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## Committee on the Peaceful

### Uses of Outer Space

Scientific and Technical Subcommittee

Forty-first session

Vienna, 16-27 February 2004

## **Draft report of the Scientific and Technical Subcommittee on its forty-first session, held in Vienna from 16 to 27 February 2004**

### **I. Introduction**

1. The Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space held its forty-first session at the United Nations Office at Vienna from 16 to 27 February 2004 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, Bulgaria, Canada, Chile, China, Colombia, Cuba, Czech Republic, Ecuador, Egypt, France, Germany, Greece, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Italy, Japan, Kazakhstan, Kenya, Malaysia, Mexico, Morocco, Netherlands, Nigeria, Pakistan, Peru, Poland, Portugal, Republic of Korea, Romania, Russian Federation, Saudi Arabia, Sierra Leone, Slovakia, South Africa, Spain, Sweden, Syrian Arab Republic, Turkey, Ukraine, United Kingdom of Great Britain and Northern Ireland, United States of America, Uruguay, Venezuela, Viet Nam and [...].
4. At the 599th meeting, on 16 February, the Chairman informed the Subcommittee that requests had been received from Angola, Israel, Switzerland and Thailand to attend the session. Following past practice, those States were invited to send delegations to attend the current session of the Subcommittee and address it as appropriate, without prejudice to further requests of that nature; that action did not



involve any decision of the Subcommittee concerning status, but was a courtesy that the Subcommittee extended to those delegations.

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

6. The session was also attended by observers for the Committee on Earth Observation Satellites (CEOS), the Committee on Space Research (COSPAR), the European Association for the International Space Year (EURISY), the European Space Agency (ESA), the International Academy of Astronautics (IAA), the International Astronautical Federation (IAF), the International Astronomical Union (IAU), the International Law Association (ILA), 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 [...].

7. A list of the representatives of States, United Nations entities and other international organizations attending the session is contained in document A/AC.105/C.1/INF/33.

## **B. Adoption of the agenda**

8. At its 599th meeting, on 16 February 2004, the Subcommittee adopted the following agenda:

1. Adoption of the agenda.
2. Election of the Chairman.
3. Statement by the Chairman.
4. General exchange of views and introduction to reports submitted on national activities.
5. United Nations Programme on Space Applications.
6. Implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III).
7. Matters relating to remote sensing of the Earth by satellite, including applications for developing countries and monitoring of the Earth's environment.
8. Space debris.
9. Use of nuclear power sources in outer space.
10. Space-system-based telemedicine.
11. Examination of the physical nature and technical attributes of the geostationary orbit and of its utilization and applications, including, inter alia, in the field of space communications, as well as other questions

relating to developments in space communications, taking particular account of the needs and interests of developing countries.

12. Implementation of an integrated, space-based global natural disaster management system.
13. Solar-terrestrial physics.
14. Draft provisional agenda for the forty-second session of the Scientific and Technical Subcommittee.
15. Report to the Committee on the Peaceful Uses of Outer Space.

### **C. Documentation**

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

### **D. Election of the Chairman**

10. At the 599th meeting, on 16 February 2004, Dumitru-Dorin Prunariu (Romania) was elected Chairman of the Subcommittee for a two-year term of office.

### **E. General statements**

11. The Subcommittee welcomed the election of Dumitru-Dorin Prunariu (Romania) as its new Chairman and expressed its gratitude to Karl Doetsch (Canada), its former Chairman, for his outstanding achievements during his tenure, in particular in establishing a mechanism to implement the recommendations of UNISPACE III.

12. The Subcommittee offered its congratulations to China for the success of its first manned space mission. It was noted that China was the third country, and the first developing country, to achieve such a capability.

13. The Subcommittee also congratulated the United States and ESA for the recent success of their missions to Mars.

14. The Subcommittee noted that the above-mentioned achievements by China, the United States and ESA would contribute to further promoting the peaceful uses of outer space.

15. 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, Germany, Hungary, India, Indonesia, Iran (Islamic Republic of), Italy, Japan, Mexico, Morocco, Nigeria, Pakistan, Republic of Korea, Romania, Russian Federation, South Africa, Syrian Arab Republic, Turkey, Ukraine, United Kingdom and United States. The representative of Colombia made a statement on behalf of the Group of Latin American and Caribbean States. The delegate of Thailand made a general statement. General statements were also made by the observers for UNESCO and WMO.

Statements were also made by the observers for COSPAR, EURISY, IAF, IAU, ISPRS and ISU.

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

- (a) “Algerian Space Programme”, by the representative of Algeria;
- (b) “FIDAE 2004: International Air and Space Fair”, by the representative of Chile;
- (c) “Introduction of Japan Aerospace Exploration Agency and its activity”, by the representative of Japan;
- (d) “A renewed spirit of discovery: the United States vision for space exploration”, by the representative of the United States;
- (e) “Mars exploration”, by the observer for ESA.

17. At the 599th meeting, on 16 February, the Chairman made a statement outlining the work of the Subcommittee at its current session and reviewing space activities over the past year, including important advances that had been achieved as a result of international cooperation.

18. Also at the 599th meeting, the Director of the Office for Outer Space Affairs of the Secretariat made a statement reviewing the work programme of the Office.

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

## **F. National reports**

20. The Subcommittee took note with appreciation of the reports submitted by Member States (A/AC.105/816 and A/AC.105/C.1/2004/CRP.4 and Add.1) and considered by the Subcommittee under agenda item 4, “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.

## **G. Symposium**

21. Pursuant to General Assembly resolution 58/89 of 9 December 2003, a symposium on the theme “Smaller size, wider use: small satellite applications in agriculture, health and human security” was held on 16 and 17 February 2004 to strengthen the partnership of the Subcommittee with industry. The symposium was moderated by Dumitru-Dorin Prunariu of Romania.

22. The presentations to the symposium included the following: “Micro-satellite development programmes: benefits from the South African experience”, by S. Mostert of Sun Space and Information Systems (Pty) Ltd.; “Small satellite technology developments: transforming challenges into opportunities”, by A. Sabirin Arshad of Astronautic Technology Sdn. Bhd.; “Small satellite

applications in Chile: a case study; assessment of land use changes using FASAT-B, SAC-C and CBERS satellites”, by C. Pattillo of the Centro de Estudios en Percepción Remota y SIG; “PROBA as a micro-satellite case study”, by D. Bernaerts of Verhaert Design and Development; “Italian experience in small satellite missions”, by G. D. Morea of Carlo Gavazzi Space SpA.; and “Small satellite applications for environmental monitoring”, by A. Movlyav of Sovinform Sputnik. The presentations were followed by a panel discussion on the theme “How industry can best expand the use of small satellites in the areas of agriculture, health, human security and other fields related to sustainable development for the benefit of developing countries”.

## **H. Coordination of space activities within the United Nations system and inter-agency cooperation**

23. The Subcommittee noted with satisfaction that the Inter-Agency Meeting on Outer Space Activities had held its twenty-fourth session at the headquarters of WMO in Geneva from 21 to 23 January 2004. The report of the Meeting on its deliberations (A/AC.105/818) and the report of the Secretary-General entitled “Coordination of space-related activities within the United Nations system: directions and anticipated results for the period 2004-2005” (A/AC.105/822) were before the Subcommittee. The Subcommittee noted that the next session of the Inter-Agency Meeting would be held in Vienna in late January 2005.

24. The Subcommittee noted with appreciation that, immediately following its twenty-fourth session, the Inter-Agency Meeting had held its first open informal session on 23 January 2004 to which representatives of member States of the Committee on the Peaceful Uses of Outer Space had been invited. The open session discussed the theme “Education and training in space-related areas: challenges and opportunities in the United Nations system”. The Subcommittee noted that member States of the Committee had been invited to propose topics for discussion for the next open session, to be held in 2005, from which the entities of the United Nations system that were members of the Meeting would select a theme.

25. The Subcommittee noted that the Inter-Agency Meeting had compiled a list of major space-related initiatives and programmes of the entities of the United Nations system that responded to specific recommendations contained in the Plan of Implementation of the World Summit on Sustainable Development<sup>1</sup> (see A/AC.105/C.1/2004/CRP.3). When integrated with a similar list containing space-related activities of the member States of the Committee, the contents of the two lists would serve as a useful tool for policy makers, end-users and providers of space capability who would be implementing, or planning to implement, actions called for in the Plan of Implementation.

26. The Subcommittee noted that some entities of the United Nations system had participated in project activities of the Global Monitoring for Environment and Security (GMES) initiative of the European Commission and ESA, but had not been involved at the policy level. The Subcommittee noted the agreement of the Inter-Agency Meeting that it would be beneficial if United Nations entities with competence in areas relevant to initiatives such as GMES were consulted.

27. The Subcommittee noted that the World Conference on Disaster Reduction would be held in Kobe, Japan, from 18 to 22 January 2005. The Subcommittee also noted that the secretariat of the International Strategy for Disaster Reduction had recommended that the Office for Outer Space Affairs be entrusted with the coordination of a policy message to be delivered about the usefulness of space applications for disaster reduction at the Conference.

28. The Subcommittee noted the agreement of the Inter-Agency Meeting that it was important to create, with the participation of members of the Committee, inventories on equipment, education and training materials, satellite data sets and other capacity-building resources provided by United Nations entities, so that future technical cooperation projects or other development activities could build upon the installed capacity, in particular for the benefit of developing countries.

### **I. Adoption of the report of the Scientific and Technical Subcommittee**

29. After considering the various items before it, the Subcommittee, at its [...]th meeting, on [...] February 2004, 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**

30. In accordance with General Assembly resolution 58/89, the Scientific and Technical Subcommittee continued its consideration of item 5, "United Nations Programme on Space Applications".

31. At the 603rd meeting, on 18 February, the Expert on Space Applications made a statement outlining the activities carried out and planned under the United Nations Programme on Space Applications.

32. The representatives of Canada, Germany, India, Indonesia, Japan and the United States made statements under the agenda item.

33. The Subcommittee heard a presentation by the representative of the Russian Federation on the "Youth Space Education Programme in Russia".

34. In accordance with General Assembly resolution 58/89, the Subcommittee, at its 603rd meeting, on 18 February, reconvened the Working Group of the Whole, under the chairmanship of Muhammad Nasim Shah (Pakistan). The Working Group of the Whole held [...] meetings, from 18 to [...] February. At its [...] meeting, on [...] February, the Subcommittee endorsed the report of the Working Group of the Whole, which is contained in annex II to the present report.

### **A. Activities of the United Nations Programme on Space Applications**

35. The Subcommittee had before it the report of the Expert on Space Applications (A/AC.105/815). The Subcommittee noted that the United Nations Programme on

Space Applications for 2003 had been carried out satisfactorily and commended the work accomplished by the Expert in that regard.

36. The Subcommittee noted with appreciation that, since its previous session, additional resources for 2003 had been offered by various Member States and organizations and had been acknowledged in the report of the Expert (A/AC.105/815, paras. 53 and 54).

37. The Subcommittee expressed its continued concern that the financial resources available for carrying out the United Nations Programme on Space Applications remained limited 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.

38. 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”.<sup>2</sup>

39. The Subcommittee noted that the activities of the United Nations Programme on Space Applications were aimed at promoting, through regional and international cooperation, the use of space science and technology and their applications 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 of developing countries to use space technology; and strengthening outreach activities to increase awareness of the benefits obtained.

40. The Subcommittee noted that, in addition to the United Nations conferences, training courses, workshops and symposiums planned for 2004 (see para. [46] below), other activities of the Programme in 2004 would place emphasis on:

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

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

(c) Enhancing access to space-related 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 2003**

*United Nations conferences, training courses, workshops and symposiums*

41. With regard to the activities of the United Nations Programme on Space Applications carried out in 2003, the Subcommittee expressed its appreciation to the following:

(a) The Government of Sweden and ESA, for co-sponsoring the Thirteenth United Nations/Sweden International Training Course on Remote Sensing Education for Educators, hosted by Stockholm University and Metria Satellus AB, in Stockholm and Kiruna, Sweden, from 5 May to 13 June;

(b) The Government of Romania, ESA and the Centre national d'études spatiales (CNES) of France, for co-sponsoring the United Nations Regional Workshop on the Use of Space Technology for Disaster Management for Europe, hosted by the Romanian Space Agency, in Poiana-Brasov, Romania, from 19 to 23 May;

(c) The Government of the Syrian Arab Republic, ESA and CNES of France, for co-sponsoring the United Nations/European Space Agency Workshop on Remote Sensing Applications and Education, hosted by the General Organization of Remote Sensing of the Syrian Arab Republic, in Damascus, from 29 June to 3 July;

(d) The Government of Thailand, for co-sponsoring the United Nations/Thailand Workshop on the Contribution of Space Communication Technology to Bridging the Digital Divide, hosted by the Geo-Informatics and Space Technology Development Agency of Thailand, in Bangkok, from 1 to 5 September;

(e) The Government of Austria, the State of Styria, the city of Graz, and ESA, for co-sponsoring the 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, hosted by the Institute of Space Research and Joanneum Research, in Graz, Austria, from 8 to 11 September;

(f) The Government of Germany, ESA, IAF and UNESCO, for co-sponsoring the United Nations/International Astronautical Federation Workshop on Education and Capacity-Building in Space Technology for the Benefit of Developing Countries, with an Emphasis on Remote Sensing, hosted by the University of Bremen, in Bremen, Germany, from 25 to 27 September;

(g) The Government of Germany and the Subcommittee on Small Satellites for Developing Nations of IAA, for co-sponsoring the Fourth United Nations/International Academy of Astronautics Workshop on Small Satellites in the Service of Developing Countries: a Contribution to Sustainable Development, hosted by IAF, in Bremen, Germany, on 30 September;

(h) The Government of the Republic of Korea, for co-sponsoring the United Nations/Republic of Korea Workshop on Space Law on the theme "United Nations treaties on outer space: actions at the national level", hosted by the Korean Aerospace Research Institute, in Daejeon, Republic of Korea, from 3 to 6 November;



(i) The Government of the United States and the Austrian Space Agency, for co-sponsoring the United Nations/United States of America International Workshop on the Use and Applications of Global Navigation Satellite Systems, in Vienna, from 8 to 12 December.

*Long-term fellowships for in-depth training*

42. The Subcommittee expressed appreciation to ESA for having offered two fellowships for 2003 for research in remote sensing technology at the European Space Research Institute in Frascati, Italy.

43. 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*

44. 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.105/815, paras. 40-49):

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

(b) Collaboration with Joanneum Research of Graz, Austria, in conducting a live, interactive demonstration of satellite-based telemedicine during the forty-sixth session of the Committee on the Peaceful Uses of Outer Space in 2003;

(c) Providing technical advice to the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization in preparing draft recommendations for participants at the Fifth Annual Joint Global Communications Infrastructure Evaluation Workshop, held in Vienna from 20 to 23 October 2003;

(d) Cooperation with the pro tempore secretariat of the Fourth Space Conference of the Americas in planning a number of activities to implement the Plan of Action of the Conference, including a workshop on the use of global navigation satellite systems, to be held in Colombia in 2004 for the benefit of the Latin American and Caribbean region;

(e) Providing technical assistance to the Fundación Instituto de Ingeniería of the Ministry of Science and Technology of Venezuela, in considering a few institutional models for the establishment of a space entity to coordinate space activities in Venezuela;

(f) Assisting the Asociación Chilena del Espacio in organizing the Space Camp of the Americas from 4 to 18 January 2003;

(g) Providing the chairperson of the Ad Hoc Working Group on Earth Observation Education and Training of CEOS;

(h) Supporting the joint United Nations/ESA follow-up programme on the use of remote sensing technology in sustainable development. The Programme is

also collaborating with ESA in carrying out a project in Africa on the development of an information system for determining, monitoring and assessing flood areas, together with the establishment of an inventory of superficial waters in the Nakambé river basin of Burkina Faso;

(i) Participation in the work of the Ad Hoc Group on Earth Observations, as a member of its sub-group on capacity-building.

## 2. Year 2004

*Conferences, training courses, workshops and symposiums within the framework of the United Nations Programme on Space Applications*

45. The Subcommittee expressed its appreciation to the United States Government for jointly organizing with the Office for Outer Space Affairs the United Nations/United States of America Training Course on Satellite-Aided Search and Rescue, held in Miami, United States, from 2 to 6 February.

46. The Subcommittee recommended approval of the following programme of training courses, workshops and symposiums, to be organized jointly by the Office for Outer Space Affairs, host Governments and other entities in 2004:

(a) United Nations/Sudan Workshop on the Use of Space Technology for Natural Resource Management, Environmental Monitoring and Disaster Management, to be held in Khartoum from 4 to 8 April;

(b) United Nations/Islamic Republic of Iran Workshop on the Use of Space Technology for Environmental Security, Disaster Rehabilitation and Sustainable Development, to be held in Tehran from 8 to 12 May;

(c) Twelfth United Nations/European Space Agency Workshop on Basic Space Science, to be held in Beijing from 24 to 28 May;

(d) Fourteenth United Nations/Sweden International Training Course on Remote Sensing Education for Educators, to be held in Stockholm and Kiruna, Sweden, from 3 May to 11 June;

(e) United Nations/Space and Upper Atmosphere Research Commission Regional Seminar on Monitoring and Protection of the Natural Environment: Educational Needs and Experience Gained from United Nations/Sweden International Training Courses on Remote Sensing Education for Educators, to be held in Islamabad in September;

(f) United Nations/Saudi Arabia Regional Workshop on the Use of Space Technology for Disaster Management for Western Asia, to be held in Riyadh in September;

(g) United Nations/Austria/European Space Agency Symposium on Water for the World: Space Solutions for Water Management, to be held in Graz, Austria, from 13 to 16 September;

(h) United Nations/International Astronautical Federation Workshop on the Use of Space Technology for the Benefit of Developing Countries, to be held in Vancouver, Canada, in October;

- (i) Fifth United Nations/International Academy of Astronautics Workshop on Small Satellites in the Service of Developing Countries, to be held in Vancouver, Canada, in October;
- (j) United Nations/European Space Agency/Austria/Switzerland Workshop on Remote Sensing in the Service of Sustainable Development in Mountain Areas, to be held in Kathmandu from 18 to 22 October;
- (k) United Nations International Workshop on the Use of Space Technology for Disaster Management, to be held in Germany in November;
- (l) United Nations Workshop on Space Law, to be held in Rio de Janeiro, Brazil, in November;
- (m) United Nations International Meeting on the Use and Applications of Global Navigation Satellite Systems, to be held in Vienna in November/December;
- (n) Workshops and training courses to be organized at the regional centres for space science and technology education affiliated with the United Nations.

## **B. International space information service**

47. The Subcommittee noted with satisfaction that the fifteenth in the series of documents containing selected papers from the activities of the Programme, entitled *Seminars of the United Nations Programme on Space Applications*,<sup>3</sup> had been issued. The Subcommittee also noted with satisfaction the publication of *Highlights in Space 2003*,<sup>4</sup> which had been compiled from a report prepared by IAF, in cooperation with the International Institute of Space Law. The Subcommittee expressed its appreciation to the contributors for their work.

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

## **C. Regional and interregional cooperation**

49. The Subcommittee noted with appreciation the continuing efforts made under 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.

50. 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 with 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.

51. The Subcommittee noted with satisfaction that the United Nations Programme on Space Applications continued to emphasize cooperation with Member States at the regional and international levels aimed at supporting the centres. The Subcommittee noted that all the regional centres had entered into an affiliation agreement with the Office for Outer Space Affairs.

52. The Subcommittee also noted that the highlights of the activities of the regional centres supported under the Programme in 2003 and planned activities for 2004 and 2005 were included in the report of the Expert on Space Applications (A/AC.105/815, annex III).

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

53. In accordance with General Assembly resolution 58/89, the Subcommittee continued its consideration of item 7, related to remote sensing of the Earth.

54. In the course of 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 Canada, China, France, India, Japan, Nigeria, the Republic of Korea and the United States made statements under the agenda item.

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

(a) "Watershed management work in Karnataka: a project aided by the World Bank", by the representative of India;

(b) "The microsatellite 'Baumanets' as a tool for application of remote sensing methods in educational programmes", by the representative of the Russian Federation.

56. 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, monitoring of global climate change and greenhouse gases and natural disaster prevention, mitigation and relief.

57. The Subcommittee highlighted the increased availability of new space-based sensors on board new satellites such as Resourcesat-1, INSAT-3A, STSAT-1, GSAT-2, CHIPS, GALEX, CBERS-2 and SciSat.

58. The Subcommittee emphasized the importance of providing non-discriminatory access to remote sensing data and to derived information at a

reasonable cost and in a timely manner and of building capacity in the adoption and use of remote sensing technology, in particular when meeting the needs of developing countries.

59. The Subcommittee encouraged further international cooperation in the use of remote sensing satellites, in particular by sharing experience 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 application of remote sensing technology, especially for the benefit of developing countries.

60. The Subcommittee noted that the Earth Observation Summit had been held in Washington, D.C., on 31 July 2003, where over 30 countries had adopted a Declaration of Support, which signified a political commitment to move towards developing a plan that would empower decision makers to continuously monitor the state of the Earth, to increase understanding of dynamic Earth processes, to enhance prediction of the Earth system and to further fulfil international environmental treaty obligations. It noted with satisfaction that, following the Summit, an international ad hoc Group on Earth Observations (GEO) had been established and had started work on a 10-year implementation plan. More than 40 countries and 25 international organizations were participating in the initiative. The Subcommittee also noted that the inaugural meeting of GEO had established five subgroups to consider international cooperation; architecture; capacity-building; data utilization; and user requirements and outreach. It was also noted that the draft of the implementation plan would be reviewed at the next Earth Observation Summit, to be held in Japan in April 2004.

61. The Subcommittee took note of the CEOS initiative entitled “CEOS World Summit on Sustainable Development Follow-up Programme”, which focused on the 12 specific references to Earth observations and satellite technology in the Plan of Implementation of the World Summit. The references were grouped into five important areas: (a) capacity-building; (b) water resource management; (c) disaster management and conflict; (d) climate change; and (e) global mapping, land use change and geographic information systems. It also noted that the seventeenth Plenary Meeting of CEOS had adopted “Principles of Satellite Data Provision in Support of Earth Observation Education and Training”, which would make data more easily accessible for education and capacity-building in developing countries.

62. The Subcommittee noted with satisfaction efforts aimed at establishing satellite observation systems for disaster monitoring and recovery operations. It also emphasized the importance of such international initiatives as the Disaster Monitoring Constellation.

63. The Subcommittee also noted with satisfaction that Algeria and Nigeria had successfully launched satellites that formed part of the Constellation. The data received from Algeria Sat-1 and Nigeria Sat-1 would also be used in various remote sensing applications.

64. The Subcommittee took note of developments in establishing national regulatory frameworks for commercial remote sensing, as well as in creating national infrastructures for the effective development and operation of Earth

observation systems and in the utilization of remote sensing data for the benefit of governmental, non-governmental and private organizations.

*Notes*

<sup>1</sup> *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.

<sup>2</sup> *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.

<sup>3</sup> United Nations publication, Sales No. E.04.I.6.

<sup>4</sup> United Nations publication, Sales No. E.04.I.5.

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