consideration of agenda item 5, on implementation of the recommendations of UNISPACE III. Pursuant to paragraph 16 of Assembly resolution 59/116, the Subcommittee requested the Working Group of the Whole, established at the 622nd meeting of the Subcommittee, on 23 February, to consider the issue.

54. At its 636th meeting, on 4 March, 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 (see annex I).

55. The representatives of Canada, Chile, China, Hungary, India, Iran (Islamic Republic of), Japan, Malaysia, Nigeria, the United Kingdom and the United States made statements on the item. The observers for ISU and SIA also made statements.

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

(a) "Recent ESA space science missions", by the observer for ESA;

(b) "Human missions to Europa and Titan", by the observer for ISU.

57. The Subcommittee had before it, for its consideration, the report of the Committee on the Peaceful Uses of Outer space on the implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (A/59/174).

58. The Subcommittee welcomed the success of the review by the General Assembly of the implementation of the recommendations of UNISPACE III and thanked all who had helped to make it a success. In particular, the Subcommittee expressed its appreciation to Niklas Hedman (Sweden), the Chairman of the working group that had prepared the report on the subject (A/59/174) for consideration by the Assembly.

59. The Subcommittee emphasized the importance of implementing the Plan of Action contained in the report (A/59/174, sect. VI.B) and endorsed by the General Assembly in its resolution 59/2 of 20 October 2004.

60. The Subcommittee noted that, in accordance with paragraph 18 of General Assembly resolution 59/2, the Committee should continue to consider, in its future sessions, starting with its forty-eighth session, the implementation of the recommendations of UNISPACE III until the Committee considered that concrete results had been achieved.

61. The Subcommittee noted that the recommendations of UNISPACE III continued to be implemented by Member States through national and regional programmes and bilateral cooperation, as well as through international cooperation and integration facilitated by the Committee on the Peaceful Uses of Outer Space and its subcommittees at the regional and international levels.

62. The Subcommittee agreed that the establishment of action teams to implement the recommendations of UNISPACE III was a useful mechanism that other bodies of the United Nations system might use to implement the recommendations of other major conferences held within the United Nations system.

63. The view was expressed that the Subcommittee should continue to use a wide range of mechanisms to assist in the implementation of the recommendations of UNISPACE III, including the consideration of a more integrated approach where appropriate.

64. The Subcommittee agreed that the Committee had made considerable progress in the implementation of the recommendations of UNISPACE III by prioritizing and

studying the items contained in the Vienna Declaration on Space and Human Development, adopted by UNISPACE III, and making further recommendations on the way forward.

65. The view was expressed that the Committee had entered a new phase and that the further implementation of the recommendations of UNISPACE III would involve implementing the recommendations of the action teams established by the Committee.

66. The view was expressed that, while the implementation of the recommendations of UNISPACE III had raised awareness among Member States of the benefits of space for humanity, much more was needed before developing countries could derive practical benefit from the implementation of those recommendations. That delegation was of the view that, by taking action on the recommendations of the action teams established by the Committee, concrete results would be achieved for the benefit of developing countries.

67. The Subcommittee agreed that work should continue on the establishment of a global system to manage natural disaster mitigation, relief and prevention, as recommended in the Vienna Declaration. In that regard, the Subcommittee noted with appreciation that the ad hoc expert group, consisting of experts from interested member States of the Committee and relevant international organizations, had been established, as recommended in paragraph 9 of General Assembly resolution 59/2, to conduct a study on the possibility of creating an international entity to provide for coordination and the means of optimizing the effectiveness of space-based services for use in disaster management.

68. The view was expressed that a disaster management international space coordination organization should be established under the aegis of the United Nations system. That delegation was of the view that the rapid dissemination of information on the latest results of research and development in the use of satellite-derived data, as well as information for earthquake prediction, should be included in the scope of the disaster management international space coordination organization.

69. Some delegations expressed the view that in considering the creation of an international entity to coordinate space-based services for use in disaster management, the Subcommittee could consider extending the scope of responsibility of the Office for Outer Space Affairs to include such a coordinating function. The view was expressed that, as a United Nations entity, the Office had the qualifications to undertake such a function and that that approach, with a small increase in resources, would be more cost-effective than setting up a new entity.

70. The view was expressed that the ad hoc expert group, in conducting the study on the establishment of a disaster management international space coordination organization, should consider: (a) the potential of building links to other organizational efforts and disaster management systems; (b) the possible organizational structure of such an organization, including the options available for establishing it under an existing entity or independently; and (c) the resource requirements, including financial, with options recommended to ensure the sustainability of such an organization.

71. The Subcommittee agreed that the Office for Outer Space Affairs should continue its efforts to coordinate the use of space technology in disaster

management and to promote the use and application of the global navigation satellite systems.

72. The view was expressed that the Office could enhance the impact of the workshops on the use and application of global navigation satellite systems by expanding the themes of the workshops to include a wider range of applications and could attract the participation of industry by organizing an exhibition or demonstrations on specific applications.

73. The Subcommittee noted with appreciation the reports by Member States on the promotion and organization of public outreach activities in celebration of World Space Week.

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

74. In accordance with General Assembly resolution 59/116, the Subcommittee continued its consideration of agenda item 6, relating to remote sensing of the Earth.

75. In the course of the discussions, 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, France, India, Japan, Thailand and the United States made statements under the agenda item. The observer for CEOS also made a statement.

76. The representative of the Republic of Korea made a technical presentation entitled "Remote sensing satellite programme in the Republic of Korea".

77. The Subcommittee emphasized the importance of Earth observation satellite data to support activities in a number of key development areas, such as water resource management, coastal zone monitoring, fishing, geological studies, land-use/land-cover mapping, agriculture, forest resource management, urban planning, monitoring and assessment of soil degradation, oceanography, illicit drug control, air quality assessment, monitoring of global climate change and greenhouse gases and natural disaster prevention, mitigation and relief.

78. The Subcommittee highlighted the increased current and future availability of space-based sensors on board satellites such as the Advanced Land Observing Satellite (ALOS), Aqua, Aura, the Cloud-Aerosol Lidar and Infrared Pathfinder Satellite Observations (CALIPSO) satellite, CBERS-2, CBERS-2B, the Detection of Electromagnetic Emissions Transmitted from Earthquake Regions (DEMETER) satellite, the Disaster Monitoring Constellation (DMC) satellites AlSAT-1, BILSAT-1, NigeriaSat-1 and UK-DMC, the Greenhouse Gases Observing Satellite (GOSAT), INSAT-1D, IRS-1C, IRS-P3, IRS-P4 and IRS-P5 (Cartosat-1), KOMPSAT-2, Landsat-5, Landsat-7, the National Polar-orbiting Operational Environmental Satellite System (NPOESS), the observation and communications satellite SAOCOM, the Polarization and Anisotropy of Reflectances for Atmospheric Sciences coupled with Observations from a Lidar (PARASOL) satellite, SAC-C, SAC-D, RADARSAT-2, the data collection satellites SCD-1 and

SCD-2, and the Tropical Rainfall Measuring Mission (TRMM) satellite, which will contribute further to supporting the various areas of sustainable development.

79. The Subcommittee noted a number of international projects in the field of the use of satellite technologies aimed at supporting sustainable development, such as the environmental data collection project implemented by Brazil and Mozambique for the installation of a water and environmental monitoring system in Mozambique, the collaboration between Algeria, Nigeria and South Africa on a proposal to build and launch the African Resource Management (ARM) constellation of high-resolution satellites, the strategic partnership between China and Brazil relating to the CBERS programme and the support provided by ESA and Canada, through the "TIGER" initiative, to countries in Africa on the use of Earth observation space technologies for water resource management on the continent.

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

81. The Subcommittee encouraged further international cooperation in the use of remote sensing satellites, in particular by sharing experiences and technologies through bilateral, regional and international collaborative projects. The Subcommittee noted the important role played by organizations such as CEOS, ISPRS and IAF and by international entities such as the Integrated Global Observing Strategy Partnership in promoting international cooperation in the use of remote sensing technology, both in research programmes and for technology applications, especially for the benefit of developing countries.

82. The Subcommittee noted with satisfaction that, at the third Earth Observation Summit, held in Brussels on 16 February 2005, representatives of over 50 countries had established the Group on Earth Observations and had endorsed a 10-year implementation plan for a "global Earth observation system of systems", which would provide long-lasting benefits to the entire world by coordinating current and future investments in Earth observation systems, serving a diverse set of users and ultimately providing a wide range of human, economic and environmental benefits.

83. The view was expressed that small satellites offered opportunities to develop competitive applications in Earth observation and that such small satellite missions should be developed taking into account data from existing Earth observation satellites.

84. The view was expressed that, in order to transfer technology and methodologies of Earth observation to the general user community, schools could be used to begin educating potential future users.

V. Space debris

85. In accordance with General Assembly resolution 59/116, the Scientific and Technical Subcommittee continued its consideration of agenda item 7, "Space debris", in accordance with the work plan adopted at its thirty-eighth session (A/AC.105/761, para. 130).

86. The representatives of Canada, Chile, China, the Czech Republic, France, India, Indonesia, Italy, Japan, the Russian Federation, the United Kingdom and the United States made statements on the item.

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

(a) "Re-orbiting of INSAT-2DT from GSO", by the representative of India;

(b) "Space debris-related activities in Japan", by the representative of Japan;

(c) "Russian Federation activities in the field of space debris mitigation", by the representative of the Russian Federation;

(d) "United States space debris environment and policy updates for 2004", by the representative of the United States;

(e) "Report on the activities of the Inter-Agency Space Debris Coordination Committee on space debris mitigation guidelines and supporting document", by the observer for the Inter-Agency Space Debris Coordination Committee (IADC).

88. The Subcommittee had the following documents before it:

(a) A note by the Secretariat on 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.105/838 and Add.1);

(b) Consideration by IADC of the comments received from member States on the proposals on space debris mitigation and results of the consultative meeting of the Inter-Agency Space Debris Coordination Committee and the Committee on the Peaceful Uses of Outer Space held in Vancouver, Canada, on 4 October 2004 (A/AC.105/C.1/L.279).

89. The Subcommittee agreed that Member States and space agencies should again be invited to provide reports on research on space debris, safety of space objects with nuclear power sources (NPS) on board and problems relating to their collision with space debris.

90. The Subcommittee agreed that Member States, in particular space-faring countries, should pay more attention to the problem of the collision of space objects, including those with NPS on board, with space debris and to other aspects of space debris, as well as its re-entry into the atmosphere. It noted that the General Assembly, in its resolution 59/116, had called for the continuation of national research on the question, the development of improved technology for monitoring space debris and the compilation and dissemination of data on space debris. The Assembly also agreed that international cooperation was needed to expand appropriate and affordable strategies to minimize the impact of space debris on future space missions. The Subcommittee agreed that research on space debris should continue and that Member States should make available to all interested parties the results of that research, including information on practices that had proved effective in minimizing the creation of space debris.

91. The Subcommittee noted that the United States had endorsed the IADC space debris mitigation guidelines and that its domestic agencies were implementing debris mitigation practices consistent with the IADC guidelines. The Subcommittee

also noted that Japan had introduced a space debris mitigation standard that was based on the IADC guidelines and that France, Italy and the United Kingdom were using the IADC guidelines, as well as the European code of conduct for space debris mitigation, as a reference in the regulatory framework established for national space activities.

92. The Subcommittee noted that France had begun de-orbiting its satellite HELIOS 1B and would begin re-orbiting its satellite TELECOM 2B in 2005 and that India had re-orbited its satellite INSAT-2DT as a voluntary measure, which demonstrated their commitment to space debris mitigation measures.

93. The Subcommittee also noted that Canada had considered the effect of orbital debris in the design of the spacecraft RADARSAT-1 and RADARSAT-2 and that India had designed its launch vehicles with passivation features for the final stages.

94. Pursuant to General Assembly resolution 59/116, the Subcommittee, at its 628th meeting, on 28 February, established a working group, under the chairmanship of Claudio Portelli (Italy), to consider, as necessary, the proposals of IADC on space debris mitigation and any related comments that might be received.

95. At its 635th meeting, on 3 March, the Subcommittee endorsed the report of the Working Group (see annex II to the present report).

96. The Subcommittee noted with appreciation that IADC had continued its efforts to achieve further progress in understanding the various technical aspects connected with space debris, taking into account the comments submitted by member States to the IADC space debris mitigation guidelines.

97. Some delegations expressed the view that in order for States to continue having unrestricted access to outer space, all space-faring nations should be implementing space debris mitigation measures as expeditiously as possible.

98. The view was expressed that the Subcommittee could, following the preparation of its own document on space debris mitigation, invite IADC to develop a detailed technical handbook that would set out the technical basis of and include detailed information on the various debris mitigation guidelines proposed. That handbook would be useful in designing passivation, re-orbiting and other debris mitigation activities.

99. The view was expressed that the outer space environment should be preserved to enable developing countries to explore outer space for peaceful purposes, without any constraints, and that all those largely responsible for the creation of the present situation and those having the capability to take action on space debris mitigation should take the lead in that area.

100. The view was reiterated that the outer space environment should be preserved to enable all States to explore outer space for peaceful purposes, without any constraints.

101. The view was expressed that space debris posed a danger to human life as well as to natural resources, the environment and the economic activities of States.

102. The view was expressed that, in cases where debris originating from the launch of a rocket could affect other States, those States should be notified. The notification should include critical information such as the planned and actual date,

time and trajectory of a launch. That delegation encouraged Member States to carefully consider the notification processes in their countries to ensure their adequacy.

103. The view was expressed that space debris mitigation practices were not limited by the licensing of a space system but continued with the treaty-derived need for supervision and control, which was necessary throughout the operational and disposal phases of a space system.

104. The view was reiterated that a network of specialized focal points should be established in all countries that might be concerned by re-entry risks and that the creation of an international database of such focal points would be highly recommended.

105. The view was reiterated that compliance with all space debris mitigation measures would involve additional costs for all commercial operators and it would therefore be desirable to explore ways and means to provide technical and economic support.

106. The view was expressed that by continuing to consider its agenda item on space debris, the Subcommittee could help to ensure the implementation of the recommendations of the Vienna Declaration on Space and Human Development, particularly as regards the improvement of the protection of the near-Earth space and outer space environments through further research in and implementation of space debris mitigation measures.

107. The view was expressed that, to date, insufficient attention had been given to the creation of debris that future anti-satellite weapons would cause through kinetic impact or explosion damaging or destroying space assets. That delegation was of the view that it might well be necessary in the future for IADC and the Committee on the Peaceful Uses of Outer Space to consider the full range of debris-causing situations, in cooperation with interested bodies.

VI. Use of nuclear power sources in outer space

108. In accordance with General Assembly resolution 59/116, the Scientific and Technical Subcommittee continued its consideration of agenda item 8, “Use of nuclear power sources in outer space”, under the multi-year work plan for the period 2003-2006, adopted at its fortieth session (A/AC.105/804, annex III).

109. The Subcommittee had before it the following documents:

(a) Note by the Secretariat on 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.105/838 and Add.1);

(b) Note by the Secretariat on a proposed outline of objectives, scope and attributes 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/AC.105/L.253/Rev.1);

(c) Note by the Secretariat on a preliminary draft of flow charts for potential implementation options for establishing 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/AC.105/L.254/Rev.1);

(d) A working paper submitted by the Chairman of the Working Group on Nuclear Power Sources in Outer Space of the Scientific and Technical Subcommittee containing an interim progress report (A/AC.105/C.1/L.278);

(e) A working paper submitted by the Russian Federation containing a review of the use of nuclear power sources in space programmes and international cooperation (A/AC.105/C.1/L.282).

110. The representatives of Argentina, Germany, the Republic of Korea, the Russian Federation, the United Kingdom and the United States made statements under the item.

111. The following technical presentation on the subject of the use of NPS in outer space was made to the Subcommittee: "Space nuclear power source technology development pathways for enabling future space exploration", by the representative of the United States.

112. The view was expressed that the potential implementation options being developed by the Working Group could provide Member States with a solid basis for analysis, which could assist States in reaching consensus on the implementation option to be recommended to the Subcommittee in 2006. That delegation was of the view that the NPS applications used in space missions represented a key element that could assist space-faring nations in meeting the challenges and objectives of space exploration, taking into consideration that discussions regarding NPS at the national and international levels should have a solid technical foundation.

113. The view was expressed that Member States had agreed in the Vienna Declaration to advance scientific knowledge of space and protect the near and outer space environments through research on designs, safety measures and procedures associated with the use of NPS in outer space. That delegation was of the view that all users of space should consider the possible consequences of their ongoing or planned NPS activities in space before further irreversible actions were taken that could affect the future utilization of near or outer space.

114. The view was expressed that, given that a reasonable balance should be struck between the need to use NPS in outer space and the environmental protection of outer space, the use of NPS should be strictly limited to deep space missions in accordance with the Principles Relevant to the Use of Nuclear Power Sources in Outer Space (General Assembly resolution 47/68). That delegation was of the view that the establishment of proper guidelines and relevant criteria was necessary to ensure the highest degree of safety of NPS applications.

115. The view was expressed that work being carried out on the use of NPS should not be restricted only to the use of NPS in deep space. That delegation noted that terrestrial launches were made with NPS systems already on board and that the work of the Working Group on the Use of Nuclear Power Sources in Outer Space should lead to the establishment of standards and norms for the use of NPS in space. The use of NPS in early orbits in situations in which it could prove convenient to use them should not, a priori, be renounced.

116. The view was expressed that, whenever possible, alternative power sources should be used for space missions and the use of NPS should be restricted to a minimum of a few exceptions. That delegation was of the view that the evident risks that could be involved with launch failures or the accidental re-entry of spacecraft carrying NPS on board should be reduced to an absolute minimum, noting that safety was of prime importance.

117. The view was expressed that there was a need to analyse all reports presented by national and regional space agencies with a view to deciding whether it was necessary or not to make amendments to the Principles Relevant to the Use of Nuclear Power Sources in Outer Space and to develop safety standards. That delegation noted with satisfaction the successful work being carried out by the Subcommittee and the Working Group.

118. In accordance with paragraph 18 of General Assembly resolution 59/116, the Subcommittee, at its 624th meeting, on 24 February, reconvened its Working Group on the Use of Nuclear Power Sources in Outer Space under the chairmanship of Alice Caponiti (United States). The Working Group held five meetings.

119. The Subcommittee noted with satisfaction the excellent progress made during the intersessional period by the Working Group, in accordance with the multi-year work plan, on the development 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.

120. The Subcommittee noted that, at its current session, the Working Group had discussed the merits of holding a joint technical workshop with IAEA on the objective, scope and general attributes of a potential technical safety standard for NPS in outer space, as proposed in document A/AC.105/C.1/L.278, and the implications that holding such a joint workshop would have for the remaining period of the current multi-year work plan.

121. The Scientific and Technical Subcommittee noted with satisfaction that the Working Group had agreed on the possibility of holding the joint workshop during the first two days of the forty-third session of the Subcommittee, to be held in 2006, and had also agreed to amend the multi-year work plan under this item to allow for the organization and holding of the joint workshop. The agreements and recommendations of the Working Group are contained in document A/AC.105/C.1/L.281.[5]

122. The Subcommittee also noted with satisfaction that the Working Group had revised and agreed upon the texts of the following documents:

(a) Proposed outline of objectives, scope and attributes 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/AC.105/L.253/Rev.1); for the revised text, see A/AC.105/L.253/Rev.2;

(b) Preliminary draft of flow charts for potential implementation options for establishing 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/AC.105/L.254/Rev.1); for the revised text, see A/AC.105/L.254/Rev.2.

123. At its 635th meeting, on 3 March, the Subcommittee endorsed the report of the Working Group (see annex III to the present report).

124. The Scientific and Technical Subcommittee endorsed the recommendation of the Working Group that it continue intersessional work on the topics described in the multi-year work plan as amended (see annex III, para. 8, to the present report). The Subcommittee noted that the Working Group had agreed to hold its intersessional meeting in Vienna from 15 to 17 June 2005, during the forty-eighth session of the Committee on the Peaceful Uses of Outer Space.

125. The Subcommittee also agreed that the Working Group should discuss the documents reflected in paragraph 13 of the report of the Working Group as well as the preliminary list of potential topics for the joint technical workshop on nuclear power sources in outer space, referred to in paragraph 10 of the report of the Working Group.

VII. Space-system-based telemedicine

126. In accordance with General Assembly resolution 59/116, the Scientific and Technical Subcommittee considered agenda item 9, "Space-system-based telemedicine", under the three-year work plan adopted at its fortieth session. Pursuant to the work plan, in 2005, member States of the Committee were invited to make presentations on the development of electronic biomedical equipment and its compatibility with space-based telemedicine systems and to hold debates on the limitations of space-based telemedicine systems in terms of technical parameters and user acceptability. In accordance with that work plan, specialized agencies such as WHO were invited to make presentations on space-based telemedicine systems.

127. The representatives of China, Colombia, France, India, Nigeria and the United States made statements on the item.

128. The Subcommittee heard the following scientific and technical presentations on the item:

(a) "Special presentation on telemedicine: multimedia medical translator", by the representative of the United States;

(b) "Mobile computing to support remote medicine", by the representative of the United States;

(c) "INTELEMEDINDIA 2005: the International Conference on Telemedicine", by the representative of India;

(d) "Medical capability for space exploration: beyond telemedicine", by the representative of the United States;

(e) "Use of space technology in the global efforts to enhance health and medical services", by the observer for WHO;

(f) "Approach to a global view on telemedicine and e-health", by the observer for the International Society for Telemedicine.

129. The Subcommittee noted that the development of space-system-based telemedicine was focusing on two areas: remote medicine and support for

long-duration manned space missions. The Subcommittee noted that the advances made in both those areas could contribute to meeting the needs of developing countries, especially in responding to medical emergencies in remote static and mobile locations.

130. The Subcommittee noted the broader application of telemedicine in health care and its benefits for epidemiology, off-site radiology services, cardiac monitoring, medical consultations and specialist referrals, correctional care and tele-education in health care. The Subcommittee also noted the development of a number of initiatives in the area of space-system-based telemedicine in developing countries.

131. The Subcommittee noted that space-system-based telemedicine could provide significantly improved and cost-effective access to quality health care, transform the delivery of health care and improve the health of millions of people throughout the world. The Subcommittee noted that space-system-based telemedicine could reduce the current gap between health-care systems in urban areas and those in rural areas in developing countries.

132. The Subcommittee noted that, by taking advantage of recent developments in telecommunications, lower technology costs and the establishment of the Internet, telemedicine would have a profound impact on the delivery of medical care throughout the world and that telemedicine had already demonstrated that it could reduce the cost of health care.

133. The Subcommittee noted the importance of exchanging information on medical practices and that that exchange could be made more effective through the links achieved between electronic biomedical equipment, computers and satellite-based communications. The Subcommittee also noted that communication satellites could be effectively used during natural disasters to inform the affected population of precautions to be taken to prevent epidemics.

134. The Subcommittee noted with appreciation the work that had been carried out by its members and observers in bringing space-system-based telemedicine to countries in Africa, in order to solve problems related to malaria, meningitis, Guinea worm and other diseases.

135. The Subcommittee noted that obstacles to the development of telemedicine included legal and regulatory barriers, lack of acceptance of the use of telemedicine by the traditional medical establishment and the incompatibility of software used in medical data interface units and software used for very small aperture terminal (VSAT) network management.

136. The Subcommittee noted that low-cost and easily operated equipment was essential in using space-system-based telemedicine applications in developing countries. The Subcommittee noted that the development of cost-effective equipment, software, interface elements and access to communication satellite capacity could lead to more evenly distributed health-care services in rural and urban areas.

137. The Subcommittee noted that success in the implementation of initiatives in telemedicine was linked to awareness of the benefits of telemedicine, the proactive support of Governments and the reduction of poverty in developing countries.

138. The Subcommittee agreed that bilateral and multilateral partnerships should be promoted in order to bring the benefits of telemedicine applications to developing countries.

VIII. Near-Earth objects

139. In accordance with General Assembly resolution 59/116, the Scientific and Technical Subcommittee considered agenda item 10, "Near-Earth objects", under the three-year work plan adopted at its forty-first session (A/AC.105/823, annex II). Pursuant to the work plan, in 2005, international organizations, regional bodies and others active in the field of near-Earth object research were invited to report on their activities.

140. The Subcommittee had before it a note by the Secretariat (A/AC.105/839) containing information on research in the field of near-Earth objects carried out by the European Space Agency and the Spaceguard Foundation.

141. The representatives of China, the Czech Republic, Malaysia, the United Kingdom and the United States made statements on the item.

142. The Subcommittee heard the following scientific and technical presentations on the item:

(a) "Introduction to near-Earth objects", by the representative of the United Kingdom;

(b) "Near-Earth object activities of the European Space Agency", by the observer for ESA;

(c) "How to deal with a real near-Earth object impact possibility: the case of 2004 MN4", by the observer for the Spaceguard Foundation;

(d) "Report on the work of the Organization for Economic Co-operation and Development (OECD) on the near-Earth objects hazard", by the observer for OECD;

(e) "OECD study on near-Earth objects: the United Kingdom perspective", by the representative of the United Kingdom;

(f) "Proposals on the creation of the 'Citadel' international planetary defence system", by the representative of the Russian Federation;

(g) "Comet/asteroid impacts and human society", by the observer for the International Council for Science;

(h) "The near-Earth object programme in the Republic of Korea", by the representative of the Republic of Korea.

143. The Subcommittee noted that near-Earth objects were asteroids and comets with orbits that crossed the orbit of the planet Earth.

144. The Subcommittee noted that, although the probability of collisions of near-Earth objects with the Earth was very low, near-Earth objects nonetheless could pose a threat to the Earth.

145. The Subcommittee noted that collisions of near-Earth objects with the Earth had occurred in the past and that the largest and most recent collision had occurred when the Tunguska meteorite had fallen on the territory of Russia in 1908.

146. The Subcommittee noted that the most effective tools for the management of the risk posed by near-Earth objects were early detection and precision tracking. The Subcommittee noted the current and future work being conducted and planned by member States and observers of the Committee, through ground-based and space-based research, to discover and track near-Earth objects. The Subcommittee also noted that a number of member States were establishing specialized facilities for the observation of near-Earth objects.

147. The Subcommittee noted that some member States had implemented or were planning to implement fly-by and exploration missions to near-Earth objects. The Subcommittee also noted a number of international missions to near-Earth objects.

148. The Subcommittee noted that, given sufficient warning time, countermeasures to either fragment or deflect an incoming near-Earth object were possible. The Subcommittee also noted that such activities would require a large and coordinated international effort.

149. The Subcommittee agreed to revise the work plan under this item for 2006 and 2007, as contained in annex I, paragraph 20, to the present report.

150. The Subcommittee agreed that international cooperation in monitoring near-Earth objects should be continued and expanded.

151. The view was expressed that a technical study outlining the history of near-Earth objects and the possibility of risk mitigation should be conducted.

152. The view was expressed that, in 2006, the reports of member States, international organizations and regional bodies should focus on information on space missions, as well as on national or broader collaborative activities on the search for and follow-up of near-Earth objects.

153. The view was expressed that member States could include the threat of near-Earth objects in their disaster-preparedness planning.

IX. Space-system-based disaster management support

154. In accordance with General Assembly resolution 59/116, the Scientific and Technical Subcommittee considered agenda item 11, “Space-system-based disaster management support”, under the three-year work plan adopted at its forty-first session (A/AC.105/823, annex II).

155. The representatives of Canada, China, France, Germany, India, Indonesia, Japan, Nigeria, the Russian Federation, the United Kingdom and the United States made statements on the item.

156. The Subcommittee heard the following scientific and technical presentations on the item:

(a) “Activities of the Disaster Monitoring Constellation”, by the representative of Algeria;

(b) “The International Charter ‘Space and Major Disasters’”, by the representative of Canada;

(c) “Disaster monitoring from space: German support and experience related to the tsunami catastrophe”, by the representative of Germany;

(d) “Glimpses of the Indian response to the Asian tsunami disaster of 2004”, by the representative of India;

(e) “The role of remote sensing to support disaster management in Indonesia”, by the representative of Indonesia;

(f) “JAXA’s activities for space-system-based disaster management support”, by the representative of Japan;

(g) “Development of methods of space monitoring of potentially dangerous and catastrophic phenomena with the use of a micro-satellite universal platform”, by the representative of the Russian Federation;

(h) “UK activities in disaster management: the Disaster Monitoring Constellation”, by the representative of the United Kingdom;

(i) “World Meteorological Organization multi-hazard strategy for disaster reduction”, by the observer for WMO.

157. In the course of the discussion, delegations reviewed national and cooperative efforts in the use of space-based technologies to support disaster-preparedness and response activities. Examples were given of national initiatives and bilateral, regional and international cooperation, including forthcoming missions, that would increase the availability of space-based technologies.

158. The Office for Outer Space Affairs informed the Subcommittee of the status of preparations of the study referred to in paragraph 67 above. The Subcommittee noted with satisfaction that, as of the beginning of its forty-second session, 38 experts from 20 Member States, two specialized agencies of the United Nations and three non-governmental organizations having permanent observer status with the Committee had been nominated by their Governments or organizations as members of the ad hoc expert group. The Subcommittee also noted that participation in the ad hoc group of experts was open to all Member States and relevant international organizations.

159. The Subcommittee further noted that the ad hoc expert group had presented its draft terms of reference and outline of its work plan for the preparation of the study (A/AC.105/C.1/2005/CRP.17). The Subcommittee approved the draft terms of reference and outline of the work plan, as amended.

160. The view was expressed that the exchange of information and experience among various space agencies on earthquake prediction using data and information from satellites should be an important element in the scope of work of the proposed “disaster management international space coordination entity”.

161. The view was expressed that research on earthquake prediction using data and information from satellites must take into consideration historical, archaeological and palaeoseismological data on earthquakes. That delegation was of the view that a few regions with clear earthquake recurrence data should be identified and a

strategy should be developed to observe and monitor the earthquakes in those areas using satellites of all space agencies.

162. The Subcommittee noted with satisfaction that the World Conference on Disaster Reduction had been held in Kobe, Japan, from 18 to 22 January 2005. The Conference resulted in the Hyogo Declaration and the Hyogo Framework for Action 2005-2015, in which the importance of Earth observations in disaster management was stressed. The Conference also witnessed the launch of the international early warning programme.

163. The Subcommittee noted with satisfaction the progress made by the Charter on Cooperation to Achieve the Coordinated Use of Space Facilities in the Event of Natural or Technological Disasters (International Charter "Space and Major Disasters"). In February 2005, the Japan Aerospace Exploration Agency (JAXA) had joined the Charter, increasing to seven the number of space agencies that had made their space assets available to civil protection authorities responding to a major disaster. The Subcommittee also noted that a proposal to enable the Disaster Monitoring Constellation to become a member of the Charter was in preparation.

164. The Subcommittee noted with satisfaction the commitment by the members of the Disaster Management Constellation to donate 5 per cent of all data gathered through the Constellation for the global management of disasters.

165. The view was expressed that, in addition to its use in disaster response, the Charter should also be activated for the prevention and forecasting of disasters.

166. The Subcommittee noted with satisfaction that the international workshop to draw conclusions at the national, regional and global levels from the series of United Nations regional workshops on space technology and disaster management, organized by the Office for Outer Space Affairs within the framework of the United Nations Programme on Space Applications, had been held in Munich, Germany, in October 2004. The Workshop was co-sponsored by ESA, hosted by the German Aerospace Center (DLR) and organized in conjunction with UNESCO and ISDR. It had been attended by 170 participants representing 51 countries and various international organizations, whose final recommendations formed the "Munich vision", a global strategy for improved risk reduction and disaster management using space technology.

167. The Subcommittee noted with satisfaction the contribution of space-based technologies to the recent Indian Ocean tsunami disaster relief efforts. The International Charter "Space and Major Disasters" had been activated three times in the period immediately following the tsunami, including once by the Office for Outer Space Affairs in its capacity as a cooperating body of the Charter. Data and information products from a number of Earth observation and meteorological satellites, including high-resolution satellite imagery, had been utilized by relief and disaster response agencies in the aftermath of the catastrophe. Additionally, satellite imagery had provided a unique opportunity to observe the propagation of the tidal wave itself during the time slot corresponding to its intense oceanic phase.

168. The Subcommittee noted that relief efforts conducted in response to the Indian Ocean tsunami disaster had shown that emergency satellite-based communications had been crucial in saving lives and reducing human suffering by establishing remote medical services. The Subcommittee also noted that very small aperture

terminal networks had restored vital relief-related conferencing capabilities, in some cases in 24 hours, while Inmarsat stations and portable satellite-based telephone services had provided logistical support for the distribution of medical materials, as well as food and drinking water.

169. The Subcommittee welcomed the international efforts to set up an effective tsunami early warning system for the area of the Indian Ocean, as well as for other areas of the world, under the global coordination of the Intergovernmental Oceanographic Commission of UNESCO. The Subcommittee further noted that, at the Association of South-East Asian Nations leaders' meeting on the aftermath of the massive earthquake and tsunami of 26 December 2004, held in early January 2005, participants had pledged their commitment to the establishment of a regional early warning system through the "Declaration on action to strengthen emergency relief, rehabilitation, reconstruction and prevention in the aftermath of the earthquake and tsunami disaster of 26 December 2004".

170. The Subcommittee noted that the 10-year implementation plan for a Global Earth Observation System of Systems (GEOSS) had identified, as one of the nine societal benefits to which GEOSS would contribute, the reduction of loss of life and property from natural and human-induced disasters, and called for promoting the effective use of satellite data by developing better coordinated systems for monitoring, prediction, risk assessment, early warning, mitigation and response to hazards at the local, national, regional and international levels. The Subcommittee also noted that, at the third Earth Observation Summit, held in Brussels on 16 February 2005, a communiqué had been adopted relating to support for tsunami and multi-hazard warning systems within the context of GEOSS. The communiqué also called for the Group on Earth Observation, which had been established on a permanent basis by the Summit, to support the expansion of multi-hazard capabilities for disaster reduction at the national, regional and international levels.

171. The Subcommittee noted the work carried out by the GeoHazards Theme within the framework of the Integrated Global Observing Strategy. The GeoHazards Theme concentrated on pre-disaster monitoring and prediction in the areas of earthquakes, landslides and volcanoes and was being implemented jointly with the Geological Applications of Remote Sensing (GARS) programme of UNESCO.

172. The Subcommittee noted that the current chairperson of CEOS had identified the promotion of better-coordinated space-based disaster management capabilities as a key objective for CEOS in 2005.

173. The Subcommittee noted that the "Respond" project, which was being developed within the Global Monitoring for Environment and Security initiative, was aimed at improving access to maps, satellite imagery and geographical information. The expected services from Respond would address all parts of the humanitarian crisis cycle and would cover both slow-onset crises such as famine and immediate disaster situations such as earthquakes.

X. 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

174. In accordance with General Assembly resolution 59/116, the Scientific and Technical Subcommittee considered agenda item 12, on the geostationary orbit and space communications, as a single issue/item for discussion.

175. The representatives of Chile, Colombia, Ecuador and Indonesia made statements on the item.

176. The observer for Bolivia, speaking on behalf of the members of the Group of Latin American and Caribbean States, expressed their interest in the rational, efficient and equitable use of the geostationary orbit and the necessity of finding the means and tools to implement an effective mechanism that would allow those principles to produce concrete results.

177. Those delegations reiterated the view that the geostationary orbit was a scarce natural resource, which ran the risk of becoming saturated. Those delegations considered that the exploitation of the geostationary orbit should be rationalized and made available to all countries, in particular to developing countries, thus giving them the opportunity to have access to the geostationary orbit under equitable conditions. The needs and interests of developing countries, the geographical position of certain countries and the process followed by the International Telecommunication Union (ITU) should also be taken into account. They therefore considered that the item on the geostationary orbit should remain on the agenda of the Subcommittee for further discussion, with the purpose of continuing to analyse its technical and scientific characteristics.

178. In that regard, the representative of Colombia, on behalf of the pro tempore secretariat of the Fourth Space Conference of the Americas, made a presentation entitled “Geostationary orbit analyser tool”, illustrating the non-homogeneous use of the orbit-spectrum resources, which increased the saturation risk for some regions. That delegation proposed to undertake an in-depth study based on the geostationary orbit analyser tool, the first results of which would be expected at the beginning of 2006, and considered the active participation of the Office for Outer Space Affairs and ITU to be of relevance in that process. Some delegations expressed their interest in participating in that initiative.

179. The view was expressed that there was a need to utilize outer space on the basis of an active and selfless international cooperation that took into account the particular needs of developing countries, especially those arising from the geographical position of certain developing countries. That delegation called on developed countries to assist developing countries by providing the means and the technological capacity to have equitable access to the geostationary orbit, taking into account the vital role played by communication satellites in that orbit to reduce the digital divide.

180. The view was reiterated that, in view of the risk of saturation inherent in the geostationary orbit, the nature of exploitation should be kept rational and that preference should be given to countries in tropical areas in the assignment of spectrum resources within the geostationary orbit, as the best way for mitigating the negative effects of the intense rain in those regions on the quality of the satellite links, especially in the Ka band.

XI. Support to proclaim the year 2007 International Geophysical and Heliophysical Year

181. In accordance with General Assembly resolution 59/116, the Scientific and Technical Subcommittee considered agenda item 13, "Support to proclaim the year 2007 International Geophysical and Heliophysical Year", as a single issue/item for discussion.

182. The representatives of the Russian Federation and the United States made statements under the item.

183. The Subcommittee heard the following scientific and technical presentations under this agenda item:

(a) "Some results of the 'CORONAS—SPIRIT' experiment", by the representative of the Russian Federation;

(b) "Plans for the International Heliophysical Year and the role of the United States", by the representative of the United States.

184. The Subcommittee noted that in proclaiming 2007 International Heliophysical Year, an international programme of scientific collaboration aimed at understanding the external drivers of planetary environments would be conducted involving the deployment of new instrumentation, new observations from the ground and in space and an educational component.

185. The Subcommittee noted that 2007 would also be the fiftieth anniversary of International Geophysical Year, organized in 1957 to study global phenomena of the Earth and the near-Earth space environment and involving about 60,000 scientists from 66 countries, working at thousands of stations around the world to obtain simultaneous, global observations from the ground and space.

186. The Subcommittee noted that International Heliophysical Year, building on results obtained during International Geophysical Year 1957, would involve the study of the universal processes in the solar system that affected the interplanetary and terrestrial environments. Such a study would pave the way for safe human space travel to the Moon and planets and would serve to inspire the next generation of space physicists.

187. The Subcommittee noted that the specific objectives of International Heliophysical Year would be:

(a) To provide benchmark measurements of the response of the magnetosphere, the ionosphere, the lower atmosphere and Earth's surface to heliospheric phenomena, in order to identify global processes and drivers that affected the terrestrial environment and climate;

(b) To further the global study of the Sun-heliosphere system outwards to the heliopause, in order to understand the external and historical drivers of geophysical change;

(c) To foster international scientific cooperation in the study of heliophysical phenomena;

(d) To communicate the unique scientific results of International Heliophysical Year to interested members of the scientific community and the general public.

188. The Subcommittee noted that International Heliophysical Year would strongly complement the International Living with a Star programme by drawing more attention to the programme at the national, regional and international levels.

189. The Subcommittee noted with satisfaction that the United Nations Basic Space Science Initiative was playing a major role in internationalizing International Heliophysical Year. A major thrust of International Heliophysical Year was to deploy arrays of small instruments, such as magnetometers, radio antennas, Global Positioning System receivers and all-sky cameras around the world, in order to provide global measurements of heliospheric phenomena.

190. The Subcommittee invited Member States to provide government support to enable local scientists to participate in the analysis and interpretation of data from space-based missions on Earth and heliospheric phenomena.

191. The Subcommittee noted with satisfaction the progress already made in the preparations for International Heliophysical Year, including the worldwide outreach to disseminate basic information on the Year, as carried out by the United Nations Basic Space Science Initiative, in cooperation with the International Heliophysical Year organizers through a website, dedicated pages on the website of the Office for Outer Space Affairs, a newsletter and a flyer. The websites provided basic information on International Heliophysical Year and were particularly useful for scientists in developing countries.

192. The Subcommittee also noted with satisfaction that the United Nations/European Space Agency Workshop on Basic Space Science: International Heliophysical Year, to be held in Al-Ain, United Arab Emirates, from 20 to 23 November 2005, would be the first workshop organized within the framework of the United Nations Programme on Space Applications addressing International Heliophysical Year.

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

193. In accordance with General Assembly resolution 59/116, the Scientific and Technical Subcommittee considered proposals for a draft provisional agenda for its forty-third session to be submitted to the Committee on the Peaceful Uses of Outer Space. Pursuant to paragraph 16 of that resolution, the Subcommittee requested the Working Group of the Whole, established at its 622nd meeting, on 23 February, to consider the draft provisional agenda for the forty-third session of the Subcommittee.

194. At its 636th meeting, on 3 March, the Subcommittee endorsed the recommendations of the Working Group of the Whole concerning the draft provisional agenda for the forty-third session of the Subcommittee, as contained in the report of the Working Group of the Whole (see annex I to the present report).

195. The Subcommittee noted that the Secretariat had scheduled the forty-third session of the Subcommittee to be held from 20 February to 3 March 2006.

Notes

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

[2] *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.

[3] United Nations publication, Sales No. E.05.I.6.

[4] United Nations publication, Sales No. E.05.I.7.

[5] Reissued for technical reasons.

Annex I

Report of the Working Group of the Whole

A. Introduction

1. In accordance with paragraph 16 of General Assembly resolution 59/116 of 10 December 2004, the Scientific and Technical Subcommittee, at its forty-second session, reconvened the Working Group of the Whole. The Working Group of the Whole held 10 meetings, from 23 February to 4 March 2005. 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-third session of the Subcommittee, to be held in 2006. At its 10th meeting, on 4 March, 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 622nd meeting of the Scientific and Technical Subcommittee, on 23 February. In his opening remarks, the Chairman reviewed the mandate of the Working Group of the Whole at its session in 2005. The Working Group had before it a list of issues that it should consider (A/AC.105/C.1/2005/CRP.8/Rev.1).

B. 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.105/840) and noted that the Expert had supplemented her report by a statement.

4. The Working Group of the Whole noted the workshops, training courses and 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.105/840, annex II).

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

5. The Working Group of the Whole had before it the following documents:

(a) Report of the Committee on the Peaceful Uses of Outer Space on the implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III) (A/59/174);

(b) Status of the implementation of the recommendations of UNISPACE III (A/AC.105/C.1/2005/CRP.9);

(c) Implementation of the recommendations of UNISPACE III: the way ahead (A/AC.105/C.1/2005/CRP.10/Rev.1);

(d) Proposal for a three-year work plan on International Heliophysical Year 2007 (A/AC.105/C.1/2005/CRP.13);

(e) Information on the high-level plenary meeting to be held from 14 to 16 September 2005 during the sixtieth session of the General Assembly (A/AC.105/C.1/2005/CRP.14);

(f) Implementation of the recommendations of UNISPACE III: actions of possible interest to a large number of Member States (A/AC.105/C.1/2005/CRP.15);

(g) Proposal to amend the work plan of the agenda item on near-Earth objects (A/AC.105/C.1/2005/CRP.18);

(h) New multi-year work plan for the agenda item on space debris (A/AC.105/C.1/2005/CRP.19);

(i) Draft provisional agenda of the Scientific and Technical Subcommittee at its forty-third session (A/AC.105/C.1/2005/CRP.20).

6. The Working Group of the Whole noted with appreciation that, pursuant to paragraph 6 of General Assembly resolution 59/2 of 20 October 2004, the action teams on an environmental monitoring strategy (recommendation 1), weather and climate forecasting (recommendation 4), knowledge-sharing (recommendation 9), sustainable development (recommendation 11) and near-Earth objects (recommendation 14) would be continuing their work on the implementation of the recommendations of UNISPACE III.

7. The Working Group of the Whole noted with satisfaction that the Action Team on an Environmental Monitoring Strategy (recommendation 1), the Action Team on Sustainable Development (recommendation 11) and the Action Team on Near-Earth Objects (recommendation 14) had met during the forty-second session of the Subcommittee and had reported on the progress made in their work.

8. The Working Group of the Whole noted with satisfaction that, while the Action Team on Global Navigation Satellite Systems (recommendation 10) would not be continuing its work under the structure of an action team, the members of that action team would be continuing their work to maximize the benefits of the use and applications of global navigation satellite systems (GNSS) to support sustainable development. The Working Group of the Whole noted with appreciation that the work to establish an international committee on GNSS, in accordance with paragraph 11 of General Assembly resolution 59/2, had already commenced.

9. The Working Group of the Whole noted that discussions were under way regarding the possible continuation of the work of the Action Team on Public Health (recommendation 6). The Action Team noted with appreciation the offer of the World Health Organization (WHO) to co-chair the team.

10. The Working Group of the Whole noted that the Office for Outer Space Affairs would assist those action teams in coordinating the start-up phase of their updated work plans among its current members, while seeking to confirm or increase the membership of the teams. The Office would also assist the teams, where requested and within its resources, in their development of the updated work plans. The Working Group of the Whole also noted that the Office would consult the membership of the Action Team on Public Health regarding the possible co-chairmanship of that team by WHO.

11. The Working Group of the Whole agreed to focus its discussion on the implementation of three actions called for in the Plan of Action endorsed by the General Assembly in its resolution 59/2: maximizing the benefits of existing space capabilities for disaster management and maximizing the benefits of the use and applications of global navigation satellite systems to support sustainable development (A/59/174, paras. 252-269); and enhancing capacity-building in space-related activities (A/59/174, paras. 299-310).

12. The Working Group of the Whole also agreed to group the actions proposed in paragraphs 301-309 of the Plan of Action under the heading "Organize a meeting of interested Member States and space agencies to identify parties willing to undertake the actions listed in paragraphs 301-309 of the Plan of Action", with a view to making progress in the implementation of those proposed actions.

13. The Working Group of the Whole considered the contribution that could be made by the Committee on the Peaceful Uses of Outer Space to the high-level plenary meeting of the sixtieth session of the General Assembly, which would be held in September 2005 to undertake a comprehensive review of the progress made in the fulfilment of all the commitments contained in the United Nations Millennium Declaration (Assembly resolution 55/2). The Working Group agreed that the Office for Outer Space Affairs should seek further information on the organization of the high-level plenary meeting and the potential for the Committee on the Peaceful Uses of Outer Space to contribute to that work and should inform member States prior to the forty-eighth session of the Committee on its findings. Based on the information provided by the Office, the Committee should consider how to contribute to the high-level plenary meeting and by what mechanism it could contribute.

14. The Working Group of the Whole noted that a number of initiatives were being undertaken to promote greater participation of young people in the areas of space science and engineering and agreed to invite member States, and in particular the permanent observers of the Committee, to report to the Working Group of the Whole during the forty-third session of the Subcommittee on their activities relating to the promotion of space science and engineering among young people.

D. Draft provisional agenda for the forty-third session of the Scientific and Technical Subcommittee

15. The Working Group of the Whole noted that, in accordance with General Assembly resolution 59/116, the Scientific and Technical Subcommittee would submit to the Committee its proposal on the draft provisional agenda for the forty-third session of the Subcommittee, to be held in 2006.

16. The Working Group of the Whole considered the following new multi-year work plans for items to be included in the agenda of the Subcommittee at its forty-third session:

(a) International Heliophysical Year 2007, proposed by the Czech Republic, France, Pakistan, the United Kingdom and the United States of America (A/AC.105/C.1/2005/CRP.13);

(b) Space debris, as agreed by the Working Group on Space Debris (para. 6 of annex II to the present report).

17. The Working Group of the Whole also considered proposed amendments to the multi-year work plans for the following items on the agenda of the Subcommittee:

(a) Use of nuclear power sources in outer space, as agreed by the Working Group on Nuclear Power Sources in Outer Space (para. 8 of annex III to the present report);

(b) Near-Earth objects (A/AC.105/C.1/2005/CRP.18).

18. The Working Group of the Whole agreed that the Subcommittee should consider the item on space debris in accordance with the work plan agreed by the Working Group on Space Debris, as reflected in paragraph 6 of annex II to the present report.

19. The Working Group of the Whole agreed that the Subcommittee should continue its consideration of the agenda item on the use of nuclear power sources in outer space in accordance with the work plan agreed by the Working Group on the Use of Nuclear Power Sources in Outer Space, as reflected in paragraph 8 of annex III to the present report.

20. The Working Group of the Whole agreed to amend the work plan of the agenda item on near-Earth objects for the years 2006 and 2007 as follows:

2006	Reports from Member States and international organizations on their near-Earth object activities, including missions, search and follow-up, as well as plans for future activity.
	The Action Team will consider the way forward and, specifically, the possible need for further activity to be carried out nationally, regionally or through international cooperation. Such cooperation should be considered together with the prospects for harmonization and avenues for broader collaboration.
	Consider the need for a working group in 2007.
	Update the work programme for the third year as necessary and consider the need for intersessional work.
2007	Continue reporting by Member States and international organizations on the range of activities related to near-Earth objects.
	The Action Team should continue its work and make proposals as necessary, building on its work in the second year.
	Consider the range of, and suitable mechanisms for, further work on near-Earth objects.

21. The Working Group of the Whole agreed to amend the work plan of the agenda item on space-system-based disaster management support for the year 2006 as follows:

2006	Review of the recommendations of the Action Team on Disaster Management, with a view to their implementation.

Organization of a one-day workshop/symposium on disaster management involving communication/meteorological satellite operators.

Exchange of information with specialized agencies in the United Nations system on their activities on the subject of space-system-based disaster management support, as well as the regional disaster management structures.

22. The Working Group of the Whole agreed that, starting with its forty-third session, in 2006, the Subcommittee would consider an item on International Heliophysical Year 2007 according to the following multi-year work plan:

2006 Reports on planning activities by the International Heliophysical Year secretariat and interested Member States and scientific organizations. Results of the initial International Heliophysical Year/United Nations Basic Space Science Initiative workshop will be presented by the International Heliophysical Year secretariat.

2007 Reports on national and regional activities related to International Heliophysical Year 2007 by interested Member States, scientific organizations and the International Heliophysical Year secretariat. This update will include information on the progress towards the conduct of outreach, educational and research campaigns and on the definition and plans for deployment of instrument arrays.

2008 Reports by interested Member States, scientific organizations and the International Heliophysical Year secretariat on the progress of scientific campaigns and establishment of International Heliophysical Year databases. Plans for the continued deployment of instrument arrays and future activities will be made available.

23. The Working Group of the Whole recommended the following draft provisional agenda for the forty-third session of the Scientific and Technical Subcommittee, in 2006:

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;

   (Work for 2006 as reflected in the multi-year work plan in paragraph 6 of annex II to the present report)

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

(Work for 2006 as reflected in the multi-year work plan in paragraph 8 of annex III to the present report)

(c) Space-system-based telemedicine;

(Work for 2006 as reflected in the multi-year work plan contained in paragraph 138 of the report of the Committee on the Peaceful Uses of Outer Space on its forty-sixth session (A/58/20))

(d) Near-Earth objects;

(Work for 2006 as reflected in the multi-year work plan in paragraph 20 above)

(e) Space-system-based disaster management support;

(Work for 2006 as reflected in paragraph 21 above)

(f) International Heliophysical Year 2007.

(Work for 2006 as reflected in the multi-year work plan in paragraph 22 above)

6. Single issue/item for discussion: 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.

7. Draft provisional agenda for the forty-fourth 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 the agreement to continue the practice of alternating each year the organization of the symposium by COSPAR and the International Astronautical Federation (IAF) with the symposium to strengthen the partnership with industry. The Working Group of the Whole agreed that, in 2006, the symposium to strengthen the partnership with industry would be organized and the symposium by COSPAR and IAF would be suspended.

25. The Working Group of the Whole recommended that the next symposium to strengthen the partnership with industry, to be held during the forty-third session of the Subcommittee, in 2006, should address synthetic aperture radar missions and their applications. The Working Group of the Whole also agreed that that symposium should be held on the afternoon of the first day of the forty-third session of the Subcommittee and that the full time available to the Subcommittee on that afternoon should be used for the symposium.

E. Other matters

26. The Working Group of the Whole recommended that it be reconvened during the forty-third session of the Scientific and Technical Subcommittee, in 2006.

Annex II

Report of the Working Group on Space Debris

1. In accordance with paragraph 17 of General Assembly resolution 59/116 of 10 December 2004, the Scientific and Technical Subcommittee, at its forty-second session, reconvened the Working Group on Space Debris to consider, as necessary, the proposals of the Inter-Agency Space Debris Coordination Committee on space debris mitigation and related comments received. The Working Group held three meetings, on 28 February, 2 March and 3 March 2005.

2. Claudio Portelli (Italy) was elected Chairman of the Working Group on Space Debris at the 628th meeting of the Subcommittee, on 28 February 2005.

3. The Working Group had before it the following documents for consideration:

(a) Note by the Secretariat on 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.105/838 and Add.1);

(b) Consideration by the Inter-Agency Space Debris Coordination Committee of the comments received from member States of the Committee on the Peaceful Uses of Outer Space on the proposals on space debris mitigation and results of the consultative meeting of the Inter-Agency Space Debris Coordination Committee and the Committee on the Peaceful Uses of Outer Space held in Vancouver, Canada on 4 October 2004 (A/AC.105/C.1/L.279).

4. The Working Group noted that member States had held informal consultations to elaborate proposals for a space debris mitigation document to be developed by the Subcommittee and on a new multi-year work plan to be considered under the item on space debris.

5. The Working Group agreed to develop a document on space debris mitigation to be based on the following considerations:

(a) It would use the technical content of the Inter-Agency Space Debris Coordination Committee space debris mitigation guidelines (A/AC.105/C.1/L.260) as the basis;

(b) It would not be more technically stringent than the Inter-Agency Space Debris Coordination Committee space debris mitigation guidelines;

(c) It would not be legally binding under international law;

(d) The implementation of space debris mitigation remains voluntary and should be carried out through national mechanisms;

(e) It would recognize that exceptions might be justified;

(f) It would be a living document that could be updated on a regular basis in accordance with evolving national and international practices on space debris mitigation and related research and technology developments;

(g) It would be applicable to mission planning, to the operation of newly designed spacecraft and orbital stages and, if possible, to existing ones;

(h) It would take into consideration the United Nations treaties and principles on outer space;

(i) The space debris mitigation document is planned to be a concise document containing high-level qualitative guidelines and making reference to the Inter-Agency Space Debris Coordination Committee space debris mitigation guidelines. The document will have annexes as decided by the Working Group during its work plan.

6. The Working Group agreed that the Subcommittee would continue to consider the item on space debris in accordance with the following new multi-year work plan:

2005	Commence intersessional work, by the Working Group on Space Debris, in order to prepare for the start of the new work plan in 2006. The intersessional work would include consideration of the proposals from the member States of the Committee on the Peaceful Uses of Outer Space for the document to be developed covering space debris mitigation. Member States could also consider space debris issues concerning the use of nuclear power sources in space.
2006	Review the draft space debris mitigation document, arising from the intersessional activity of the Working Group on Space Debris and update it as necessary. Consider the process by which the document, when agreed, could be updated from time to time. Continue, as necessary, the dialogue with member States on the use of nuclear power sources in outer space. Continue regular reporting by Member States and international organizations on their space debris research programmes. In addition, request that Member States and international organizations also continue, on a voluntary basis, to report to the Subcommittee on their space debris mitigation practices. Re-establish the Working Group on Space Debris to consider the issues arising from the work plan and, in particular, the draft of the space debris mitigation document of the Subcommittee. The Working Group should also consider the work plan for later years and report as necessary on changes that may be considered appropriate. Continue with the intersessional work as required to expedite agreement on a space debris mitigation document.
2007	Aim to complete the Working Group on Space Debris tasks, for the submission of the document to the Subcommittee at its forty-fourth session, with a view to adopting the space debris mitigation document by the Committee on the Peaceful Uses of Outer Space at its fiftieth session. Continue regular reporting by Member States and international organizations on their space debris research programmes. In addition, request that Member States and international organizations also continue, on a voluntary basis, to report to the Subcommittee on their space debris mitigation practices.

Re-establish, as necessary, the Working Group on Space Debris to consider additional elements of the work plan.

7. The Working Group agreed that, to begin its intersessional work, the Working Group on Space Debris should hold an intersessional meeting from 13 to 16 June 2005, during the forty-eighth session of the Committee on the Peaceful Uses of Outer Space.

8. At its 3rd meeting, on 3 March 2005, the Working Group adopted the present report.

Annex III

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

1. At its 624th meeting, on 24 February 2005, the Scientific and Technical Subcommittee reconvened its Working Group on the Use of Nuclear Power Sources in Outer Space under the chairmanship of Alice Caponiti (United States of America).

2. At the 1st meeting of the Working Group, on 24 February, the Chairman recalled the tasks before the Working Group, as contained in the multi-year work plan covering the period 2003-2006 for developing an international technically based framework of goals and recommendations for the safety of nuclear power source applications in outer space, which had been endorsed by the Scientific and Technical Subcommittee at its fortieth session (A/AC.105/804, annex III). The Working Group informed the Scientific and Technical Subcommittee of the overall progress that had been made to date in achieving the objectives and recommendations of the work plan for the period 2003-2006.

3. The Working Group had before it copies of the technical presentation entitled "Space nuclear power source technology development pathways for enabling future space exploration", which had been made by the representative of the National Aeronautics and Space Administration (NASA) of the United States, to the Scientific and Technical Subcommittee. The presentation concerned the content of relevant national (including bilateral and multilateral) space nuclear power source programmes and applications planned or currently foreseeable.

4. The Working Group considered and revised a working paper submitted by its Chairman entitled "Interim progress report of the Working Group on Nuclear Power Sources in Outer Space of the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space" (A/AC.105/C.1/L.278). The revised text of the working paper, as agreed by the Working Group, is contained in A/AC.105/C.1/L.281. The Working Group noted that the document had been reissued for technical reasons.

5. The Working Group also considered and revised the proposed outline of objectives, scope and attributes 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/AC.105/L.253/Rev.1). The revised text, as agreed by the Working Group, is contained in A/AC.105/L.253/Rev.2.

6. Based on the revisions to document A/AC.105/C.1/L.278 agreed by the Working Group, the Working Group further considered and revised the preliminary draft of flow charts for potential implementation options for establishing 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/AC.105/L.254/Rev.1). The revised text, as agreed by the Working Group, is contained in A/AC.105/L.254/Rev.2.

7. The Working Group agreed to hold, jointly with the International Atomic Energy Agency (IAEA), a technical workshop during the first two days of the forty-third session of the Scientific and Technical Subcommittee, to be held in February 2006. The plan for organizing and the initial terms of reference of the technical workshop are contained in A/AC.105/C.1/L.281.[a]

8. The Working Group recommended that its multi-year work plan be amended in order to allow for the organization and holding of the joint workshop as follows:

Year 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) Organize and plan for a joint technical workshop with IAEA, to be held during the forty-third session of the Scientific and Technical Subcommittee, in February 2006;

(d) Hold an intersessional meeting during the forty-eighth session of the Committee on the Peaceful Uses of Outer Space, in June 2005, to finalize the plans for the joint technical workshop with IAEA.

Year 2006:

(a) Hold a joint technical workshop with IAEA during the first two days of the forty-third session of the Scientific and Technical Subcommittee and prepare a draft report on the workshop;

(b) Hold an informal meeting of the Working Group on Nuclear Power Sources in Outer Space during the forty-ninth session of the Committee on the Peaceful Uses of Outer Space, in June 2006, to prepare an updated report on the joint technical workshop to be made available to the Scientific and Technical Subcommittee and IAEA;

(c) Hold an informal meeting of the Working Group on Nuclear Power Sources in Outer Space during the forty-ninth session of the Committee on the Peaceful Uses of Outer Space, in June 2006, to prepare a draft report based on the final outline of the objectives, scope and attributes of an international technically based framework of goals and recommendations, taking account of the updated draft report of the joint technical workshop.

Year 2007:

(a) Prepare the final report and recommend an implementation option to the Scientific and Technical Subcommittee;

(b) If the recommended implementation option is acceptable to the Subcommittee, prepare a new work plan to carry it out;

(c) If the recommended implementation option involves further joint activity with IAEA, commence early discussions with the Agency to carry that out.

9. The Working Group noted that the United States had offered to provide funds to cover the cost of two days of interpretation services and conference staff, as well as the electronic equipment necessary for holding the joint technical workshop.

10. A preliminary list of workshop objectives and topics was prepared by some members of the Working Group. The list, which has not been reviewed by all members of the Working Group and is included in the present report for the purpose of giving member States the opportunity to prepare for the intersessional meeting to be held in June 2005, at which time a final list of topics will be prepared, is as follows:

I. Objectives

A. To enhance the proposed outline of objectives, scope and attributes 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

B. To enhance the definition of potential implementation options for establishing an international technically based framework of goals and recommendations for the safety of planned and currently foreseeable nuclear power source applications in outer space

II. Possible papers

A. Background

1. Presentation on planned and currently foreseeable nuclear power source applications in outer space and their scope

2. Unique design considerations for nuclear power source applications in outer space

3. National perspectives on the development of nuclear power source designs with respect to safety considerations

4. International Atomic Energy Agency activities in the development of international standards for safety

B. Pertinent to objective I.A

1. Review of international documents and national processes potentially relevant to the peaceful uses of nuclear power sources in outer space

2. Minimum essential elements of a safety framework

3. Design safety considerations for launch and mission accidents

C. Pertinent to objective I.B

1. Key issues in harmonizing IAEA and Scientific and Technical Subcommittee processes for establishing an international technically based framework of goals and recommendations

for the safety of planned and currently foreseeable nuclear power source applications in outer space

2. Implementation plan considerations for draft options 1 and 3 (A/AC.105/L.254/Rev.2, annex)

11. The Working Group agreed that member States and international organizations should be invited by the Secretariat to review the above preliminary list of potential topics and submit proposals for additional topics or possible amendments to the Secretariat prior to the intersessional meeting of the Working Group in June 2005.

12. The Working Group recommended that, in accordance with its recommended work plan as reflected in paragraph 8 above, the next intersessional meeting should be held in Vienna from 15 to 17 June 2005, during the forty-eighth session of the Committee on the Peaceful Uses of Outer Space.

13. The Working Group agreed to further discuss the following documents at its intersessional meeting to be held during the forty-eighth session of the Committee on the Peaceful Uses of Outer Space, with a view to finalizing the plans for a joint technical workshop with IAEA:

(a) Preliminary draft of flow charts for potential implementation options for establishing 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/AC.105/L.254/Rev.2);

(b) Interim progress report of the Working Group on Nuclear Power Sources in Outer Space of the Scientific and Technical Subcommittee: planning and terms of reference for a technical workshop on the development of a potential safety framework for the use of nuclear power source applications in outer space (A/AC.105/C.1/L.281);[a]

(c) The preliminary list of potential topics for the joint technical workshop on nuclear power sources in outer space, as contained in paragraph 10 above.

14. At its 5th meeting, on 3 March 2005, the Working Group adopted the present report.

Notes

[a] Reissued for technical reasons.