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**Committee on the Peaceful
Uses of Outer Space**

Report of the Expert on Space Applications*

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* It was necessary to summarize in the present report each of the activities organized under the United Nations Programme on Space Applications, the last of which was concluded on 21 November 2002.



I. Introduction

1. At its thirty-ninth session, in 2002, the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space reviewed the activities of the United Nations Programme on Space Applications. The Subcommittee noted that the 2001 activities of the Programme had been carried out satisfactorily. On the recommendation of the Committee, the activities of the Programme for 2002 had been endorsed by the General Assembly in its resolution 56/51 of 10 December 2001.
2. The Subcommittee recommended to the Committee, for its approval, the activities scheduled for 2002 and noted the other activities of the Programme. All of the activities were to be implemented as part of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III) related to space applications,¹ as proposed by the Expert on Space Applications in his report submitted to the Scientific and Technical Subcommittee at its thirty-eighth session, in 2001 (A/AC.105/773). Summaries of the activities carried out within the framework of the Programme in 2002 and those scheduled for implementation in 2003 are presented in annexes I and II. The activities proposed for 2004 are presented below.

II. Mandate of the United Nations Programme on Space Applications

3. In its resolution 37/90 of 10 December 1982, the General Assembly expanded the mandate of the United Nations Programme on Space Applications to include, in particular, the following elements:
 - (a) Promotion of greater exchange of actual experiences with specific applications;
 - (b) Promotion of greater cooperation in space science and technology between developed and developing countries as well as among developing countries;
 - (c) Development of a fellowship programme for in-depth training of space technologists and applications specialists;
 - (d) Organization of seminars on advanced space applications and new system developments for managers and leaders of space application and technology development activities as well as seminars for users in specific applications;
 - (e) Stimulation of the growth of indigenous nuclei and an autonomous technological base, with the cooperation of other United Nations organizations and/or States Members of the United Nations or members of the specialized agencies;
 - (f) Dissemination of information on new and advanced technology and applications;
 - (g) Provision or arrangements for provision of technical advisory services on space applications projects, upon request by Member States or any of the specialized agencies.

III. Orientation of the Programme

4. The United Nations Programme on Space Applications is aimed at further promoting, through international cooperation, the use of space technologies and data for sustainable economic and social development in developing countries by raising the awareness of decision makers of the cost-effectiveness and additional benefits to be obtained; establishing or strengthening the capacity in developing countries to use space technology; and strengthening outreach activities to disseminate awareness of the benefits obtained.

5. The overall strategy of the Programme is to concentrate on a few themes of major importance for developing countries and to establish objectives that can be achieved in the short and medium term. For each theme, individual activities will build on the results of previous activities aimed at achieving concrete results in a period of 2-5 years. The priority themes of the Programme as noted by the Committee on the Peaceful uses of Outer Space at its forty-fourth session² are: (a) disaster management; (b) satellite communications for tele-education and telemedicine applications; (c) monitoring and protection of the environment; (d) management of natural resources; and (e) education and research areas in basic space sciences. Within each priority theme, the Programme aims to achieve the following two objectives: (a) capacity-building; and (b) building awareness among decision makers in order to strengthen local support for the operational use of space technologies.³ Other areas that the Programme promotes include developing capability in enabling technologies, such as the use and applications of global navigation and positioning satellite systems, and spin-offs of space technology.⁴

6. At its forty-fourth session, the Committee identified the recommendations of UNISPACE III that had been given highest priority. It also noted that, for some of the recommendations, offers had been made by interested member States to exercise leadership in conducting the work associated with the recommendations. The Committee agreed to establish action teams to implement those recommendations under the voluntary leadership of interested member States.⁵ The activities of the Programme will support, to the extent possible, the action teams established by the Committee.

7. The activities of the Programme will concentrate on:

(a) Providing support for education and training for capacity-building in developing countries through the regional centres for space science and technology education and the Network of Space Science and Technology Education and Research Institutions for Central-Eastern and South-Eastern Europe;

(b) Organizing workshops on advanced space applications and short- and medium-term training programmes;

(c) Strengthening its long-term fellowship programme to include support for the implementation of pilot projects;

(d) Promoting the participation of youth in space activities;

(e) Supporting or initiating pilot projects as follow-up to activities of the Programme in areas of priority interest to Member States;

(f) Providing technical advice, on request, to Member States, bodies and specialized agencies of the United Nations system and relevant national and international organizations;

(g) Enhancing access to space-related data and other information.

IV. Activities of the Programme

A. Space technology and disaster management

8. Disaster management aims at enabling developing countries to use space technology to deal successfully with disaster problems. The Programme strategy focuses on four areas: pilot projects, training, integration and funding. Pilot projects are fundamental as they contribute to defining viable methodological approaches that are relevant to the needs of each country and demonstrate to decision makers the benefits of incorporating space-based solutions.

9. In 2002, the Programme organized the regional workshops for Africa in Addis Ababa and for Asia and the Pacific in Bangkok. For 2003, the last two regional workshops are being planned, one for countries of Eastern Europe and one for Western Asian countries. In 2003, three expert meetings are planned to discuss potential pilot projects. Those projects will be developed on a “best efforts” basis.

10. The second strategic area is training, which will be achieved through short-term training courses at the regional centres for space science and technology education.

11. The third strategic area is integration, which refers to three interconnected activities: involving and building upon the work of the action team of the Committee on the Peaceful Uses of Outer Space on recommendation 7 of UNISPACE III; working with United Nations specialized agencies; relevant activities of institutions and organizations and other initiatives such as the Charter on Cooperation to Achieve the Coordinated Use of Space Facilities in the Event of Natural or Technological Disasters (the “International Charter ‘Space and Major Disasters’”); and structuring and maintaining a regional network that will help interested institutions identify common interests and possible partnerships.

12. The International Charter “Space and Major Disasters” was initiated by the European Space Agency (ESA) and the Centre national d’études spatiales of France; other partners are the Canadian Space Agency, the National Oceanic and Atmospheric Administration of the United States of America and the Indian Space Research Organization. The Charter aims to provide a unified system of space data acquisition and delivery of value-added products free of charge, through authorized users, to those affected by major disasters. In 2003, the Office for Outer Space Affairs of the Secretariat will become a cooperating body to the Charter, which will enable the United Nations system to have access to the Charter as an authorized user.

13. The fourth strategic area is funding, which refers to involving the funding institutions during the development of the projects such that when pilot initiatives are ready to become operational the funding institutions will already be aware of the successful case histories and be in a position to support funding requests.

B. Promoting the use of enabling technologies

14. Global navigation satellite systems (GNSS) constitute one of the most promising enabling space applications to implement the recommendations adopted by UNISPACE III.

15. UNISPACE III identified the need to determine precise locations on the ground for use with Earth observation images and ancillary information in geographical information systems (GIS). Such location information is needed for a large number of remote sensing applications, some of which support such strategic areas for development as disaster management, monitoring and protecting the environment, management of natural resources and food production.

16. In 2002, two regional workshops and one international meeting were organized by the Programme. The conclusions and recommendations of four regional workshops (the first two regional workshops of the series were organized in 2001) were reviewed at an international meeting by a group of experts for possible further action (see annex II).

C. Development of indigenous capability

17. The efforts of the Programme in developing indigenous capability have focused on the establishment and operation of regional centres for space science and technology education in developing countries and a Network of Space Science and Technology Education and Research Institutions for Central-Eastern and South-Eastern Europe. The Programme continues to emphasize cooperation with Member States at the regional and international levels aimed at supporting the centres and the Network.

18. Highlights of the activities of the regional centres supported under the Programme in 2002 and 2003 are summarized below.

1. Africa

19. In 2002, a nine-month course on satellite meteorology and global climate was completed at the African Regional Centre for Space Science and Technology—in French Language (CRASTE-LF) in Rabat. The second nine-month training programme on satellite communications started at the Regional Centre in November 2002.

20. A nine-month training course on satellite communications started in December 2002 at the African Regional Centre for Space Science and Technology Education—in English Language (ARCESSTE-E) in Ile-Ife, Nigeria.

2. Asia and the Pacific

21. Since its establishment in 1995, the Centre for Space Science and Technology Education in Asia and the Pacific has held 15 nine-month postgraduate courses: 7 courses on remote sensing and GIS, 2 courses on satellite communications, 3 courses on satellite meteorology and global climate and 3 courses on space and atmospheric science. The seventh nine-month postgraduate course on remote sensing and GIS began on 1 October 2002. In 2002/2003, the Centre is holding the

following courses: (a) the third nine-month postgraduate course on satellite meteorology and global climate, at the Space Applications Centre in Ahmedabad, India; (b) the third nine-month postgraduate course on space and atmospheric science, at the Physical Research Laboratory in Ahmedabad; and (c) the seventh nine-month postgraduate course on remote sensing and GIS, at the Indian Institute of Remote Sensing in Dehra Dun. A total of 340 scholars from 39 countries have benefited from the educational activities of the regional centre. The seventh meeting of the Governing Board and the fourth meeting of its Advisory Committee were held in Dehra Dun on 23 and 25 April 2002, respectively.

3. Latin America and the Caribbean

22. The first nine-month course on remote sensing and GIS will start in March 2003 at the Regional Centre for Space Science and Technology Education for Latin America and the Caribbean at the Brazilian campus. The second meeting of the Governing Board of the regional centre was held in Mexico City on 29 April and its third meeting was held in Brasilia on 5 and 6 August 2002.

4. Western Asia

23. The Programme is providing technical support to the Government of Jordan in its preparations for the establishment of the regional centre for space science and technology education for western Asia.

5. Eastern Europe

24. States members of the Network of Space Science and Technology Education and Research Institutions for Central-Eastern and South-Eastern Europe participated in and contributed to the Colloquium on Plasma Processes in the Near-Earth Space: Interball and Beyond, organized by the Committee on Space Research in Sofia from 5 to 10 February 2002 and co-organized by the Programme.

D. Long-term fellowship programmes for in-depth training

25. ESA continues to support the long-term fellowship programme for in-depth training under the Programme by offering fellowships for research and study at ESA institutions. For 2003, two six-month fellowship programmes for research in remote sensing technology will be available at the ESA European Space Research Institute in Frascati, Italy. The three fellowships on satellite communications will be announced during the course of 2003.

E. Technical advisory services and promotion of regional cooperation

26. Various technical advisory services provided to activities that promote regional cooperation that are co-sponsored under the auspices of the Programme are described below.

1. Asia-Pacific Satellite Communications Council

27. Since its establishment in 1994, with the assistance of the Programme, the Asia-Pacific Satellite Communications Council (APSCC) has grown considerably; it currently has 95 members from 30 countries. APSCC has played a key role in promoting the development of and cooperation in satellite communications in Asia and the Pacific by providing a platform for the exchange of views and ideas on new technologies, systems, policies and satellite communication services. Based in Seoul, APSCC organizes the Asia-Pacific Satellite Communication Conference and Exhibition on a biennial basis and has become a regional forum for satellite communications. The Programme provided technical advice to APSCC in 2002 and will continue to support its work in 2003.

2. IV Space Conference of the Americas

28. The Programme provided technical assistance to the Government of Chile when it organized the Preparatory Meeting for the Fourth Space Conference of the Americas in Santiago on 4 and 5 April 2002. In cooperation with ESA, the Programme also provided technical and financial support to the Government of Colombia in organizing the Fourth Space Conference of the Americas in Cartagena de Indias, Colombia, from 14 to 17 May 2002. The Conference produced the Declaration of Cartagena de Indias and an associated Plan of Action.⁶ In 2003, the Programme will support Colombia in its role as pro tempore secretariat to implement the Plan of Action of the Conference.

3. XXI Plenary Meeting of SELPER

29. The Programme co-sponsored the 21st Plenary Meeting of the Latin American Society on Remote Sensing and Spatial Information Systems (SELPER) and the Tenth Latin American Symposium on Remote Sensing, held in Cochabamba, Bolivia, from 11 to 15 November 2002.

4. Committee on Earth Observation Satellites

30. The 16th plenary meeting of the Committee on Earth Observation Satellites (CEOS) was held in Frascati, Italy, on 20 and 21 November 2002. During the meeting, a representative of the Office for Outer Space Affairs made a presentation on the progress made by the Committee on the Peaceful Uses of Outer Space and its Scientific and Technical Subcommittee in implementing the recommendations of UNISPACE III, in particular through the action teams established by the Committee. The representative briefed CEOS on the results of the workshops on the use of space technology in disaster management organized under the Programme for the regions of Africa and Asia and the Pacific in 2002. The workshops had been co-sponsored by CEOS (see annex I).

5. Follow-up activities of training courses sponsored by the United Nations and the European Space Agency

31. The Programme continues to support the joint United Nations/ESA follow-up programme on the use of remote sensing technology in sustainable development, initiated in 1998 by ESA, the Office and the Department of Economic and Social Affairs of the Secretariat, as follow-up to courses conducted in Frascati, Italy, in

1993, 1994, 1995 and 1997. In 2002, the projects carried out in Asia and the Pacific (Viet Nam) and Latin America and the Caribbean (Argentina, Bolivia and Chile) were successfully concluded and the results presented to decision makers in the participating countries.

32. The 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 will be supported by the Programme and ESA in 2003.

6. Follow-up activities of the United Nations/Sweden international training courses on remote sensing education for educators

33. In 2001, the Office, in cooperation with Stockholm University, carried out a survey to evaluate the impact that the 1990-2000 series of United Nations/Sweden training courses had on curriculum development and educational and research programmes at the local level. The results of the survey showed that, on average, for every alumnus of the course who initiated an education programme at his or her university, 100 students had received training in remote sensing (see ST/SPACE/9). The survey also showed that the major obstacles facing former participants in applying the knowledge gained in Sweden were lack of satellite images and data, lack of computer hardware and software, as well as of training and reference materials necessary for successful and effective teaching of remote sensing. In addition, the survey demonstrated a strong need for supplementary training in advanced disciplines (digital data processing, GIS, global positioning systems (GPS) and use of high-resolution data), as well as in periodic updating of knowledge for former participants.

7. Space technology for the reconstruction of Afghanistan

34. In 2002, the Office for Outer Space Affairs defined with the Office of the United Nations High Commissioner for Refugees (UNHCR) the scope of a pilot project to study the use of geographic information technologies to support the improvement of security information management in refugee relief operations. In 2003, the Office will make efforts to secure funds to carry out the pilot project. As a preliminary activity the Office for Outer Space Affairs will develop a study on the use of space technology for the reconstruction of Afghanistan.

8. Capacity-building in space science

35. The Programme co-sponsored the Panel on Space Research in Developing Countries, held at the 34th COSPAR Scientific Assembly during the World Space Congress 2002, held in Houston, Texas, United States, from 10 to 19 October 2002. The Panel reviewed the Programme's achievements made through: (a) COSPAR capacity-building workshops held at the Regional Centre for Space Science and Technology Education for Latin America and the Caribbean and at the Regional Centre for Space Science and Technology Education for Asia and the Pacific in 2001-2003; and (b) the series of United Nations/ESA workshops on basic space science organized in 1991-2002. The Programme contributed to the planning of the deliberations of the Panel and the workshops and sponsored the participation of a number of scientists from developing countries. The Office contributed to the First Space Policy Summit, organized for the World Space Congress, that brought

together world space leaders to discuss space exploration, space commerce and space applications. The summit continued the cooperation of the Office with the American Institute of Aeronautics and Astronautics.

F. Training courses, workshops, conferences and symposiums organized by the United Nations

1. Activities carried out in 2002

36. In 2002, 10 workshops, one training course, one meeting of experts and one symposium were conducted under the auspices of the Programme. A summary of each of the activities is given in annex I to the present report.

2. Activities scheduled for implementation in 2003

37. The training courses, workshops and symposiums scheduled for 2003 are listed in annex II.

3. Activities proposed for implementation in 2004

38. The following activities are proposed for 2004:

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

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

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

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

(e) United Nations/Space and Upper Atmosphere Research Commission Seminar/Workshop on Space Technology Applications, to be held in Islamabad in September-October 2004.

G. Space information

39. Information for Member States and the general public on the latest developments in the activities carried out under the Programme can be found on the web site of the Programme (www.oosa.unvienna.org/sapidx.html), which is part of the web site of the Office. The schedules, objectives and programmes of planned activities and projects are also included on the web site.

40. The fourteenth in the series of publications containing selected papers from the activities of the Programme, entitled *Seminars of the United Nations Programme on Space Applications* (ST/SPACE/8), has been issued.

V. Voluntary contributions

41. The successful implementation of the activities of the United Nations Programme on Space Applications in 2002 benefited from the support and voluntary contributions in cash and in kind of Member States and their institutions, as well as from the assistance and cooperation of regional and international governmental and non-governmental organizations.

42. A number of Member States and governmental and non-governmental organizations provided support for the activities of the United Nations Programme on Space Applications in 2002 in various ways, including the following:

(a) A voluntary cash contribution of \$3,000 from the Government of the Czech Republic, in support of the activities of the Programme, and 150,000 francs from the Government of France for activities relating to natural disasters;

(b) A financial contribution of \$110,000 from ESA and 50,000 francs from the Centre national d'études spatiales of France in support of specific activities of the Programme in 2001 that they co-sponsored (see annex I);

(c) Defrayal by the Government of Sweden of the costs of international air travel for 13 participants, local organization and facilities, room and board, and local transportation in relation to the training course organized in Stockholm and Kiruna, Sweden (see annex I);

(d) Defrayal by Austria through its Ministry for Foreign Affairs and the Ministry for Transport, Innovation and Technology, the State of Styria and the City of Graz of the costs of international air travel of participants, local organization and facilities, room and board and local transportation in relation to the symposium organized in Graz, Austria (see annex I);

(e) A financial contribution of \$500,000 from the Government of the United States to co-sponsor four workshops and a meeting of experts on the use of GNSS in 2001 and 2002 (see annexes I and II);

(f) Defrayal, by the host Governments of activities of the Programme, of the costs of local organization and facilities, room and board for some participants from developing countries and local transportation (see annex I);

(g) Sponsorship of experts by Member States and their space-related institutions, as well as by regional and international organizations, to make technical presentations and take part in deliberations during activities of the Programme (see annex I and reports on the activities).

VI. Financial provisions and administration of activities in the biennium 2002-2003

43. The activities of the United Nations Programme on Space Applications in 2003 covered in the present report will be implemented as follows:

(a) *Financial provisions.* Under the regular budget of the United Nations, an amount of \$510,200 before recosting was approved as resource requirements for fellowships and grants in the programme budget by the General Assembly, at its

fifty-sixth session, for implementing the activities of the Programme during the biennium 2002-2003.⁷ An amount of \$282,800, which has been appropriated from the budget after recosting, will be used to implement the activities of the Programme in 2003. In order to effectively carry out its mandated and expanded activities, in particular those aimed at implementing the recommendations of UNISPACE III, the Programme must solicit additional funds, in the form of voluntary contributions, in support of its activities. Those contributions will be used to supplement the regular budget of the Programme;

(b) *Administration by and contributions and participation of staff.* The Office for Outer Space Affairs and, in particular, the Expert on Space Applications and his staff will carry out the activities described in the present report. In that connection, travel will be undertaken as appropriate by the Expert and the staff of the Office under the provisions of the travel budget of the Office for the biennium and as may be necessary from voluntary contributions.

Notes

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

² *Ibid.*, *Fifty-sixth Session, Supplement No. 20* and corrigendum (A/56/20 and Corr.1), para. 69.

³ *Ibid.*, para. 68.

⁴ *Ibid.*, para. 69.

⁵ *Ibid.*, paras. 50-55.

⁶ *Ibid.*, *Fifty-seventh Session, Supplement No. 20* (A/57/20), annex II.

⁷ *Ibid.*, *Fifty-sixth Session, Supplement No. 6* (A/56/6/Rev.1), part II, sect. 6.

Annex I

Summary of United Nations training courses, workshops, expert meetings and symposiums held in 2002

1. United Nations/India Workshop on Satellite-Aided Search and Rescue (Bangalore, India, 18-22 March 2002)

Sponsoring country: India

Sponsoring organizations: United Nations Indian Space Research Organization (ISRO)

Host institution: ISRO

Funding support: Air travel and living expenses for 12 participants were covered by the United Nations and ISRO.

Number of countries represented: 12

Number of participants: 125

Outcome of the activity

The Workshop was organized to provide countries within the footprint of the International Satellite System for Search and Rescue (COSPAS-SARSAT) station in Bangalore an opportunity to gain the necessary knowledge to lead their national authorities to ensure their participation in the COSPAS-SARSAT programme. Participants were exposed to COSPAS-SARSAT operations, including the procedure for distribution of alert signals once they were received at the Bangalore station. One of the major outcomes of the Workshop was the recognition of an urgent need for low-cost beacons for users such as fishermen. It was recommended that COSPAS-SARSAT should continue its efforts to lower the cost of 406 megahertz beacons. It became apparent that awareness of the COSPAS-SARSAT programme was generally inadequate. An awareness and promotional programme should be continued to allow more users worldwide to benefit from the COSPAS-SARSAT system.

(A detailed report is contained in document A/AC.105/783.)

2. Third United Nations/United States of America Regional Workshop on the Use and Applications of Global Navigation Satellite Systems (Santiago, 1-5 April 2002)

Sponsoring countries: United States of America, Chile

Sponsoring organizations: International Air and Space Fair (FIDAE) and European Space Agency (ESA)

Host institution: FIDAE

Funding support: The sponsors covered air travel and living expenses for 35 participants from developing countries.

Number of countries represented: 19

Number of participants: 83

Outcome of the activity

The Workshop brought the benefits of the availability and use of global navigation satellite systems (GNSS) signals to the awareness of decision makers and technical personnel from potential user institutions and service providers in the private sector of developing countries of the region. Participants identified areas where potential users in the region could incorporate the use of GNSS signals into practical applications to protect the environment and to promote sustainable development. The Workshop was briefed on existing and future GNSS systems and their applications, including the status and development of the Global Positioning System (GPS), the Global Navigation Satellite System (GLONASS) and Galileo, the European system at present under development. Participants made observations and recommendations on: (a) civil aviation; (b) disaster management; (c) agriculture and natural resources; (d) high-accuracy applications: geodesy and Earth sciences; and (e) education and training. Those observations and recommendations provided the regional input from Latin America and the Caribbean to the international meeting of experts organized in Vienna in November 2002, that reviewed the output of the four regional workshops and identified follow-up activities to be carried out in 2003 and beyond.

(A detailed report is contained in document A/AC.105/795.)

3. Twelfth United Nations/Sweden International Training Course on Remote Sensing Education for Educators (Stockholm and Kiruna, Sweden, 2 May-8 June 2002)

Sponsoring country: Sweden

Sponsoring organization: United Nations

Host institutions: Stockholm University, Metria Satellus AB

Funding support: Air travel and en route expenses for 13 participants were defrayed by the United Nations; all other expenses, including room and board and local travel, were covered by the Swedish International Development Agency.

Number of countries represented: 22

Number of participants: 28

Outcome of the activity

The Course was intended for university educators from developing countries to develop their knowledge and skills in remote sensing technology and to equip them with the ability to introduce elements of that technology, as appropriate, into the academic curricula of their own universities and institutes.

(A detailed report is contained in document A/AC.105/796.)

4. United Nations Regional Workshop on the Use of Space Technology for Disaster Management (Addis Ababa, 1-5 July 2002)

Sponsoring organizations: United Nations, Economic Commission for Africa (ECA), the Committee on Earth Observation Satellites (CEOS), ESA, Ministry of Foreign Affairs of France and Space Imaging

Host institution: ECA

Funding support: Air travel and living expenses for 30 participants and interpretation services were covered by the United Nations and the other sponsors.

Number of countries represented: 44

Number of participants: 120

Outcome of the activity

Participants discussed a regional plan of action, focusing on three areas, information and technology availability, institutional environment and capacity-building. Cutting across those various areas, a regional network was proposed to provide the necessary coordination of the plan of action while at the same time enabling the sharing of experience and expertise. Participants identified hazard topics that the region would be interested in dealing with, indicating possible involvements in each theme. That information is tabulated in a regional network table on the space technology and disaster management web site (www.oosa.unvienna.org/SAP/stdm). To promote the exchange of information and ideas among institutions, the Programme is maintaining a discussion list at www.ungiwg.org/cgi-bin/mailman/listinfo/unoosa-stdm. The Programme will be responsible for maintaining the regional network table, the database of institutions, including updated information on the points of contact, and the discussion list.

(A detailed report is contained in document A/AC.105/794.)

5. Fourth United Nations/United States of America Regional Workshop on the Use and Applications of Global Navigation Satellite Systems (Lusaka, 15-19 July 2002)

Sponsoring country: Zambia

Sponsoring organizations: United Nations, United States State Department, ESA

Host institution: Ministry of Science, Technology and Vocational Training of Zambia

Funding support: Air travel and living expenses for 26 participants from 18 countries, transportation and interpretation services, were covered by the United Nations and the other sponsors.

Number of countries represented: 30

Number of participants: 208

Outcome of the activity

The Regional Workshop increased the awareness of participants of the intrinsic value of GNSS signals in a sustainable development context and motivated them to make use of them in their own programmes and projects. A direct result would be an expanded user base, which was likely to include a network of experienced and beginner users from governmental and academic institutions as well as from the private sector. Speakers reviewed applications to agriculture, disaster warning, establishment of geodesic networks, Earth sciences, emergency services, environmental monitoring such as deforestation, land surveying, mining and geology, seismic activities, regional mapping, civil aviation and land transportation. Education and training in the use and applications of GNSS technologies were also discussed extensively.

(A detailed report is contained in document A/AC.105/785.)

6. United Nations/South Africa/European Space Agency Workshop on the Use of Space Technology in Sustainable Development (Stellenbosch, South Africa, 21-23 August 2002)

Sponsoring country: South Africa

Sponsoring organizations: ESA, Astrium GmbH

Host institution: University of Stellenbosch

Funding support: The sponsors covered air travel and living expenses for 17 participants from developing countries.

Number of countries represented: 18

Number of participants: 76

Outcome of the activity

Space observations and communications are a tool in the fight against poverty, hunger and sickness and in support of sustainable development. Space technology already provides means to obtain essential information for decision-making and actions towards sustainable development. To address development needs, space technology can be introduced through an incremental approach, building upon what already exists and is available. This should be supported by strengthening capacity-building in the use of space technologies. In order to further promote space science and technology as an integral part of Africa's development agenda, greater coordination of various space-related activities in Africa is essential and space science activities should support ocean, atmosphere and environmental sciences in Africa and elsewhere. User needs should drive programmes that involve the use of space technologies, not the other way around.

(A detailed report is contained in document A/AC.105/797.)

7. Third United Nations/Austria/European Space Agency Symposium on Enhancing the Participation of Youth in Space Activities (Graz, Austria, 9-12 September 2002)

Sponsoring country: Austria

Sponsoring organizations: Ministry for Foreign Affairs of Austria, State of Styria, City of Graz, Ministry for Transport, Innovation and Technology of Austria, ESA

Host institution: Space Research Institute, Graz

Funding support: The sponsors covered air travel and living expenses for 39 participants from developing countries and countries with economies in transition.

Number of countries represented: 41

Number of participants: 73

Outcome of the activity

Discussions at the Symposium focused on the participation of youth in space activities, mainly in the fields of education and outreach, and on reviewing the achievements and current activities of the Space Generation Advisory Council (SGAC). Projects presented by SGAC were included, as well as projects and activities carried out by young people that implemented the recommendations formulated by the Space Generation Forum in its technical report to the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III). Participants were provided with a broad overview of the mechanisms, activities and programmes through which young people could both benefit from and contribute to space for the benefit of humanity. Working groups addressed the possible contributions of young people to the implementation of the recommendations contained in “The Space Millennium: Vienna Declaration on Space and Human Development”, adopted by UNISPACE III.^a The working groups aimed at forming action teams to work on the recommendations in the Vienna Declaration and subscribed to by SGAC. The output of the working groups was intended to support the work of the action teams established by the Committee on the Peaceful Uses of Outer Space. Throughout the Symposium, participants bore in mind that countries were at different stages in the development of space activities. While some countries were in a position to explore the Earth and the cosmos, others concentrated on specific areas of space activities and some had not yet developed a significant level of activity related to space.

(A detailed report is contained in document A/AC.105/793.)

8. Eleventh United Nations/European Space Agency Workshop on Basic Space Science (Córdoba, Argentina, 9-13 September 2002)

Sponsoring country: Argentina

Sponsoring organizations: National Commission on Space Activities (CONAE) of Argentina, National University of Córdoba, National University of La Plata, United Nations, ESA

Host institution: CONAE Teófilo Tabanera Space Centre

Funding support: Air travel and living expenses for 19 participants were covered by the United Nations, ESA and Argentina.

Number of countries represented: 24

Number of participants: 75

Outcome of the activity

Presentations have shown that the universe is being digitized by ground-based and space-borne astronomical observatories at an unprecedented rate, a fact that presents opportunities and challenges in seemingly equal measure, including for basic space scientists in developing countries. The advent of the virtual observatory concept signals a paradigm shift in the way basic space science will be carried out worldwide in the era of information abundance and ubiquitous networking. Small telescopes, among them those in developing countries, will be playing a number of essential roles in that new research and education environment, probably contributing a reasonable portion of all data taken in astronomy, both as surveying instruments and follow-up facilities. The Workshop continued the evaluation of the achievements of the series of workshops held between 1991 and 2002.

(A detailed report is contained in document A/AC.105/784.)

9. United Nations/International Astronautical Federation Workshop on Space Solutions for Global Problems: Building Partnerships with All Stakeholders in Human Security and Development (Houston, Texas, United States of America, 10-12 October 2002)

Sponsoring country: United States

Sponsoring organizations: ESA, United Nations Educational, Scientific and Cultural Organization, National Aeronautics and Space Administration of the United States, Committee on Space Research and American Institute of Aeronautics and Astronautics (AIAA)

Host institution: AIAA

Funding support: The United Nations and the other sponsors covered air travel and living expenses for 28 participants from 27 developing countries and countries with economies in transition.

Number of participants: 110

Outcome of the activity

The Workshop emphasized that the main priorities to be addressed and the needs to be met in order to provide for human security have already been identified. Those priorities and needs have been articulated by the heads of more than 100 Governments at United Nations conferences in the resulting political declarations such as the Millennium Declaration (General Assembly resolution 55/2) and the Johannesburg Declaration on Sustainable Development^b and the Plan of Implementation of the World Summit on Sustainable Development,^c adopted on 4 September 2002. Similarly, the capabilities of space applications to provide a broad range of solutions to regional and global problems have also been identified in the Vienna Declaration. What is now needed is to match the space capabilities with the identified priority issues or problems and to develop plans of action to use space applications to meet specific targets that alleviate poverty. Participants identified a number of specific issues and problems that limit the use of space applications by developing countries and possible solutions and actions to be taken. Some of the actions that need to be taken and the support that is required included: (a) raising the awareness of decision makers in national government and development aid institutions of the usefulness of space applications for sustainable development; (b) requesting Member States to emphasize the value of space applications to institutions that fund development; and (c) launching pilot projects and other initiatives that have the potential to lead to operational use of space applications.

(A detailed report is contained in document A/AC.105/798.)

10. Third United Nations/International Academy of Astronautics Workshop on Small Satellites in the Service of Developing Countries: Beyond Technology Transfer (Houston, Texas, United States of America, 12 October 2002)

Sponsoring country: United States

Sponsoring organizations: United Nations and Subcommittee on Small Satellites for Developing Nations of the International Academy of Astronautics

Host country: United States

Funding support: The Workshop was held as part of the Second World Space Congress and was open to all participants of the Congress; therefore no additional funding was required.

Number of participants: 85

Outcome of the activity

One of the objectives of the Workshop was to review the utilization of small satellites not only for the purpose of technology transfer, but also as a useful contribution to the development of the country and to scientific or application programmes. The Workshop clearly demonstrated that there were spin-offs to be gained from introducing space activities through a small satellite programme and that small satellites were a useful tool for acquiring and developing technology and contributing to education and training. Participants recommended that coordinated action be continued to identify problems that were common to different countries of a region and that could be addressed with the help of small satellite technology; that

partnerships be developed between regions with common needs, such as the equatorial regions of different continents, and that long-term strategic programmes be developed to ensure the sustainable acquisition and processing of the data needed for monitoring the environment and natural resources, for the mitigation of man-made or natural disasters, as well as for decision-making.

(A detailed report is contained in document A/AC.105/799.)

11. United Nations/United States of America International Meeting of Experts on the Use and Applications of Global Navigation Satellite Systems (Vienna, 11-15 November 2002)

Sponsoring country: United States

Sponsoring organization: ESA

Host institution: United Nations Office at Vienna

Funding support: The sponsors covered air travel and living expenses for 34 participants from 23 developing countries and countries with economies in transition and one consultant.

Number of countries represented: 31

Number of participants: 64

Outcome of the activity

The Meeting reviewed advances in existing and future GNSS systems as well as the major recommendations made by the four regional workshops that had been held during 2001 and 2002 for the benefit of the regions of Asia and the Pacific, Eastern Europe, Latin America and the Caribbean and Africa and Western Asia. Through thematic working group sessions, participants addressed issues associated with surveying, mapping and Earth sciences; transportation; environment and pollution control and disaster management; natural resources management; and agriculture. Participants identified 13 topics that could be developed into or were already project proposals at various stages of preparation and agreed to establish a steering committee that could provide guidance on follow-up activities that would make it possible to implement the projects in 2003 and beyond. They also made a number of recommendations for further promotion of GNSS applications.

(A detailed report is contained in document A/AC.105/801.)

12. Second United Nations Regional Workshop on the Use of Space Technology for Disaster Management (Bangkok, 11-15 November 2002)

Sponsoring country: Thailand

Sponsoring organizations: United Nations, Economic Commission for Asia and the Pacific, CEOS, ESA, Ministry of Foreign Affairs of France

Host country: Thailand

Funding support: Air travel and living expenses for 24 participants were covered by the United Nations and the other sponsors.

Number of countries represented: 40

Number of participants: 130

Outcome of the activity

Participants discussed a possible regional plan of action focusing on five areas: expectations, themes, activities, means of implementation and milestones. As at the Addis Ababa workshop, participants at this Workshop also identified hazard topics that the region would be interested in dealing with, indicating possible involvement either as a participant or in a coordinating role. That information is tabulated in a regional network table on the space technology and disaster management web site (www.oosa.unvienna.org/SAP/stdm). To promote the exchange of information and ideas among institutions the Programme is maintaining a discussion list at www.ungiwg.org/cgi-bin/mailman/listinfo/unoosa-stdm. The Programme will be responsible for maintaining the regional network table, the database of institutions, including updated information on the points of contact, and the discussion list.

(A detailed report is contained in document A/AC.105/800.)

13. United Nations/International Institute of Air and Space Law Workshop on Capacity-Building in Space Law (The Hague, 18-21 November 2002)

Sponsoring country: Netherlands

Sponsoring organizations: United Nations, International Institute of Air and Space Law (IIASL) of Leiden University

Host country and institution: Ministry of Foreign Affairs of the Netherlands

Funding support: Air travel expenses for 18 participants were provided by the United Nations, conference facilities for the workshop and living expenses for 21 participants were provided by the Government of the Netherlands and travel and living expenses for additional participants were provided by IIASL.

Number of countries represented: 38

Number of participants: 104

Outcome of the activity

The Workshop aimed to promote understanding, acceptance and implementation of the United Nations treaties and principles on outer space,

promote exchange of information on domestic space laws and policies and consider opportunities for education and training in space law, with a view to promoting national expertise and capability in the field. Participants held positions in government departments, universities, research institutions, national space agencies, international organizations and private industry. They included experts in space law as well as professionals relatively new to the field, selected on the basis of their potential to influence the development of space law, policy and education in their countries. Participants made a number of observations and recommendations on the issues under review.

(A detailed report is contained in document A/AC.105/802.)

Notes

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

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

^c *Ibid.*, resolution 2, annex.

Annex II

United Nations Programme on Space Applications: schedule of training courses, workshops and symposiums for implementation in 2003

<i>Activity</i>	<i>Title</i>	<i>Place (and date)</i>	<i>Objective</i>
1	United Nations/European Space Agency Workshop on Remote Sensing Applications and Education	Damascus (23-27 March 2003)	To facilitate cooperation between institutions in Western Asia for the establishment and operation of a regional centre for space science and technology education in Western Asia.
2	United Nations/Romania/European Space Agency Regional Workshop on the Use of Space Technology for Disaster Management	Sinaia, Romania (19-23 May 2003)	To discuss the potential benefits of using space technology to support disaster management activities and develop a regional plan of action that would coordinate the efforts of the various institutions interested in forming a cooperative network and developing joint pilot projects that incorporate and test the use of space-based solutions for disaster management; for countries in Eastern Europe.
3	Thirteenth United Nations/Sweden International Training Course on Remote Sensing Education for Educators	Stockholm and Kiruna, Sweden (5 May–13 June 2003)	To enable university educators from developing countries in all regions to include remote sensing in their curricula.
4	United Nations/Thailand Workshop on the Contribution of Space Communication Technology to Bridging the Digital Divide	Thailand (12-16 May 2003)	To contribute to the World Summit on the Information Society by addressing the issue of bridging the digital divide through the use of satellite technology; for countries of Asia and the Pacific.
5	Twelfth United Nations/European Space Agency Workshop on Basic Space Science	Beijing (8-12 September 2003)	To explore all possible ways and means by which basic space science contributes to sustainable development and capacity-building (internationally, regionally and nationally), drawing on the short- and long-term experience and results of this series of workshops.

<i>Activity</i>	<i>Title</i>	<i>Place (and date)</i>	<i>Objective</i>
6	United Nations/ Austria/European Space Agency Symposium on the Use of Space Technology in Sustainable Development	Graz, Austria (September 2003)	To identify the contributions that space technology can make towards selected actions contained in the Plan of Implementation of the World Summit on Sustainable Development and to recommend coordinated action that can be taken by entities of the space community.
7	United Nations/International Astronautical Federation Workshop on the Use of Space Technology for the Benefit of Developing Countries	Bremen, Germany (25-27 September 2003)	To review a number of educational and capacity-building initiatives that are being implemented by various entities through international cooperation and to look for ways to build synergies among them.
8	Fourth United Nations/International Academy of Astronautics Workshop on Small Satellites in the Service of Developing Countries: a Contribution to Sustainable Development	Bremen, Germany (30 September 2003)	To discuss the benefits of small satellite programmes in the service of developing countries and their contribution to sustainable development.
9	United Nations Workshop on Satellite-Aided Search and Rescue	Miami, Florida, United States of America (October 2003)	To promote awareness of the satellite-aided search and rescue programme and to establish a formal interface with user countries for better understanding and coordination of the programme activities and operations; for countries of Latin America and the Caribbean.
10	United Nations Workshop on Space Law	Daejeon, Republic of Korea (October-November 2003)	To increase understanding of and participation in the United Nations treaties on outer space; for countries in Asia and the Pacific.

<i>Activity</i>	<i>Title</i>	<i>Place (and date)</i>	<i>Objective</i>
11	United Nations/Saudi Arabia Regional Workshop on the Use of Space Technology for Disaster Management	Saudi Arabia (October 2003)	To discuss the potential benefits of using space technology to support disaster management activities and to develop a regional plan of action that will coordinate the efforts of the various institutions interested in forming a cooperative network and develop jointly pilot projects that incorporate and test the use of space-based solutions for disaster management; for countries in Western Asia.
12	United Nations/United States of America International Workshop on the Use and Applications of Global Navigation Satellite Systems	Vienna (December 2003)	To review the recommendations of the regional workshops on global navigation satellite systems and to chart the course for follow-up action.
