



General Assembly

Distr.: General
28 January 2003

Original: English

Committee on the Peaceful Uses of Outer Space

Coordination of outer space activities within the United Nations system: programme of work for 2003 and 2004 and future years

Report of the Secretary-General*

Contents

	<i>Paragraphs</i>	<i>Page</i>
I. Introduction	1-3	3
II. Participants in outer space activities of the United Nations system and matrix of outer space programmes	4	3
III. Policies and strategies pertaining to coordination of space-related activities	5-14	4
A. Enhancing partnerships with non-governmental entities	11	6
B. Development of law, standards and ethics relating to space activities	12-14	6
IV. Current space-related activities	15-167	7
A. Protecting the Earth's environment and managing natural resources	15-82	7
1. Advancement of Earth science	15-34	7
2. Assessment and monitoring of the Earth's environment	35-64	12
3. Management of natural resources	65-82	16
B. Using space applications for human security, development and welfare	83-124	19
1. Enhancing disaster reduction capability	83-103	19
2. Enhancing economic, social and cultural security	104-124	22
C. Utilizing and facilitating information and communication technology for development	125-140	26
D. Using and improving satellite positioning and location capabilities	141-144	28

* The present report was approved by the Inter-Agency Meeting on Outer Space Activities, held from 22 to 24 January 2003.



E.	Building capacity for space applications for sustainable development and enhancing education	145-158	28
F.	Advancing scientific knowledge of space and protecting the space environment.	159-160	31
G.	Other activities	161-167	31
V.	Review of matters related to the coordination of activities within the United Nations system	168-177	32
A.	Status of inter-agency coordination.	168-170	32
B.	Experiences gained, lessons learned and recommendations	171-177	33

I. Introduction

1. Since the beginning of the space age, space exploration and exploitation have yielded tremendous scientific as well as economic and societal benefits for humanity. Space science and technology and their applications are recognized by many as one of the major tools to understand the Earth's environment, to improve management of natural resources, to better prepare ourselves for natural disasters and to provide effective communication across long distances and to rural areas. Space applications can support the efforts made by many entities of the United Nations system that promote sustainable development through their activities. Some of those entities have already incorporated the routine operational use of space tools into their development activities and have been active in promoting international cooperation in the application of space science and technology within their specific domain of responsibility.

2. The Inter-Agency Meeting on Outer Space Activities was first established by the Administrative Committee on Coordination (now the United Nations System Chief Executives Board for Coordination) in 1975 as its subcommittee to ensure cooperation among interested organizations in future programmes and projects in the fields of communications, meteorology, remote sensing and geographic information systems (GIS). The Meeting meets annually and provides a forum for the participating entities of the United Nations system to exchange information and views on the current and future plans of space-related activities of common interest and to promote collaboration and synergy among the entities of the United Nations system. The Office for Outer Space Affairs of the Secretariat serves as the secretariat of the Meeting. Since 1993, the Inter-Agency Meeting has no longer been a subcommittee of the Administrative Committee on Coordination, but it has continued to report on its work to the Committee on the Peaceful Uses of Outer Space and its Scientific and Technical Subcommittee.

3. In 1975, the Committee on the Peaceful Uses of Outer Space recognized the growing need for coordination between United Nations entities in view of the increasing volume of outer space activities and greater involvement of United Nations entities. The Committee requested the Secretary-General to prepare an annual, integrated report on the plans of programmes of United Nations entities related to outer space activities for consideration by the Committee's Scientific and Technical Subcommittee. The present report, which is the 26th annual report of the Secretary-General on the coordination of outer space activities within the United Nations system, was compiled by the Office for Outer Space Affairs on the basis of submissions from United Nations entities and was reviewed and finalized by the Inter-Agency Meeting at its twenty-third session, from 22 to 24 January 2003.

II. Participants in outer space activities of the United Nations system and matrix of outer space programmes

4. The present report includes information submitted by the following organizations on their space activities: Office for Outer Space Affairs, Department of Economic and Social Affairs, United Nations Office for Project Services (UNOPS), secretariat for the International Strategy for Disaster Reduction (ISDR), Economic Commission for Africa (ECA), Economic and Social Commission for

Asia and the Pacific (ESCAP), secretariat of the Convention on Biological Diversity,¹ United Nations Environment Programme (UNEP), United Nations Office on Drugs and Crime, Food and Agriculture Organization of the United Nations (FAO), United Nations Educational, Scientific and Cultural Organization (UNESCO), International Civil Aviation Organization (ICAO), World Health Organization (WHO), World Meteorological Organization (WMO) and International Atomic Energy Agency (IAEA).

III. Policies and strategies pertaining to coordination of space-related activities

5. In its resolution 54/68 of 6 December 1999, the General Assembly endorsed the resolution of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III) entitled “The Space Millennium: Vienna Declaration on Space and Human Development”.² In its resolution 57/116 of 11 December 2002, the Assembly urged organizations of the United Nations system to take the necessary action for the effective implementation of the Vienna Declaration.

6. In 2001, the Committee on the Peaceful Uses of Outer Space established 11 action teams under voluntary chairmanship of member States to implement recommendations of UNISPACE III on the following issues: environmental monitoring strategy; natural resource management; weather and climate forecasting; public health; disaster management; global navigation satellite systems (GNSS); sustainable development; near-Earth objects; capacity-building; increasing awareness; and innovative funding sources. The action teams seek active participation of entities of the United Nations system that have relevance to their work, in order to ensure that their work will be built upon the accomplishments and ongoing efforts within the United Nations system. As at 1 January 2003, 13 entities of the United Nations system were participating in the action teams. The teams will complete their work and will submit their recommendations for further action to the Committee by 2004. Their recommendations will be taken into account in a report to be prepared by the Committee for submission to the General Assembly at its fifty-eighth session for its review of the progress made in the implementation of the recommendations of UNISPACE III. Entities of the United Nations system have been invited to contribute to preparations for the review by the Assembly.

7. In its resolution 57/116, the General Assembly noted with satisfaction the efforts made by the Inter-Agency Meeting on Outer Space Activities to bring the benefits of space science and technology and their applications to the attention of the World Summit on Sustainable Development; and urged entities of the United Nations system, in particular those participating in the Inter-Agency Meeting, to examine, in cooperation with the Committee on the Peaceful Uses of Outer Space and its Scientific and Technical Subcommittee, how space science and technology and their applications could contribute to the implementation of the Political Declaration³ and the Plan of Implementation of the Summit.⁴

Table

Participants in outer space activities and matrix of outer space programmes^{a, b}

<i>United Nations entity</i>	<i>Development of law, standards and ethics</i>	<i>Protecting the Earth's environment</i>	<i>Human security, development and welfare</i>	<i>Information and communication technology</i>	<i>Satellite position and location capabilities</i>	<i>Building capacity</i>	<i>Advancing scientific knowledge</i>	<i>Other activities</i>
Office for Outer Space Affairs	12-14	15	83-86, 104		141	145, 146	159, 160	
Department of Economic and Social Affairs		35, 36		125-127				
United Nations Office for Project Services			105					
Secretariat for the International Strategy for Disaster Reduction			85, 86					
Economic Commission for Africa		37-40		128-130		147, 148		
Economic Commission for Europe		70, 81						
Economic and Social Commission for Asia and the Pacific		15, 41, 65, 73	84, 87-89, 106	131-133		149, 153		161-164
Secretariat for the Convention on Biological Diversity		63						
United Nations Development Programme		27	92, 108, 109			153		
United Nations Environment Programme		15-18, 21, 22, 42-58, 66, 67, 69, 70	90-92, 108			150-154		
Office of the United Nations High Commissioner for Refugees		68		139				
United Nations Population Fund		36						
World Food Programme		57						
United Nations Office on Drugs and Crime			107					
United Nations Institute for Training and Research			105					
Food and Agriculture Organization of the United Nations		15, 16, 21, 22, 57, 58, 65, 68-73, 81	93, 94					
United Nations Educational, Scientific and Cultural Organization	14	15-25, 55, 58-62, 69, 72-81	95-101, 109-116	134-140		155-157		165, 166
International Civil Aviation Organization	13		102, 103		143-144			
World Health Organization		57	117-124		142			
World Bank		27, 68						
International Telecommunication Union			112	135, 137-139				
World Meteorological Organization		15-18, 21, 22, 25-34, 58, 64, 82	102, 103			158		
International Maritime Organization					143			
International Atomic Energy Agency								167

^a The numbers in each column indicate the relevant paragraphs in the present report.

^b For continuously updated information on the coordination of outer space activities within the United Nations system, see www.uncosa.unvienna.org

8. The Scientific and Technical Subcommittee has been considering an item entitled “Means and mechanisms for strengthening inter-agency cooperation and increasing the use of space applications and services within and among entities of the United Nations system” since 2001 in accordance with a three-year work plan. In 2003, the Subcommittee aims to develop concrete proposals for strengthening inter-agency cooperation in the use of space science and technology in the United Nations system and for increasing the use of space applications and services within the system in general and among particular United Nations entities. The Inter-Agency Meeting on Outer Space Activities has been invited to contribute to the work of the Subcommittee in that regard.

9. Recent developments, in particular at the regional level, have confirmed the positive trend of the potential of using space assets for disaster reduction and management. It is increasingly clear that a number of space applications could be developed and several already exist that could be used to target vulnerability not only at the community level but also in large urban areas or remote agricultural locations. The ongoing series of regional workshops on the use of space technology for disaster management organized by the Office for Outer Space Affairs seems to indicate that there could be distinctive value added in using satellite techniques in the prevention phase of natural and other disasters rather than only during the emergency phase. With that in mind, the Office and ISDR have increased their efforts to stage an inter-agency framework for dialogue to focus mainly on disaster reduction, in particular vulnerability assessment and reduction.

10. ESCAP will continue to follow up the recommendations of the Second Ministerial Conference on Space Applications for Sustainable Development in Asia and the Pacific, to implement the second phase of the Regional Space Applications Programme for Sustainable Development (RESAP II) and to serve the development priorities identified by the ESCAP Council (see A/AC.105/780, paras. 18 and 19). On 1 July 2002, ESCAP created a new Information, Communication and Space Technology Division, which aims to create an enabling environment for the transfer and application of information and communication technologies (ICT) and space technology.

A. Enhancing partnerships with non-governmental entities

11. Involvement of non-governmental entities in the work of the Committee on the Peaceful Uses of Outer Space and its subcommittees is summarized in the report of the Secretary-General of 30 January 2002 (A/AC.105/780, paras. 21-24). In 2002, the General Assembly granted permanent observer status with the Committee to the Committee on Earth Observation Satellites (CEOS) and the Spaceweek International Association, increasing the number of international entities with observer status with the Committee to 18.

B. Development of law, standards and ethics relating to space activities

12. The Office for Outer Space Affairs began a capacity-building programme in space law with a workshop in The Hague from 18 to 21 November 2002. The

workshop aimed to promote understanding and acceptance of the United Nations treaties on outer space, allow an exchange of information on national space laws, policies and institutions and review opportunities for education in space law and policy. A workshop for the region of Asia and the Pacific is scheduled for October or November 2003 in Daejeon, Republic of Korea.

13. The Legal Subcommittee of the Committee on the Peaceful Uses of Outer Space will continue to consider issues relating to the Convention on International Interests in Mobile Equipment (opened for signature in Cape Town, South Africa, on 16 November 2001) and its preliminary draft protocol on matters specific to space assets. The Subcommittee requested the Office for Outer Space Affairs to prepare a report to the Subcommittee at its fortieth session on considerations relating to the possibility of the United Nations serving as supervisory authority under the protocol. The supervisory authority is a body that would, among other things, select and supervise a registrar for an international registration system of security interests in space assets. The report (A/AC.105/C.2/L.238) was prepared in consultation with the United Nations Legal Counsel and also benefited from input from ICAO, which has agreed in principle to serve as Supervisory Authority under the Protocol to the Convention on International Interests in Mobile Equipment on Matters specific to Aircraft Equipment.

14. UNESCO and its World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) are cooperating with the group of experts on the ethics of space activities established pursuant to General Assembly resolution 56/51 of 10 December 2001 to prepare a report on the ethical principles for present and future space activities, with particular emphasis on activities pursued for the benefit of all nations. The report is to be submitted to the Legal Subcommittee of the Committee on the Peaceful Uses of Outer Space at its forty-second session, in 2003.

IV. Current space-related activities

A. Protecting the Earth's environment and managing natural resources

1. Advancement of Earth science

15. The Office for Outer Space Affairs, ESCAP, UNEP, FAO, UNESCO, the Intergovernmental Oceanographic Commission (IOC) of UNESCO and WMO will continue to contribute to the work of CEOS as associate members. FAO, UNESCO and WMO participate in the implementation of the Integrated Global Observing Strategy (IGOS). Members of the CEOS ad hoc Working Group on Education and Training, which is chaired by the Office for Outer Space Affairs, include ESCAP, UNESCO, IOC and WMO.

16. FAO, the International Council for Science (ICSU), UNEP, UNESCO and WMO will continue to participate in the Global Terrestrial Observing System (GTOS), with the GTOS secretariat hosted by the FAO Environment and Natural Resources Service (see A/AC.105/780, paras. 34 and 35). The GTOS secretariat, under the guidance of the GTOS Steering Committee, is currently developing global terrestrial observing networks and modules (hydrology, glaciers, mountains, permafrost, coastal resources and Net Primary Productivity (NPP)) and has updated

the terrestrial ecosystem monitoring sites meta-database (TEMS), which is available online (www.fao.org/gtos/tems) as well as on CD-ROM. The most recent version of TEMS contains new features such as interactive maps of eco-zones, a new set of core variables and an online registration facility. Two regional networks have been established to facilitate cooperation and exchange of data and information related to environmental issues, one in Southern Africa (Botswana, Namibia, South Africa and Zimbabwe) and one in Central and Eastern Europe (Armenia, Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland and Slovakia). Closer cooperation is also envisaged with other parties in the framework of priorities identified by the IGOS partners, including in particular a theme on terrestrial carbon monitoring (see A/AC.105/780, para. 35). A regional workshop to collect carbon-related data sets for Central and Eastern Europe was held in November 2002 in Prague with the assistance of the Government of the Czech Republic. The Global Observation of Forest Cover and Land Cover Dynamics (GOF-C-GOLD) aims at providing a coordinated international effort to supply space-borne and in-situ forest and land cover observations in support of three themes: land cover characteristics and change; fire monitoring and mapping; and biophysical processes. Initiated by CEOS, GOF-C-GOLD has now become a panel of GTOS. Further details on GTOS activities can be found online (www.fao.org/gtos).

17. ICSU, UNEP, IOC and WMO continue to support the implementation of the Global Climate Observing System (GCOS), an integrated system for obtaining observations needed to monitor, understand and predict climate and climate variability (see A/AC.105/780, paras. 36 to 38). GCOS will continue to ensure the adequate inclusion of satellite observations in planning and implementation of its networks through the participation of satellite experts on its Steering Committee and science panels and through its membership in bodies such as the IGOS Partnership and CEOS, and through its interaction with operational groups such as the Coordination Group for Meteorological Satellites (CGMS).

18. ICSU, UNEP, IOC and WMO continue to cooperate closely in the development, planning and implementation of the Global Ocean Observing System (GOOS) (see A/AC.105/780, para. 39). Implementation of a coastal theme in the coming years will ensure that a global view of the ocean's role in the carbon cycle is developed to underpin predictions of climate change caused by the increase in the greenhouse gas carbon dioxide.

19. Within the IGOS Partnership (IGOS-P), the IOC Project Office for GOOS is the manager of the ocean theme, which provides direction to space agencies and their associates for observing and monitoring the ocean. During 2003, a review of progress within the ocean theme will be carried out, which will lead to a revision of its goals and targets for the following three years. Development of the ocean theme has assisted space agencies in acquiring funding support for the launching of key new space missions to observe the oceans and for the continuity of other key missions to observe the oceans. Those observations are critical to States' ability to determine the present state and forecast the future state of the seas and oceans and their role in the climate system (e.g. alerts of droughts, floods, storm surges and El Niño events).

20. IOC has identified remote sensing as a major component of its capacity-building strategy for the implementation of GOOS during coming years, and has begun working closely with CEOS and other agencies to develop appropriate

training programmes for developing countries. IOC co-sponsors training programmes in ocean colour given by the International Ocean Colour Coordinating Group (IOCCG). There will be a significant growth in the development of access to and training in the use of remotely sensed ocean data through such efforts in the coming years.

21. UNEP, FAO, IOC, WMO and ICSU will continue to cooperate in the Sponsors Group for the Global Observing Systems.

22. A number of partners, including CEOS, FAO, UNESCO, ICSU, IOC, UNEP, WMO and the International Group of Funding Agencies for Global Change Research, will continue to work on the development of IGOS and various IGOS themes (see A/AC.105/780, para. 44). Those organizations cooperate in sponsoring environmental monitoring systems and the emergence of IGOS is providing a suitable framework to facilitate the forwarding of appropriate advice and recommendations to the governing bodies of those organizations, in particular with respect to monitoring systems designed to tackle climate-related issues. An IGOS geohazard theme was adopted in 2002, the report of which will be ready in 2003. IOC hosts the IGOS-P web site (ioc.unesco.org/igospartners/).

23. IOC has been working for the past year with a number of African countries to develop a proposal for the support of increased access to and training in the use of remotely sensed data from space, as a follow-up to the Pan-African Conference on Sustainable Integrated Coastal Management, held in Maputo in July 1998. The proposal was accepted by the African process meeting in Johannesburg, South Africa, in August 2002 as a fundamental contribution to the New Programme for African Development (NEPAD). The project, the Regional Ocean Observing and Forecasting System for Africa (ROOFS-AFRICA), will start in 2003 and continue for the next few years.

24. UNESCO has made substantial funding available to the inter-sectoral cross-cutting project entitled "Application of remote sensing for integrated management of ecosystems and water resources in Africa", in which IOC is a partner. As a first step in the development of that initiative, nine African countries submitted proposals for the development of national programmes supported by the establishment of UNESCO chairs in appropriate centres. It is foreseen that the project will go beyond its initial two-year implementation period (2001-2003), when matching funds will be made available, especially by space agencies. Several space agencies have already expressed an interest in joining the project.

25. The Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM) has a direct interest in outer space activities from two perspectives: observations of the ocean and marine atmosphere from oceanographic satellites and the use of satellites for both marine data collection and the dissemination of information to marine users. A JCOMM satellite rapporteur is responsible for direct interactions with the operators of oceanographic satellites, primarily through CGMS and IGOS-P. The satellite rapporteur is expected to complete, in 2003 and on behalf of JCOMM, a statement of guidance on how well the requirements for marine meteorological and oceanographic data to support marine services are met by existing ocean observing systems, including ocean satellites. A JCOMM voluntary observing ship climate project will, in 2003-2004,

begin delivering a high-quality set of in-situ marine observational data to support air-sea flux computations and the calibration of satellite-derived ocean observations.

26. Marine data collection for the operational in-situ ocean observing system coordinated by JCOMM is undertaken primarily by the Inmarsat and Argos satellite systems. However, platform operators are increasingly investigating the use of other, potentially cheaper, space-based data collection systems, including the International Data Collection System (IDCS) and commercial systems such as Orbcomm and Iridium. The use of those alternatives will become more widespread over the coming few years. However, Inmarsat is likely to remain the primary mechanism for the dissemination of meteorological and oceanographic information to marine users at sea, including in particular maritime safety information.

27. The application of satellite technology in meteorology, climatology and operational hydrology forms an important element of the technical cooperation activities of WMO. Those activities are generally undertaken with assistance from either the Organization's Voluntary Cooperation Programme or other sources of funding such as the United Nations Development Programme (UNDP), trust funds, the World Bank and the European Commission. The following activities are planned for 2003 and future years: a number of data collection platforms are being replaced or will be installed for the collection of meteorological and hydrological data via the geostationary meteorological satellites Meteosat in Africa and Geostationary Operational Environmental Satellite (GOES) in the Americas. Under a project funded by the European Union, satellite receiving ground equipment in 47 African countries will be replaced to enable those countries to receive data and products from the Meteosat Second Generation (MSG) satellites. MSG satellite receiving stations will also be installed in other countries in North Africa and Eastern Europe under trust fund projects. In that connection, RETIM satellite receiving stations will be upgraded to RETIM2000 in more than 20 countries under a coordinated VCP project supported by France. In view of the move to the new International Satellite Communication System (ISCS) some subsystems in the current very small aperture terminal (VSAT) stations will be replaced in Central America and the Caribbean. Satellite-based telecommunications systems continue to play an increasing role in the distribution of meteorological data and products to national meteorological services, in particular in Asia and the Pacific.

28. The World Climate Research Programme (WCRP) (see A/AC.105/780, paras. 47-49) has recently established a working group to update and provide a synthesis of the needs of the climate scientific community with respect to Earth observation satellite sensors, data and products. A summary report from the group should be available for submission to the next consultative meeting on high-level policy on satellite matters, which will be held at WMO at the beginning of 2003.

29. As a partner of IGOS, WCRP prepared a proposal for a global water cycle theme approved by the IGOS partners in November 2001. Three workshops to be held in early 2003 in Japan, the United States of America and Europe will serve as a basis to prepare a report for the theme during the coming year. A major new WCRP project, the coordinated enhanced observing period (CEOP) has been adopted by the IGOS-P as the first major component of the global water cycle theme. It represents a first step in acquiring global data sets and using data assimilation to integrate in situ and remote sensing data for a global understanding of the water cycle. The National Space Development Agency (NASDA) of Japan and the National Aeronautics and

Space Administration (NASA) of the United States have a major role in the data collection and processing aspect of CEOP, which, after a first building-up year, entered a two-year mature observing phase in October 2002.

30. The Global Terrestrial Network—Hydrology (GTN-H) was launched in June 2001 as a joint initiative of the WMO hydrology and water resources programme and the Global Climate Observing System (GCOS). The objective of GTN-H is to meet the need for systematic regional and global hydrological observations for the characterization of hydrological processes and water resource management. Network activities will include the development of a hydrological network configured for minimum requirements, based on terrestrial stations and space-based observation platforms, and of a meta-database to facilitate access to terrestrial and satellite-based data, information and products. Key variables that require an integrated terrestrial/space-based observation approach and global coverage include surface runoff, precipitation, soil moisture and snow cover

31. The WMO Commission for Hydrology continues to address the application of satellite-based observation technologies to hydrology (A/AC.105/780, para. 53).

32. The World Hydrological Cycle Observing System (WHYCOS), a global programme launched by WMO, will continue to strengthen hydrological information systems on the basis of regional projects, in particular rehabilitation and upgrading of local hydrological observation networks through the installation of networks of automatic satellite-linked data collection platforms (see A/AC.105/780, para. 54).

33. During 2002, the most significant and important change since the early 1990s to the World Weather Watch occurred—the space-based component of the Global Observing System (GOS) expanded to include appropriate research and development (R&D) satellite missions. In 2001, the WMO Executive Council approved the expansion. In 2002, WMO was informed by several R&D space agencies of their commitment to participate in the space-based component of GOS. In particular, NASA's Aqua, Terra, NPP, QuikSCAT and Global Precipitation Measurement (GPM) missions, the ESA Envisat mission, the NASDA Advanced Earth Observing Satellite II (ADEOS II) and Global Change Observation Mission (GCOM) series and the Rosaviakosmos research instruments on board the Russian Federal Service for Hydrometeorology and Environmental Monitoring (ROSHYDROMET)'s operational METEOR 3M N1 satellite as well as on its future Okean series are all now part of the R&D constellation. In response to that momentous expansion and in recognition of the increase in responsibilities for WMO, the Executive Council of WMO agreed at its fifty-fourth session to establish a WMO space programme as a matter of priority. The scope, goals and objectives of the new WMO space programme should respond to the tremendous growth in the utilization of environmental satellite data, products and services within the expanded space-based component of GOS that now includes appropriate research and development environmental satellite missions. The R&D constellation joins the existing geostationary and polar-orbiting constellations.

34. The meteorological satellites comprising the present space-based component of GOS, both polar-orbiting and geostationary, have continued to prove invaluable to WMO national meteorological and hydrological services through the provision of a multitude of services including imagery, soundings, data collection and data

distribution. During 2002, the space-based constellation, in addition to the R&D satellites, comprised the following geostationary and polar-orbiting satellites: GOES-8, GOES-10, NOAA-15, NOAA-16 and NOAA-17 operated by the United States; GMS-5 operated by Japan; GOMS N-1, Meteor 2-20, Meteor 2-21, Meteor 3-5 and Meteor 3M N1 operated by the Russian Federation; Meteosat-5, Meteosat-6 and Meteosat-7 operated by the European Organization for the Exploitation of Meteorological Satellites (EUMETSAT); and FY-2B, FY-1C and FY-1D operated by China. NOAA-15, NOAA-16 and NOAA-17 are the first of the Television Infrared Observation Satellite-Next-generation (TIROS-N) series to fly the Advanced TIROS Operational Vertical Sounder (ATOVS), including the Advanced Microwave Sounding Unit (AMSU). There were several satellite launches in 2002: China launched FY-1D in May, the NOAA National Environmental Satellite, Data and Information Service launched NOAA-17 in June and EUMETSAT launched the first of the MSG satellites, MSG-1, in August.

2. Assessment and monitoring of the Earth's environment

35. The Department of Economic and Social Affairs of the Secretariat plays a role in promoting GIS in developing countries. Since 1948, the Department's Statistical Division has been promoting cartography, surveying and mapping in developing countries through publications, technical projects and the organization of conferences and training courses. Among others, the Statistics Division organizes and services United Nations regional cartographic conferences for Asia and the Pacific and the Americas, United Nations conferences on the standardization of geographical names and sessions of the United Nations Group of Experts on Geographical Names. Ad hoc training courses, seminars and expert group meetings address subjects such as satellite remote sensing imagery and the Global Positioning System (GPS) for spatial data collection.

36. The Statistics Division also promotes the development of GIS for population and demographic statistics in developing countries through technical cooperation projects supported by the United Nations Fund for Population Activities. For example, one project has developed methodologies for GIS applications in population and related statistics and another dealt with training in GIS for demographers in developing regions.

37. ECA will organize an ad hoc expert group meeting on geographical data as a national asset and will publish studies on the status of development and application of geographical information in Africa and on the integration of national geospatial data infrastructures into national information policies.

38. ECA, in cooperation with the Regional Centre for Training in Aerospace Surveys (RECTAS) and the Regional Centre for Mapping of Resources for Development (RCMRD), will continue to provide advisory and consultancy services to member States, regional cooperation bodies and other institutions concerned with the application of and education in remote sensing and GIS technologies.

39. In collaboration with RECTAS, ECA will also continue to work with various Nigerian government agencies on issues related to geographical information, especially implementation of the national geospatial data infrastructure. RECTAS is serving as consultant to the coordinating agency for the project.

40. In collaboration with RCMRD, ECA will provide advisory services to member States on mapping equipment specifications, space technology applications for mapping of resources and the environment and the development of spatial data infrastructure.

41. ESCAP will develop and implement regional cooperative projects on space technology applications for environmental monitoring, within the framework of RESAP II (see A/AC.105/780, para. 62). ESCAP will also hold the annual meeting of the Regional Working Group on Remote Sensing, Geographic Information Systems and Satellite-based Positioning in Kuala Lumpur in 2003.

42. Through its Division of Early Warning and Assessment and the Global Resource Information Database (GRID) network, UNEP continues to maintain linkages with providers and users of remote sensing and information technology applications in many countries to support an assessment framework for reviewing the state of the global environment and environmental issues of international significance (see A/AC.105/780, para. 64). The GRID network currently consists of 15 centres and UNEP is also in the process of establishing the Regional Resource Centre for Assessment and Early Warning in and for its West Asia region.

43. The UNEP “regional resource” and other GRID centres continue to produce, add value to and disseminate data sets useful for environmental assessment. The centres continue to serve as the foundation for a series of capacity-building projects focused on integrated environmental assessment (see A/AC.105/780, para. 68).

44. Through its Division of Early Warning and Assessment, UNEP, in conjunction with the Environmental Systems Research Institute in Redlands, California, United States, and a number of other partners, is developing UNEP.Net, a major new information system that will provide a single point of access to a vast array of environmental data and information such as satellite imagery and related products (see A/AC.105/780, paras. 65 and 66). UNEP.Net entered a relatively stable operational period throughout the year 2002 and a full evaluation of its effectiveness will be conducted during early 2003. The cycle of review and evaluation will then lead to planning the next phase of service.

45. Through the GEO Data Portal online environmental database (geodata.grid.unep.ch), GRID-Geneva is providing UNEP collaborating centres involved in the preparation of the flagship publication, the *Global Environment Outlook* (GEO), access to a common and consistent set of major global and regional core data sets from a wide variety of recognized sources. A wide variety of tools is available for exploration of the data through maps, graphs and tables and all data can be downloaded in popular file formats. The Data Portal is available to UNEP GEO collaborating centres, UNEP regional offices and other key partners and affiliates of the GEO process.

46. UNEP will continue to operate its North American node of GRID, GRID-Sioux Falls, as a key centre for land cover assessment, maintaining access to the world-class expertise and unique facilities of the United States Geological Survey Earth Resources Observation Systems (EROS) Data Center, the largest satellite data centre in the world, the United States Environmental Protection Agency (EPA), NASA and the United States Forest Service, in the use of applied data and information technology for the benefit of developing countries (see A/AC.105/780, paras. 69 and 70).

47. GRID-Sioux Falls will continue its initiatives, among others, to document changes over the last 30 years using satellite data (see A/AC.105/780, para. 71), to assess the world's transboundary protected areas by geographical location and protection status (see A/AC.105/780, para. 72) and to assess transboundary movement of pollutants as an early warning system, as well as developing the Global Environment Facility (GEF) Programme Tracking and Mapping System (see A/AC.105/780, para. 73 and www.gefweb.org).

48. The UNEP Division of Early Warning and Assessment (Latin America and the Caribbean) will continue to undertake activities related to the use and dissemination of satellite data and images in support of integrated environmental assessment. Using a process and methodology developed through the GEO project, the Division conducts integrated environmental assessments at the regional level and facilitates such assessments at the subregional and national levels in conjunction with Governments and expert centres in the region. At the subregional and regional levels, assessments are carried out in partnership with collaborating centres, including the Universities of Chile, Costa Rica, the Pacific and the West Indies, as well as organizations such as the Brazilian Institute for the Environment and Renewable Natural Resources (IBAMA), the CentroGeo (Mexico) and the Island Resources Foundation (Virgin Islands), among others. Satellite data and imagery also form an important part of the Division's initiatives in early warning and indicators.

49. UNEP is establishing in West Asia a Regional Resource Centre for Assessment and Early Warning, which will institutionalize environmental assessment and early warning at the national, subregional and regional levels (see A/AC.105/780, paras. 77-81).

50. The UNEP Regional Office for West Asia (ROWA), GRID-Geneva and GRID-Sioux Falls, the Regional Organization for Protection of the Marine Environment (ROPME) and the Arab Centre for Studies of Arid Zones and Dry Lands (ACSAD) have carried out a comprehensive scientific assessment of the Tigris-Euphrates river basin, including the associated marine area of the northern Persian Gulf. GRID-Geneva, GRID-Sioux Falls, ACSAD and ROPME will also cooperate in a land cover change detection analysis of the Mesopotamian marshlands and the headwater region in Turkey (see A/AC.105/780, para. 82) and it is planned to apply for GEF funding to support further work under the project.

51. The first output of the project was an assessment report entitled "The Mesopotamian marshlands: demise of an ecosystem", prepared by GRID-Geneva in collaboration with GRID-Sioux Falls and ROWA and published in August 2001 (see A/AC.105/780, para. 83). UNEP has continued to monitor the situation in the remaining wetlands and in February 2002 sent a field mission to the region. The latest analysis shows that the surviving marshlands have further declined by 30 per cent, from 1,084 square kilometres in 2000 to 759 square kilometres in 2002. At that rate of loss, the marshes are likely to vanish totally within the next five years, unless urgent action is taken to ensure reliable water flow to the wetlands.

52. UNEP has entered into a strategic partnership with Environmental Research and Wildlife Development Agency of Abu Dhabi to implement the Abu Dhabi Global Environmental Data Initiative (AGEDI), launched at the World Summit on

Sustainable Development. The Initiative is a direct response to the unfulfilled objectives of chapter 40 of Agenda 21,⁵ the environmental action plan that was launched at the United Nations Conference on Environment and Development in 1992, and it will also help the global community measure progress towards some of the environmental goals outlined in the plan. The AGEDI implementation framework proposes an initial three-year phase with an emphasis on the national and regional components of the initiative. UNEP will provide support to the United Arab Emirates to implement the national component of the Initiative and will also implement it in the region through its Regional Resource Centre for Environmental Assessment and Early Warning, to strengthen capacity-building for quality data collection and information management and assessment and for reporting. Further, AGEDI will convene international meetings and/or carry out other activities to define data requirements, including quality, parameters and level of accuracy, necessary to further the implementation of chapter 40 of Agenda 21 and the related development goals of the United Nations Millennium Declaration.⁶

53. Through its Global International Waters Assessment office in Kalmar, Sweden, and supported by GRID-Arendal, UNEP will maintain an international water assessment gateway within the framework of UNEP.Net. Also through GRID-Arendal, UNEP will further develop a gateway to Arctic environmental and natural resource data and information sources, in close cooperation with the working groups under the Arctic Council and the Arctic research community. In cooperation with other United Nations entities and through GRID-Arendal, UNEP will develop the first global assessment on loss of biodiversity due to human activity, based on recently available global GIS data sets.

54. Subject to the availability of finances, UNEP will continue to seek opportunities to offer short-term fellowships to appropriate persons from developing countries to work at GRID-Sioux Falls and to develop or analyse data sets relating to environmental issues in their home countries.

55. UNEP and UNESCO will continue to work with the ICSU Scientific Committee on the Problems of the Environment.

56. UNEP/GRID-Warsaw will continue its initiative to create a specially designed multimedia educational programme entitled "Biological diversity in Poland", which will be distributed free of charge to secondary schools in Poland (see A/AC.105/780, para. 93).

57. In 2001, FAO initiated an effort to improve dynamic access to and integrated use of the Organization's vast spatial data and information holding for the benefit of its own programmes and projects, its stakeholders in member States as well as external users. That activity, GeoNetwork, aims to standardize access to both metadata as well as actual databases, using international standards and currently available webserver and information management technologies. In that context, FAO is developing a comprehensive training programme on the standardization of spatial data and information and its related metadata, to be used also in a distance learning mode. In the GeoNetwork development, FAO cooperates closely with the World Food Programme (WFP), UNEP and WHO, as well as with the United Nations Geographic Information Working Group. The current GeoNetwork prototype is available on the Internet (www.fao.org/geonetwork).

58. Within the framework of its Man and Biosphere Programme, UNESCO will continue to cooperate with UNEP, FAO, WMO and the International Geosphere-Biosphere Programme of ICSU concerning GTOS, notably through its World Network of Biosphere Reserves (411 sites in 94 countries) (see A/AC.105/780, para. 96).

59. UNESCO will continue to cooperate with the Sahara and Sahel Observatory (OSS) in the creation of an ecological observatory network, ROSELT, in Africa. UNESCO will assist, in particular, in introducing the use of space technology for monitoring fragile ecosystems in dry lands and semi-arid and arid regions.

60. UNESCO, ICSU and several ICSU affiliates will promote biodiversity activities with strong remote sensing and GIS components (see A/AC.105/780, para. 98).

61. The Regional School on Integrated Tropical Forest Management (ERAIFT), located at the University of Kinshasa and created by UNESCO, will continue to operate a remote sensing/GIS mapping laboratory for postgraduate students in management of African tropical forests (see A/AC.105/780, para. 99).

62. UNESCO is developing a training programme for the rehabilitation of panda habitats in China (see A/AC.105/780, para. 100).

63. The use of space applications and services is of great relevance to the work of the Convention on Biological Diversity, especially ecosystem and habitat monitoring and assessment through satellite imagery.

64. WMO continues to provide valuable data and assessments concerning atmospheric status under the atmospheric research and environment programme through Global Atmosphere Watch (GAW), a long-term monitoring and research system for detection of changes in the composition of the atmosphere on global and regional scales (see A/AC.105/780, para. 106). WMO/GAW has been instrumental in adding the theme "integrated global atmospheric chemistry observation" to the three other established IGOS themes (global water cycle, ocean and global carbon cycle). A comprehensive set of integrated global observations of atmospheric ozone (troposphere as well as stratosphere) and of aerosol optical properties (e.g. optical depth and single scattering albedo) are examples of products that are foreseen to result from the activities on this theme. Such observations would be invaluable in evaluating global climate and chemical transport models.

3. Management of natural resources

65. ESCAP will develop and implement, within the framework of RESAP II, regional cooperative projects on space technology applications for natural resource management. In cooperation with FAO and several members, ESCAP has been planning the common denominator project on development and applications of a multi-purpose environmental and natural resource information base for food security and sustainable development in the ESCAP region. ESCAP has commenced a project on integrated land and water resource management, crop monitoring and agricultural production forecasting in arid regions and plans to conduct other projects in that area in future years, when resources become available.

66. Through its Environment Assessment Programme for Asia and the Pacific (EAP.AP)-Bangkok, UNEP continues to undertake land cover assessment and

monitoring studies with subregional and national agencies (see A/AC.105/780, para. 111).

67. UNEP/GRID-Warsaw is in charge of developing the geographical information system for Karkonosze National Park in Poland (see A/AC.105/780, para. 113). The project constitutes a milestone in the process of standardization and unification of GIS methodology that is to be implemented in all Polish national parks within a few years' time.

68. FAO and the World Bank will continue to implement the Regional Environmental Information Management Project (REIMP) in Central Africa (see A/AC.105/780, para. 114). The Office of the United Nations High Commissioner for Refugees (UNHCR) is also a partner within the framework of the project.

69. The FAO Environment and Natural Resources Service will continue to operate the AFRICOVER project (see A/AC.105/780, para. 115) and during 2001-2002 the final land cover information products for 5 of the 10 AFRICOVER countries were published and are available on the Internet (www.africover.org). The next two-year phase of the AFRICOVER East Africa project will focus on access to and distribution of established AFRICOVER data sets and application of the land cover classification system methodology at the national, regional and global levels. FAO also cooperates with the European Commission Joint Research Centre, UNEP and UNESCO by participating in working groups on the harmonization of land use and land cover classifications. On the basis of the AFRICOVER experience, a Global Land Cover Network (GLCN) programme is currently under development and an ASIACOVER project has been formulated for the region of Asia and the Pacific.

70. FAO, in collaboration with the Economic Commission for Europe (ECE), UNEP, other international bodies and all member countries, carries out assessments of global forest resources. The latest assessment—Forest Resources Assessment 2000 (FRA2000)—included data from a wide range of national land cover/land use surveys based on satellite remote sensing. FRA2000 also included an independent survey of tropical forest cover dynamics from 1980 to 2000, based on a pan-tropical sample of Landsat images, resulting in accurate regional estimates of forest area changes and trends of changes with known precision. FAO currently investigates options to continue its independent monitoring of the world's forests through the global forest resource assessment process and in collaboration with other international bodies.

71. FAO, with financial assistance from the European Commission, continues to strengthen the facilities and activities of the Regional Remote Sensing Unit of the Southern African Development Community, established in 1988. The activities of the Unit continue to be broadened in the areas of food security, early warning, environmental monitoring, natural resource assessment and emergency response.

72. FAO works closely with the European Commission and ESA on the implementation of the European Global Monitoring for Environment and Security (GMES) programme through Earth observation partnerships with Belgian and German-led consortia. Related activities focus on the development of both low- and high-resolution-based Earth observation information services in support of agriculture, food security and emergency management and response. UNESCO also actively supports the GMES initiative.

73. FAO implements a number of remote sensing and GIS analysis and applications projects, including: (a) preparation of the GIS vector and raster versions of the FAO/UNESCO soil map of the world; (b) estimation of available arable lands for the major FAO study entitled "Agriculture towards 2010"; (c) analysis of the suitability of inland aquaculture sites of Africa and South and Central America for fish farming potential; (d) soil suitability analysis studies for various crops in Africa; (e) a dominant land resource map for Africa; (f) a pasture assessment and monitoring system for arid and semi-arid regions using periodic land cover mapping with high-resolution remote sensing data, frequent (once-per-decade) monitoring with low-resolution data, digital elevation models and other GIS layers and sample in-situ observations; and (g) a wetland monitoring system to assess impact of irrigation activities on downstream wetland ecosystems. In cooperation with ESCAP, FAO is implementing the development of a multi-purpose environmental and natural resources information base for food security and sustainable development for South-East Asia. An ASIACOVER meta-database has been established with the assistance of the Government of the Czech Republic and will be made available online as part of the FAO GeoNetwork.

74. The UNESCO Division of Earth Sciences will continue to carry out the Pan-African Network for a Geological Information System (PANGIS) project, which is standardizing the geoscience databases of African countries to facilitate the collection, electronic exchange and retrieval of geodata for better resource management and sustainable planning and development (see A/AC.105/780, para. 117).

75. UNESCO will continue to support the international postgraduate courses organized by the International Institute for Geo-Information Science and Earth Observation (Netherlands) on the different applications of remote sensing and GIS technologies, such as mineral exploration, coastal zone management and evaluation of mineral deposits.

76. UNESCO will continue to organize training courses on remote sensing and GIS technologies for biosphere reserve managers in developing countries and develop pilot projects on the operational use of GIS (see A/AC.105/780, para. 119).

77. UNESCO's coastal regions and small islands platform will continue to make the seventh computer-based Bilko software learning module on applications of satellite and airborne image data to coastal management available on CD-ROM and on the Internet (www.unesco.bilko.org). Moreover, a remote sensing handbook for tropical coastal management has been produced and is being distributed free of charge. A new computer-based learning module was produced in 2002 on the use of multi-sensor, multi-temporal remote data sets for fisheries. A module on coastal erosion is under preparation.

78. The World Water Assessment Programme, a United Nations system-wide programme whose secretariat is located in the UNESCO Division of Water Sciences, will continue to make considerable use of remote sensing and GIS technologies (see A/AC.105/780, para. 121).

79. In the framework of the UNESCO/International Union of Geological Sciences Geological Applications of Remote Sensing (GARS) programme, a workshop is being planned in Lebanon in 2003 on the use of remote sensing and GIS

technologies in the study of the geological parameters that influence desertification and the management of transboundary groundwater aquifers.

80. As a follow-up to the World Summit on Sustainable Development, UNESCO and ESA are at present formulating a Space Hydrology International Partnership (SHIP) that aims at improving the use of remote sensing for the study of extreme events (e.g. floods and desertification) in the North African region.

81. UNESCO, FAO, the International Association of Hydrogeologists and ECE will continue their collaborative programme on the management of internationally shared aquifer resources, drawing on expertise from the GARS programme (see A/AC.105/780, para. 124).

82. A wealth of information is becoming available from various remote-sensing tools for applications in agriculture, forestry and fisheries. Hence, the Commission for Agricultural Meteorology of WMO, at its thirteenth session, held in Ljubljana in October 2002, considered that greater attention needed to be given to techniques for integration of information from different satellite sensors with ground-based meteorological and agronomic data. The Commission felt that the most promising method was through the use of agrometeorological models and GIS technology. It convened an expert team on technological applications (GIS and remote sensing) for agroclimatic zoning and sustainable land management, which will develop a statement of requirements for defining and quantifying observational characteristics in general and for specific regions pertaining to agroclimatic features, land use management and projected future trends. Innovative techniques for sustainable land management, based on suitable agroclimatic characterization, as documented by surveys of successful pilot projects at the national and regional levels, will be promoted. Recommendations will be made on methods to cope with limitations and weaknesses in the provision and accessibility of innovative operational technologies in GIS and remote sensing applications at the national and regional levels.

B. Using space applications for human security, development and welfare

1. Enhancing disaster reduction capability

83. 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'") was initiated by ESA and the Centre nationale d'études spatiales (CNES) of France; other partners are the Canadian Space Agency, the National Oceanic and Atmospheric Administration (NOAA) of the United States 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 disasters. In 2003, the Office for Outer Space Affairs will become a cooperating body to the Charter, which will enable the United Nations system to have access to the Charter.

84. The Office for Outer Space Affairs will continue its series of regional workshops on space technology for disaster management in 2003 with workshops in Romania in May 2003, for Europe, and in Saudi Arabia in October, for Western Asia. Three expert meetings are currently being planned in 2003 to discuss potential

pilot projects. Other important activities in the area of disaster management include training, in particular with short-term courses to be provided through the regional centres for space science and technology education (see para. 146), contributing to the UNISPACE III action team on the issue of disaster management and maintenance of regional networks of institutions interested in developing activities using space technology for disaster management (see www.oosa.unvienna.org/SAP/stdm for additional information). ESCAP will also promote the establishment of regional cooperative mechanisms in disaster management, as well as support specific projects following on from the 2002 workshop hosted by ESCAP in Bangkok, as resources permit.

85. Recent progress in the implementation of the ISDR programme is illustrated in the report of the Secretary-General of 11 July 2002 (A/57/190). In that context, the ISDR secretariat has continued to work in close collaboration with the Office for Outer Space Affairs. While the ISDR secretariat has continued to support broad strategy efforts such as the Ad Hoc Working Group on Disaster Management Support of CEOS, the United Nations Programme on Space Applications and implementation of the Vienna Declaration, it has also sought to develop a specific drive for space-based applications for disaster reduction with a particular focus on vulnerability and communities at risk. In that specific context, ISDR has invited a number of partners to discuss concrete applications for disaster reduction, especially at the regional level and possibly taking account of the findings of the regional workshops on the use of space technology for disaster management organized by the Office for Outer Space Affairs. In one particular instance, the ISDR secretariat and the Telematics Research Laboratory of Simon Fraser University have invited comments from a series of partners on a project to develop a satellite-based telecommunication network for disaster management and vulnerability reduction in the Pacific region.

86. On the basis of the agreement for inter-agency collaboration concluded in 2000 by ISDR and the Office for Outer Space Affairs, the latter has become increasingly involved in the work of the Inter-Agency Task Force on Disaster Reduction. In parallel, the ISDR secretariat has been supporting the work of the Office related to disaster management.

87. ESCAP will continue to develop and implement regional cooperative projects on space technology applications for natural disaster monitoring and mitigation, within the framework of RESAP II (see A/AC.105/780, para. 134). ESCAP has commenced a project on capacity-building for disaster management in Asia and the Pacific, focusing on floods and drought.

88. ESCAP will conduct a study on the framework of regional cooperative mechanisms supporting disaster management in Asia and the Pacific using space technology during 2003.

89. ESCAP will hold the annual meeting of the Regional Working Group on Meteorological Satellite Applications and Natural Hazards Monitoring in Bangkok in 2003.

90. EAP.AP-Bangkok has initiated the monitoring of glacier lake outburst flooding in the Hindu Kush and the Himalayas, together with the International Centre for Integrated Mountain Development (ICIMOD) and relevant national agencies. The inventory of two countries (Nepal and Bhutan) has been completed in the first

phase. Together with the National Institute of Aeronautics and Space of Indonesia and the Malaysian Centre for Remote Sensing, the preparation of a 1:250,000-scale GIS database on the islands of Borneo and Sumatra is at the final stage. The database will eventually be used to prepare fire-hazard maps and a forest fire danger-rating index.

91. GRID-Geneva regularly updates its web site on wildfires, linking information from existing sources on the World Wide Web. The web site provides a map interface to guide users to the latest information on fires worldwide.

92. GRID-Geneva continues to provide technical support for a project carried out by UNDP's Bureau for Crisis Prevention and Recovery on development of an environmental risk/vulnerability index for use in the UNDP *World Vulnerability Report* (see A/AC.105/780, para. 140).

93. FAO has continued to provide satellite-derived operational environmental information services to its food security early warning and locust control programmes at the global, regional and national levels through its Advanced Real-Time Environmental Monitoring Information System (ARTEMIS), which has been operational since 1988. The ARTEMIS system is now connected to four operational environmental satellites, SPOT-4 VEGETATION, Meteosat, NOAA-AVHRR and GMS, and an operational connection to Terra-MODIS is under development for implementation during the first half of 2003. Meteosat's information utilization capacities are regularly being enhanced with public domain user software packages. During 2003, it is planned to upgrade the ARTEMIS system for the reception and processing of Meteosat Second Generation data.

94. FAO, with financial support from the European Commission, is at present upgrading the analytical capacity of its Global Information and Early Warning System (GIEWS). In particular, it is integrating satellite-derived and ground-based environmental information with socio-economic information, in support of the GIEWS assessment and forecasting capacity on global food security. The resulting capacity, the GIEWS Workstation, is scheduled to become operational in mid-2003.

95. In the framework of the GARS-Asia project, a regional workshop will be held in 2003-2004 on the use of radar imagery and GIS technology for volcanic hazard assessment and prediction and earthquake and landslide monitoring.

96. Based on the results of the GARS research activities in natural hazards, UNESCO, ESA and other IGOS partners are presently developing a geohazard (geological-geophysical hazards) theme that focuses on earthquakes, volcanoes and landslides. The IGOS theme study will design a common strategy that meets ground- and space-based observational needs for operational and research activities in the aforementioned hazard areas.

97. UNESCO will continue its four-year project to strengthen the capacity of Central American countries to mitigate the effects of natural disasters and is initiating a similar project in Asia (see A/AC.105/780, para. 159).

98. UNESCO continues to cooperate with the Council of Europe, the European Commission and ESA in implementing the Space Techniques for Major Risk Management (STRIM) programmes.

99. UNESCO is promoting the establishment of the Brazilian satellite-based environmental data collection and analysis system in Africa for the mitigation of climate-related natural disasters (see A/AC.105/780, para. 161).

100. UNESCO cooperates with the Council of Europe, within the framework of the Council of Europe Open Partial Agreement on the Prevention of, Protection against and Organization of Relief in Major Natural and Technological Disasters, in carrying out research studies on the use of space technology in disaster management.

101. UNESCO will continue to support training courses on remote sensing and GIS technologies in applied geomorphology and risk management organized by the Groupement pour le développement de la télédétection aérospatiale (GDTA), France.

102. ICAO and WMO continue to be actively involved in the implementation of the World Area Forecast System (WAFS), which uses satellite-based communication systems to distribute aeronautical meteorological operational information and forecasts in support of commercial aviation (see A/AC.105/780, para. 167).

103. Many countries continue to receive the United States Emergency Managers' Weather Information Network (EMWIN) broadcasts (see A/AC.105/780, para. 168), which contain some meteorological bulletins retrieved from the WMO global telecommunications system.

2. Enhancing economic, social and cultural security

104. The Office for Outer Space Affairs organized the United Nations/South Africa/European Space Agency Workshop on the Use of Space Technology in Sustainable Development from 21 to 23 August 2002 in Stellenbosch, South Africa, in support of the World Summit on Sustainable Development. The Office will continue that work with a series of workshops, the first to be held in Graz, Austria, in September 2003, to identify the contributions that space technology can make towards selected actions contained in the Plan of Implementation of the World Summit and to develop a plan of action in that area.

105. UNOSAT is a United Nations Institute for Training and Research (UNITAR) project executed by UNOPS. Implemented through a United Nations private sector consortium consisting of UNOPS, UNITAR and several private companies involved in satellite image distribution and analysis and geographical information management, the project became operational in 2002. The objective of UNOSAT is to encourage, facilitate, accelerate and expand the use of accurate geographical information derived from Earth observation satellite imagery for United Nations entities involved in humanitarian aid and development assistance projects. By providing services for updated and accurate geographical information and promoting universal access to products derived from satellite imagery through the Internet and multimedia tools, UNOSAT contributes to the physical planning process for local authorities, project managers and field operators working in disaster management, risk prevention, peacekeeping operations, environment rehabilitation, post-conflict reconstruction and social and economic development. UNOSAT is expected to be the provider of value added services for Earth observation data obtained by United Nations entities under the International Charter

“Space and Major Disasters”. The project is currently funded by ESA and CNES and is hosted by the European Organization for Particle Physics (CERN).

106. ESCAP will hold an expert group meeting on promotion and integration of space applications for poverty eradication in April 2003. The Commission will also develop regional cooperative projects on space technology applications for social development, within the framework of RESAP II and when resources become available (see A/AC.105/780, para. 175).

107. The United Nations Office on Drugs and Crime will continue to operate the illicit crop monitoring programme (see A/AC.105/757, paras. 162 and 163). National monitoring systems are currently in operation with the support of the Office in six countries: Afghanistan, Bolivia, Colombia, Lao People’s Democratic Republic, Myanmar and Peru. The methodology varies from country to country, but generally combines ground surveys and the interpretation of civil satellite imagery including very-high-resolution products. Surveys are conducted annually and the reports published provide a wealth of information on the various dimensions of the problem, including socio-economic data on the population groups who grow the narcotic crops as part of a subsistence economy in rural areas, which have often remained on the outside of mainstream development assistance. The ongoing development of GIS enables the integration and analysis of data both at the national and the international level. The resulting information helps to guide the design and implementation of illicit crop elimination programmes, including the provision of alternative development assistance. Survey reports, including a description of the methodology used, can be found at www.unodc.org/odccp/crop_monitoring.html

108. During the second half of 2002, a new initiative of the UNEP Regional Office for Europe, supported by the Division of Early Warning and Assessment (Europe)/GRID-Geneva and other UNEP units, was begun under the theme environment and security. The general purpose of the project, being carried out in collaboration with UNDP and the Organization for Security and Cooperation in Europe (OSCE), is to identify linkages between major environmental concerns or issues within European subregions and countries and existing or potential security problems that have an impact on people and States. The environmental concerns may be related to issues such as threats to biodiversity and human livelihoods, land degradation and shared natural resources. The project and its activities are initially focused on two subregions, South-Eastern Europe and Central Asia. The joint UNEP/UNDP/OSCE environment and security initiative will be presented as a major contribution to the Ministerial Conference on the Environment to be held in Kyiv in May 2003.

109. UNESCO and UNDP will continue to implement the sustainable development of the South Valley and Sinai programme using remote sensing and GIS technologies, in cooperation with the Geological Survey of Egypt and the Egyptian National Authority for Remote Sensing.

110. UNESCO and ESA are carrying out an initiative, in which United Nations entities are invited to participate, on the use of space technology in monitoring World Heritage sites (see A/AC.105/780, para. 179).

111. In the framework of the UNESCO open initiative with the international space agencies on the monitoring of sites protected under the Convention for the Protection of the World Cultural and Natural Heritage,⁷ developing countries are

being assisted in creating the necessary capacity to interpret satellite images and produce site cartography. The open initiative has received strong support from ESA, NASA, the Canadian Space Agency, the International Space University and the Government of Belgium. Currently, the first pilot studies to monitor World Heritage sites are being carried out in Central and Eastern Africa.

112. UNESCO and ITU initiate pilot projects on educational applications of interactive television, two of which will soon be carried out in Cape Verde and India (see A/AC.105/780, para. 182).

113. In 2000, the UNESCO Division for Science Analysis and Policies launched electronic learning for blind people projects, which aim to create a cyberspace for specialized teaching making use of new educational, scientific and technological tools (see A/AC.105/780, para. 183). The electronic learning project in Doha is now operational and the project in India is close to implementation.

114. The Division for Science Analysis and Policies and the European Commission, in the framework of its Euro-Mediterranean Information Society (EUMEDIS) programme, launched the Avicenna project in 2002 (see A/AC.105/780, para. 185). The project aims to create a virtual campus of universities in 15 countries and territories in the Euro-Mediterranean region in the Arabic, English and French languages. Activities of the project include the creation of a technology network for the transfer of knowledge among the 15 universities, training of managers, technicians and educators and creation of a virtual library. The Avicenna project is expected to run for three years and could be extended to six years.

115. UNESCO is carrying out a project in the Libyan Arab Jamahiriya that will result in the establishment of a network for distance education linking all institutions of higher learning in the country.

116. The UNESCO Division for Science Analysis and Policies assists the Arab Open University in introducing new information and communication technologies in its centres as part of the University's strategy for development. UNESCO provides technical advice and expertise concerning the method and strategy of developing a network, installation of a satellite network in the different centres for multimedia production and video-conferencing and training of human resources. The University's centres in Egypt, Jordan, Kuwait, Lebanon and Saudi Arabia were opened in September 2002. UNESCO involvement in the project will continue until 2004.

117. WHO is successfully using remote sensing and GIS to address health-related issues. In the coming years, WHO is planning to use satellite imagery and aerial photography more intensively.

118. The WHO public health mapping programme is currently building a global health mapping system that will significantly strengthen infectious disease surveillance at the local and global levels. In the framework of that project, Earth observation data will be used to map urban areas or to identify potential areas of high risk for infectious diseases.

119. The HealthMapper is a user-friendly surveillance and mapping application, developed by WHO specifically for public health users, that aims to address critical surveillance information needs across infectious disease programmes at the national and global levels. The Global Atlas of Infectious Diseases is essentially the web-

based version of HealthMapper, and provides a user-friendly mapping interface to a global information system allowing WHO and its partners to manage, analyse and monitor the status of epidemic-prone and priority infectious diseases globally.

120. In the next five years, WHO will integrate the existing surveillance and mapping applications into a single coordinated global health mapping system that operates in different technological environments (e.g. Internet, desktop and mobile computing), facilitates rapid data collection and transfer from the periphery to global levels and provides analytical and mapping functionality that supports effective decision-making at all levels.

121. Because much of the world's population is concentrated in and near metropolitan centres, it is essential to collect information on urban land use. With partner institutions, WHO is developing a mapping application based on the HealthMapper to locate health services in cities. One of the project's objectives is to visualize provider and demand data for health facilities in large cities. The recent launch of three commercial high-resolution satellites provides the opportunity to use remote sensing data to map urban areas precisely and rapidly throughout the world. At high resolution, roads, homes, buildings and trails are easily detectable. In 2003, WHO will implement the urban mapping application in the city of Lyons, France, and will adapt the application for Casablanca, Morocco and Khartoum. In 2004, it will install the application in Lyons, locate demand for health services in Lyons and implement the urban mapping application in Casablanca and Khartoum. In 2005, WHO will implement a mobile mapping solution for health services in Lyons, add functionalities for planning and deliver the tool to other major cities around the world.

122. Satellite imagery offers many advantages to support the rapid data collection requirements during disease outbreaks and complex emergency situations and can be used for rapid production of image maps with overlaying information such as roads, railways, rivers and place names. Advances in hardware, software, database technologies and wireless communications have also led to the development of mobile and handheld applications. The WHO public health mapping programme is integrating tools for mobile mapping using GPS technology. Satellite images or aerial photos can be used in a field data collection system to identify features or collect coordinates.

123. In 2004, WHO will carry out an activity to map risks for tuberculosis, malaria and other diseases using environmental data derived from remote sensing.

124. Satellite imagery may be used by WHO in different projects. For urban mapping applications, images must be at high resolution, recent and have good horizontal accuracy. When purchasing image data, many factors must be considered, such as image resolution, acquisition date and radiometric and geometric corrections. The abundance of image data and the great number of resellers are also critical points for data acquisition. Considering the wide range of issues associated with data purchases, WHO may need outside assistance. That assistance could come from a specialized organization or from a data reseller.

C. Utilizing and facilitating information and communication technology for development

125. The secretariat of the Information and Communication Technologies (ICT) Task Force of the United Nations (see A/AC.105/780, paras. 189 and 190) is located in the Department of Economic and Social Affairs. The effort so far has resulted in the formation of six working groups (on policy and governance; national and regional electronic strategies; human resource development and capacity-building; resource mobilization; low-cost connectivity and access; and business enterprise and entrepreneurship) and five regional networks (in Africa, the Arab States, Asia, Europe and Latin America and the Caribbean).

126. The working groups work in collaboration with other ICT initiatives in order to ensure policy coherence, while the regional networks coordinate the collaborative effort geographically. They are inclusive and reflective of the significant efforts already under way to facilitate knowledge- and information-sharing in promoting ICTs. The Task Force is assisted by a high-level panel of advisors, a group of distinguished individuals with background and experience in ICT for development and related fields.

127. Among the accomplishments of the ICT Task Force are the initiation of a global database of ICT policy makers; the development of a training programme for diplomats to raise awareness of information society issues; and the launch of a functional and informative web site.

128. In 2003-2004, ECA will organize ad hoc expert group meetings on the establishment of regional and national geographic information infrastructures in Africa (February 2003) and on new trends in digital and virtual libraries. The Commission will also organize two expert group meetings on Africa and the World Summit on the Information Society: issues and challenges, in 2004 and 2005, respectively.

129. ECA will hold the third meeting of the Committee on Development Information and the subcommittees on ICT, statistics and geo-information in May 2003.

130. In 2003-2004, ECA will publish a study on the status and impact of national information and communication plans in Africa. ECA will also publish a report on the African position to the World Summit on the Information Society, which will be presented at the second phase of the World Summit, in Tunis in 2005.

131. Within the framework of RESAP II, ESCAP will develop and implement, when resources become available, regional cooperative projects on applications of satellite communication for sustainable development (see A/AC.105/780, para. 199). ESCAP is also preparing inputs on space technology applications to the regional preparatory meeting of the World Summit on the Information Society.

132. ESCAP will hold the annual meeting of the Regional Working Group on Satellite Communication Applications in Beijing in November 2003, in conjunction with the China meeting "Satellite 2003".

133. ESCAP published a report entitled "Towards a policy framework for integrating space technology applications for sustainable development on the information superhighway" (ST/ESCAP/2226).

134. UNESCO will continue to examine different ways and means of wider usage of low- and geo-stationary orbit satellite systems for communication, information, informatics, education, science, culture and environmental protection in its programmes. For example, UNESCO evaluates and studies the impact of new communication and information technologies, in particular communication satellites, in distance education.

135. UNESCO will continue to study and promote universal access to the Internet in collaboration with ITU and other concerned international, regional and national partners in relation to the first phase of the World Summit on the Information Society, in Geneva in December 2003. Attention will be given to guidelines to ensure open access of Internet service providers to competitive satellite services and in particular to facilitate access possibilities for not-for-profit Internet service providers in developing countries (such as academic and research networks, schoolnets, non-governmental organizations, and community centres).

136. ICT for development represents a major programme area of UNESCO and a priority cross-cutting theme for the biennium 2002-2003. In the information and informatics area, promoted through the UNESCO intergovernmental "Information for All" programme, satellite links will continue to be stressed where they are feasible and cost-effective for developing country institutions, for example, to support activities in areas such as national public service telematics networks, distance education, virtual laboratories, digital libraries and community telecentres and multimedia centres. The largest demand is expected to be for video-based distance learning facilities in higher education, in particular teacher training.

137. UNESCO will continue its programme, implemented in close cooperation with ITU, for community multimedia centres, including new initiatives to promote access to communication channels at the community level involving the use of space technology (see A/AC.105/780, para. 230).

138. Interactive television distance learning via VSAT pilot projects for primary teachers are being carried out in India and Morocco by UNESCO and the Telecommunication Development Bureau of ITU.

139. In a project being initiated for refugees in the Lukole refugee camps in the United Republic of Tanzania, ITU, UNHCR and UNESCO support the development of multi-purpose community telecentres making use of WorldSpace content and the low-Earth orbit electronic mail system of Volunteers in Technical Assistance and VSAT facilities.

140. In 2003, UNESCO will organize in cooperation with WorldSpace a pilot short-distance education course on the establishment and development of community telecentres in Africa based on the Combined Live Audio and Slide Show (CLASS) technique, which provides for relatively low-cost and simple simultaneous audio and data transmission by satellite over a wide geographical area.

D. Using and improving satellite positioning and location capabilities

141. In 2003, the Office for Outer Space Affairs will begin follow-up activities to the series of regional workshops and the international meeting of experts held in 2001 and 2002 on the use and applications of GNSS (see A/AC.105/780, para. 234). The international meeting of experts has recommended follow-up activities in the following areas of GNSS applications and cross-cutting themes: management of natural resources and agriculture; protection of the environment and disaster management; transportation; surveying, mapping and Earth sciences; institutional framework; training and education; and awareness-building. With funding from the United States, the Office and an action team to implement recommendations of UNISPACE III on the issue of GNSS will hold a joint international meeting in Vienna in December 2003. That meeting will increase the synergy between the work of the action team and the efforts being made through the follow-up activities. The meeting will review the progress made and difficulties encountered in the follow-up activities and its results will be taken into account in the recommendations of the action team to be submitted to the Committee on the Peaceful Uses of Outer Space in 2004.

142. In support of remote field data collection activities, WHO has been routinely using GPS to map and track infectious diseases at the community level. GPS is now routinely used by village outreach teams for onchocerciasis, Guinea worm, African trypanosomiasis (sleeping sickness) and lymphatic filariasis, among others. Increasingly, such systems are being used during the investigation of disease outbreaks for rapid mapping of cases and deaths. Within the context of complex emergency situations, they are being used to map internally displaced persons and refugee camps and to carry out rapid epidemiological assessments.

143. ICAO is continuing its work on standards and recommended practices for communication, navigation and surveillance (CNS) elements in support of global air traffic management (ATM) (see A/AC.105/780, para. 238). Provisions for aeronautical search and rescue services continue to be reviewed by ICAO in cooperation with the International Maritime Organization, with particular reference to the use of emergency locator transmitters in conjunction with ground and space elements of the International Satellite System for Search and Rescue (COSPAS-SARSAT).

144. At its thirty-third session, in 2001, the ICAO Assembly decided that future work should be carried out to create an appropriate long-term legal framework to govern the operation of GNSS (see A/AC.105/780, para. 240). Pursuant to that decision, a study group on the issue continues to consider a contractual legal framework as well as an international convention relating to CNS/ATM. Nevertheless, CNS/ATM systems are now part of the ICAO air navigation plan and their implementation should not be delayed by study of those legal issues.

E. Building capacity for space applications for sustainable development and enhancing education

145. Within the framework of the United Nations Programme on Space Applications, the Office for Outer Space Affairs will organize workshops,

symposiums, expert meetings and training courses on the following issues: remote sensing applications and education; remote sensing education for educators; space technology for sustainable development; space technology for developing countries; space technology for disaster management (workshops for Europe and for Western Asia); space technology to bridge the digital divide; satellite-aided search and rescue; small satellites; basic space science; use and applications of GNSS; and space law. Further details can be found in the report of the Expert on Space Applications (A/AC.105/790).

146. The Office for Outer Space Affairs will continue to provide technical and financial support to the regional centres for space science and technology education affiliated with the United Nations, which have been established in Africa, Asia and the Pacific and Latin America and the Caribbean (see A/AC.105/780, paras. 244 and 245).

147. In 2003-2004, ECA will organize an ad hoc expert meeting on strategies for information and knowledge resource development. ECA will also publish a study on the development and utilization of information and knowledge resources in Africa: challenges and opportunities.

148. In the period 2004-2005, ECA will organize the following group training workshops, seminars and symposiums:

(a) A seminar on cooperative mechanisms for management of information resources and services, with special attention to geospatial products;

(b) Workshops on spatial data standards, clearinghouses and metadata (one per year);

(c) Support, in collaboration with other organizations, for a web-based distance learning programme to enable former students of RECTAS and the community of geographical information professionals in Africa to keep abreast of new developments in ICT and space technology.

149. ESCAP will continue to organize regional workshops and seminars and to provide medium- and long-term fellowships and technical advisory services to its member States, on request, in the area of space technology applications (see A/AC.105/780, paras. 249-251). During 2003, ESCAP will hold an expert group meeting on space technology applications for poverty eradication.

150. UNEP capacity-building activities are focused on those institutions which are active in expanding their data and information assessment network serviced by its Division of Early Warning and Assessment's regional resource centres of the GRID network and its capacity-building programme. UNEP network capacity-building and servicing activities are aimed, as appropriate, at identifying the needs of partner institutions, designing projects and formulating proposals to meet those needs and assisting the institutions in mobilizing resources to implement the projects. In return, UNEP seeks to enter into agreements on data access and exchange in the service of international assessment and reporting.

151. The Division of Early Warning and Assessment is also involved in the establishment of strategic alignments, partnerships and consultative mechanisms with key United Nations entities, international organizations, the scientific community and regional and subregional centres of excellence involved in

assessments of the environment and sustainable development processes in order to improve their coherence and effectiveness. One such activity concerns the development of a regional database, the Data Exchange Platform for the Horn of Africa (see A/AC.105/780, paras. 259 and 260).

152. EAP.AP-Bangkok carries out a capacity-building programme in countries of the Greater Mekong subregion, including hardware and software support and short-term training on GIS, remote sensing and GPS technologies.

153. UNEP continues to develop data access agreements in Asia and the Pacific with cooperating institutions of the Association of South-East Asian Nations, the Mekong River Commission, ICIMOD, the South Asia Cooperative Environment Programme in Colombo and the South Pacific Regional Environment Programme, as well as with other small inter-governmental organizations (see A/AC.105/780, para. 262). Cooperation is continuing with the ESCAP Statistics and Natural Resources Division, the UNDP Regional Office for Asia and the Pacific, the Asian Disaster Preparedness Centre, ICIMOD, the International Crop Research Institute for the Semi-Arid Tropics and the International Rice Research Institute.

154. UNEP is continuing its capacity-building programme in integrated environmental assessment and related methodologies and tools for the Commonwealth of Independent States and Central and Eastern European countries with economies in transition. Four GRID centres are operational in the region and several proposals to continue capacity-building and networking for better environmental information at the national and subnational levels have been or will soon be funded by donor Governments. UNEP continues to place strong emphasis on inter-agency cooperation at all levels in the region.

155. In the framework of UNESCO's Space Education Project, awareness-raising and capacity-building activities in space technology and space applications will be carried out in developing countries in cooperation with schools, universities, space agencies, specialized training centres, space industries, space-related non-governmental organizations, intergovernmental organizations and associations and regional centres for space science and technology education affiliated with the United Nations. In 2003, an expert workshop will be organized by UNESCO, ISU, the International Astronautical Federation and the International Academy of Astronautics to discuss, select and recommend best practices in teaching space at the secondary level on the basis of data previously collected, with a view to sharing those practices to schools in developing countries. The results of the workshop, as well as pilot projects on the application of best practices in certain schools in a developing country, will be presented to the member States of UNESCO at its 32nd General Conference, in October 2003. The development of educational materials appropriate to a country, subregion or region is planned for the period 2004-2005 as well as training courses for teachers, fellowships and grants for students at the tertiary level and their participation in space events (congresses, workshops and seminars).

156. With a view to strengthening indigenous capacity in the management and technical application of space programmes, UNESCO will assist a number of African students to participate in the annual multidisciplinary postgraduate courses on space technology at the International Space University.

157. The UNESCO/International Space University/International Astronautical Federation/International Academy of Astronautics Expert Workshop on Bridging Space and Education will be held in Paris from 13 to 15 March 2003. UNESCO and ESA will hold a World Space Week celebration in Noordwijk, the Netherlands, between 4 and 10 October 2003.

158. WMO grants fellowships for studies or training in meteorology, climatology and operational hydrology (see A/AC.105/780, para. 267).

F. Advancing scientific knowledge of space and protecting the space environment

159. The Inter-Agency Space Debris Coordination Committee (see A/AC.105/780, para. 27) has developed proposals on measures to reduce the amount of space debris that is created. Those proposals will be presented to the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space, for consideration during the Subcommittee's fortieth session, from 17 to 28 February 2003, and the Subcommittee will discuss means of endorsing their utilization.

160. The twelfth in the Office for Outer Space Affairs' series of workshops on basic space science will be held in Beijing from 8 to 12 September 2003. The Office will also continue to provide technical assistance for the establishment and operation of astronomical telescope facilities in developing countries (see A/AC.105/780, para. 269).

G. Other activities

161. ESCAP will hold the ninth session of the Intergovernmental Consultative Committee on the Regional Space Applications Programme for Sustainable Development in Kuala Lumpur in 2003, as a follow-up to the recommendations of the Second Ministerial Conference on Space Technology Applications for Sustainable Development.

162. ESCAP will hold the 2003 annual meeting of the Regional Working Group on Space Sciences and Technology Applications in Hanoi. The 2002 meeting agreed to strengthen regional arrangements to implement RESAP II. It noted with satisfaction that the Advanced Data Acquisition and Messaging (ADAM) system, developed in part through the Regional Working Group, is included in Australia's FedSat, the Republic of Korea's KAISTSAT-4, and Singapore's X-Sat. The Regional Working Group noted the possibility of establishing an informal ADAM Dialogue Forum to extend the availability of ADAM technology to other agencies in the region.

163. ESCAP will hold the fifth meeting of the Dialogue Forum for Regional Initiatives for Space Cooperation in Asia and the Pacific in 2003.

164. ESCAP will continue to prepare and disseminate publications on studies conducted within the framework of RESAP and to publish the annual *Asian-Pacific Remote Sensing and GIS Journal* and news on RESAP activities in the newsletter of the new Information, Communication and Space Technology Division. ESCAP and

its relevant regional working groups (see A/AC.105/780, para. 273) will continue to update their home pages on space technology applications.

165. In collaboration with intergovernmental and non-governmental organizations, including the Molecular and Cell Biology Network, and through its networks in cell biology and biotechnology (e.g. the microbial resource centres (MIRCENS)) and its Biotechnology Action Council programme, UNESCO will continue to support research and training activities with living microbial systems and on their interaction with macrobiotic entities in extreme and harsh environments, thus aiding in the eventual emergence of exobiology research and planetary bioengineering of terrestrial and extraterrestrial environments.

166. UNESCO will continue to undertake studies at the regional level on the implications of electronic communication technologies, or the “information superhighways”, for the protection and dissemination of intellectual works by electronic means (see A/AC.105/780, para. 277).

167. Within the framework of its advanced technology development activities, the International Atomic Energy Agency’s Department of Nuclear Energy is pursuing activities related to peaceful space applications of nuclear power. The Department will shortly publish a review/status report entitled “The role of nuclear power in space exploration”. The review provides details of a variety of radioisotope power systems, shows in what circumstances they surpass other power systems and provides the history of the missions in which they have been employed. Advanced and innovative reactor concepts and technologies being developed for peaceful space applications are of a broader interest to the Department of Nuclear Energy since, in certain cases, they can play a role in the long-term sustainable development of nuclear energy.

V. Review of matters related to the coordination of activities within the United Nations system

A. Status of inter-agency coordination

168. The United Nations System Chief Executives Board for Coordination continues to serve as the highest-level coordination body of the United Nations system to provide policy guidance and directions to be pursued system-wide. In 2002, the issues of focus of the Board included the follow-up to the Millennium Summit, with particular emphasis on the treatment and prevention of diseases, including the human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) and malaria, and system-wide support for the New Partnership for Africa’s Development. System-wide programmatic matters continue to be examined by the High-level Committee on Programmes of the Board.

169. Noting the crucial importance of country-level coordination in advancing its system-wide objectives, the Board welcomed the conclusions reached by the High-level Committee on Programmes in that regard (see CEB/2002/4, paras. 21-28), including the pragmatic approach adopted by the Committee in its interactions with the United Nations Development Group, with a view to promoting synergies and overall coherence.

170. The Chief Executives Board for Coordination welcomed the High-level Committee on Programmes' decision to monitor and give, as required, policy guidance to inter-agency thematic networks. The Board concurred with the need to pay special attention to ensuring that effective arrangements are in place to continue to secure organized inter-agency coordination in areas of system-wide concern, in particular freshwater, that are crucial for development and for which several agencies share responsibility.

B. Experiences gained, lessons learned and recommendations

171. An inter-agency brochure entitled "Space solutions for the world's problems: how the United Nations family is using space technology for sustainable development" was distributed at the World Summit on Sustainable Development. The brochure could be of continuing value in explaining in a user-friendly format how space technology is used for sustainable development.

172. United Nations entities should be encouraged to participate in or co-sponsor educational events organized by other entities whenever possible.

173. Some United Nations organizations such as WMO and ICAO provide services to their member States relying on access to specific bands of the radio frequency spectrum. Those organizations have formulated positions on the protection of radio frequency bands needed for their activities and have approached their member States to support those positions at World Radiocommunication Conferences. The agencies concerned should keep other interested bodies informed about the issue.

174. The Office for Outer Space Affairs should keep all United Nations entities with space activities fully informed about its negotiations with a view to becoming a cooperating body of the International Charter "Space and Major Disasters" (see para. 83 above). More discussion is needed on certain issues relating to the Charter, for instance the possibility and circumstances for the Charter to be triggered during humanitarian or refugee crises. The aim should be for all United Nations entities active in the field of disaster response to be able to request and receive data in the context of the Charter.

175. The Office for Outer Space Affairs should keep other United Nations entities informed about plans for its Workshop on the Contribution of Satellite Communication Technology to Bridging the Digital Divide, to be organized for the region of Asia and the Pacific in Bangkok from 12 to 16 May 2003. The Workshop would develop a possible contribution to the World Summit on the Information Society from the point of view of the satellite communication sector.

176. A half-day informal open session of the Inter-Agency Meeting on Outer Space Activities, to which representatives of member States of the Committee on the Peaceful Uses of Outer Space would be invited, should be held in conjunction with the Meeting's annual session. The agenda should be focused on a particular topic, or topics, to be selected in advance through discussions among the focal points for the Inter-Agency Meeting.

177. An inter-agency symposium on the benefits of space science and technology and their applications in achieving the development goals of the United Nations Millennium Declaration could be one way to increase the visibility of space-related

activities within the United Nations system. In that regard, one of the topics for the first open, informal session, mentioned in paragraph 176 above, could be how to raise the visibility of space-related activities within the United Nations system and their contribution to achieving United Nations development goals.

Note

- ¹ See United Nations Environment Programme, *Convention on Biological Diversity* (Environmental Law and Institution Programme Activity Centre), June 1992
 - ² 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).
 - ³ *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), chap. I, resolution I, annex.
 - ⁴ *Ibid.*, resolution 2, annex.
 - ⁵ *Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992* (United Nations publication, Sales No. E.93.I.8 and corrigenda), vol. I: *Resolutions adopted by the Conference*, resolution 1, annex II.
 - ⁶ General Assembly resolution 55/2.
 - ⁷ United Nations, *Treaty Series*, vol. 1037, No. 15511.
-