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Committee on the Peaceful Uses of Outer Space
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Item 6 of the provisional agenda*
Implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III)

Draft report of the Committee on the Peaceful Uses of Outer Space on the implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III)

Addendum**

Summary of the findings, recommendations and actions taken by the action teams established by the Committee

Annexes I-XII of the present document, which contain summaries of the findings, recommendations and actions taken by the action teams, will be included as appendices I-XII of annex III to the report of the Committee on the Peaceful Uses of Outer Space implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III), to be submitted to the General Assembly at its fifty-ninth session.

* A/AC.105/C.1/L.270.

** The document was prepared following the submission of inputs from the action teams.

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Annex I

Action Team on the Environmental Monitoring Strategy

Action team number: 1	*Chairpersons*: Parviz Tarikhi (Islamic Republic of Iran), Abdul Rahim Loulou (Syrian Arab Republic) and A. Movlyav (Russian Federation) *Secretariat*: Islamic Republic of Iran

1. *Membership*:

(a) *Countries*: Argentina, Australia, Belarus, China, France, Iran (Islamic Republic of), Iraq, Italy, Japan, Kazakhstan, Lebanon, Mexico, Mongolia, Morocco, Nigeria, Pakistan, Philippines, Portugal, Russian Federation, Saudi Arabia, Syrian Arab Republic, United Kingdom of Great Britain and Northern Ireland and United States of America;

(b) *Organizations*: Department of Economic and Social Affairs of the United Nations Secretariat, United Nations Office on Drugs and Crime, Economic Commission for Europe, Economic and Social Commission for Asia and the Pacific, United Nations Environment Programme, United Nations Educational, Scientific and Cultural Organization,[a] Aquatic Ecosystem Health and Management Society, European Space Agency, International Society for Photogrammetry and Remote Sensing, Space Generation Advisory Council and Manila Observatory.

2. *Brief mission statement*:

(a) Address the needs and requirements for use and protection of the environment through improved monitoring methods approved by different countries and organizations;

(b) Develop a comprehensive worldwide environmental monitoring strategy for long-term global observations by building on existing space and ground capabilities.

3. *Findings*:

(a) In order to implement a comprehensive environmental monitoring strategy the available and produced data should be shared between countries and organizations for better efficiency and economy;

(b) The developed countries can support setting up the strategy technically while developing countries can provide field and ground data and information;

(c) The partnership between relevant national, regional and international institutions should be enhanced and the needed capacity should be built;

(d) Space-based observations have proven to be an effective and strong tool for environmental monitoring. Use of satellite data for environmental reporting has increased, but the full potential remains untapped. Data management and setting up of databases with acquired monitoring data are the next step towards establishing an environmental monitoring system. The availability of data for planners, decision makers, specialists and scientists involved in the issues related to environmental monitoring is also essential.

4. *Recommendations for further action*:

(a) The Action Team is proposing a work plan to launch a worldwide strategy for environmental monitoring, ensuring the sustainable use of ecosystems and promoting regional cooperation on critical environmental issues. The work plan should concentrate resources and efforts on achieving greater technical and scientific cooperation, enhancing knowledge and exchange of experience among countries and organizations, developing policies leading to sustainable environmental development and building upon the current development and national environmental action plans and rural development strategies;

(b) The work plan consists of the following four technical components: (i) networking and knowledge-sharing; (ii) capacity-building of national and regional organizations; (iii) regional systems for collection and distribution of information; and (iv) space technology applications for environmental monitoring. Each of these components will consist of a set of outputs, which will be delivered through specific activities;

(c) The most effective solution for the continuation of reliable, integrated comprehensive environmental monitoring is to develop an institutional mechanism, consisting of interdisciplinary activities with scientific, technical, economic, political and legal aspects and that is constantly active on a global scale in the interests of environmental protection and for the benefit of all countries. This should gradually evolve towards the creation of a united environmental monitoring system, with the following key features: (i) globally acceptable, integrated and comprehensive; (ii) supported by well-structured data collection systems at the national, regional and global levels and coordinated with socio-economic information systems; (iii) containing effective tools for data analysis and processing to produce information and generate knowledge accessible to officials and the general public; (iv) well known to policy and decision makers for its presentation of data and information in an easily understandable format;

(d) The first step to create such a system could be a resolution of the General Assembly that defines the status of the monitoring system. At the early stages of establishing the monitoring system, a strategy for integrated, comprehensive environmental monitoring could be implemented through pilot projects, which would allow local communities to take practical steps and to test and practise the main technological approaches and basic ideas.

5. *Implementation already initiated*:

(a) A questionnaire on the environmental monitoring and observation capabilities and possibilities of the member countries and organizations was prepared and distributed among members of the Action Team;

(b) The Action Team made efforts to expand and develop its activities and coverage of work by accepting new members, such as the Aquatic Ecosystem Health and Management Society;

(c) The Action Team reviewed existing global monitoring organizations and strategies, including the Integrated Global Observing Strategy, the Committee on Earth Observation Satellites, the World Meteorological Organization, the Global Monitoring for Environment and Security initiative and others, in order to study overlaps, gaps and divergences;

(d) Keeping in mind recommendation (c) above, the Action Team has initiated two pilot projects: one for remote sensing applications for monitoring of desertification and the other for the establishment of an institute on the use of integrated comprehensive data in environmental monitoring, with a series of workshops and training activities as well as regional centres for environmental monitoring.

6. *Indication of impediments to implementation*:

Limited contributions of the Action Team to the work from its members.

7. *Benefits to be derived from implementation*:

(a) Ensuring the sustainable use of ecosystems through (i) the implementation of an operational system for the monitoring of the dynamics of the desertification phenomenon in arid and semi-arid areas on selected sites; (ii) adaptation and assessment of relevant space techniques for the monitoring of degraded areas at test sites; (iii) provision of guidelines for the effective implementation of desertification monitoring at the selected test sites in the light of their particular conditions; (iv) support to the capacity-building of national institutions in the field of monitoring and evaluation of desertification; (v) enhancement of the partnership between the relevant subregional and national organizations and institutions;

(b) Promoting national, regional and global cooperation on critical environmental issues. The monitoring technology presented in the report of the Action Team (A/AC.105/C.1/L.275) provides a comprehensive and economically effective structure for the organization of work, bringing together all modern infrastructure for receiving, processing and distributing data and information, including satellite, aerial and ground equipment for data collection, Global Positioning System/Global Navigation Satellite System applications, communication support, software for data processing and integration into geographical information systems and other information systems.

8. *Progress made by the Action Team*:

(a) The Action Team held four meetings in Vienna during the sessions of the Committee on the Peaceful Uses of Outer Space and its Scientific and Technical Subcommittee;

(b) The Action Team continues the compilation of comprehensive information on an environmental monitoring strategy provided by its members and is exploring possibilities and developing plans for implementation.

[a] To be contacted through the Office for Outer Space Affairs of the United Nations Secretariat.

Annex II

Action Team on the Management of Natural Resources

Action team number: 2	*Chairperson*: V. Jayaraman (India)

1. *Membership*:

(a) *Countries*: Australia, Azerbaijan, Brazil, Bulgaria, Canada, Chile, China, Czech Republic, France, India, Iran (Islamic Republic of), Iraq, Italy, Japan, Kazakhstan, Lebanon, Mongolia, Morocco, Nigeria, Pakistan, Philippines, Portugal, Russian Federation, Saudi Arabia, Syrian Arab Republic, United Kingdom of Great Britain and Northern Ireland and United States of America;

(b) *Organizations*: Economic Commission for Europe, Economic and Social Commission for Asia and the Pacific, United Nations Educational, Scientific and Cultural Organization,[a] Space Generation Advisory Council, Manila Observatory and Philippine Astronomical Society.

2. *Brief mission statement*:

Natural resources support the livelihoods of a vast majority of the population in developing countries. The Millennium Development Goals (A/56/326, sect. III) and the World Summit on Sustainable Development have provided the framework for managing natural resources through the ecosystem approach, community participation and "Green governance". The report of the Action Team harmonizes the recommendations of UNISPACE III on natural resource management in line with the perspectives of the Millennium Development Goals and the World Summit.

3. *Findings*:

(a) Earth observation technologies (remote sensing, geographic information systems and modelling) have increasingly been providing valuable information, in spatial and spectral domains, to improve understanding of social processes in relation to the complex interactions between human beings, natural resources and the environment. Examples include deforestation and regrowth in Brazil, population-environment interactions in Thailand, ancient and modern rural development in Guatemala and land use and land cover dynamics in developing countries;

(b) In recent years, Earth observation technologies have been used in some countries to put into context the ecosystem approach towards policy formulation and planning, working out suitable interventions and implementation mechanisms and supporting directly the basis of livelihoods for poor fishermen and farmers;

(c) Promoting large-scale operationalization of Earth observation technologies by Governments, private agencies and non-governmental organizations and at the community and stakeholder levels is of great significance. In order to achieve this and for information to be useful at all levels, it is essential to understand the exact needs that could be addressed through Earth observation technologies. The use of Earth observation technologies, however, must involve all stakeholders in order to become participatory in nature. One way of bringing together all stakeholders could be through pilot or demonstration projects. The results of such projects are more likely to be accepted if a "bottom-up" approach is followed. The involvement of non-governmental organizations helps in integrating concerns at the grass-roots level. The use of Earth observation technologies as information support for "Green governance" and for the implementation of international protocols and conventions holds considerable promise and its success has already been demonstrated in some of the developing countries in the region of Asia and the Pacific;

(d) The use of Earth observation technologies involves a considerable amount of expertise as well as institutional mechanisms to deliver the services and products to the end-users. Among the capacity-building mechanisms, specialized training and institutional partnerships are important. Considering the urgent need for specialized training in the use of Earth observation applications in natural resource management, it is important to promote specialized training opportunities and disseminate best practices through capacity-building activities.

4. *Recommendations for further action*:

(a) The use of Earth observation technologies in the natural resource management is important for the success of UNISPACE III, as well as for the achievement of the Millennium Development Goals and the implementation of the recommendations of the World Summit on Sustainable Development. The Office for Outer Space Affairs of the United Nations Secretariat could play the role of a catalyst in promoting and advocating the operational use of Earth observation technologies in building the natural resources base, especially in the framework suggested by the World Summit. The Office is an ideal platform to promote such a concept by advocating the enabling policies among Member States. This should make it possible to conduct proof-of-concept projects aimed at stakeholders and to establish a framework for international cooperation to promote the operational use of Earth observation technologies;

(b) It is important to develop a compendium highlighting best practices in Earth observation applications in natural resource management in line with the recommendations of the World Summit on Sustainable Development. With the analysis of experience and lessons learned based on the success stories gathered from different parts of the world—representing the diversity of the context and variety of the applications—the compendium will provide insights on the various operational issues and demonstrate the benefits of using Earth observation technologies to the stakeholders. The Action Team should take up this assignment as soon as possible;

(c) Earth observation applications in the natural resource sector require an interdisciplinary approach, involving database technologies, modelling frameworks, a multiplicity of themes and development of a decision support system. The interdisciplinary nature of Earth observation applications calls for focused and specialized training, taking into account the new paradigms emanating from recommendations of the World Summit on Sustainable Development. The Office for Outer Space Affairs could take the initiative to organize specialized training courses, taking advantage of the expertise and infrastructure available in the regional centres for space science and technology education affiliated to the United Nations in different parts of the world.

5. *Implementation already initiated*:

The Action Team has initiated the process of compiling the compendium documenting best practices.

6. *Indication of impediments to implementation*:

The limited inputs from members of the Action Team on success stories, lessons learned and expert opinions representing the diversity of the context and variety of Earth observation applications on the subject, hampered finalization of the report of the Action Team. Therefore, the report, in its present form, could not document the views and wisdom of all the members of the Team.

7. *Benefits to be derived from implementation*:

(a) In line with the recommendations of UNISPACE III, the implementation of recommendations contained in the report of the Action Team will lead to mobilization of public opinion in favour of using Earth observation technologies in natural resource management, especially in developing countries;

(b) Integration of Earth observation in natural resource management will strengthen ongoing efforts to reach the Millennium Development Goals and implement recommendations of the World Summit on Sustainable Development, besides supporting decisions of Governments and stakeholders worldwide on managing natural resources.

8. *Progress made by the Action Team*:

The Action Team is making efforts to compile a compendium documenting best practices drawn from different parts of the world in managing natural resources.

[a] To be contacted through the Office for Outer Space Affairs of the United Nations Secretariat.

Annex III

Action Team on Weather and Climate Forecasting

Action team number: 4	*Chairpersons*: F. D. Santos (Portugal) and D. Hinsman (World Meteorological Organization) *Secretariat*: A. Antunes (Portugal)

1. *Membership*:

(a) *Countries*: Argentina, Australia, Azerbaijan, Brazil, Bulgaria, Canada, China, Cuba, Czech Republic, Hungary, Iran (Islamic Republic of), Iraq, Italy, Japan, Kazakhstan, Lebanon, Nigeria, Pakistan, Philippines, Portugal, Russian Federation, Saudi Arabia, Syrian Arab Republic, Turkey and United States of America;

(b) *Organizations*: Economic and Social Commission for Asia and the Pacific, United Nations Educational, Scientific and Cultural Organization,[a] World Meteorological Organization, Manila Observatory and Philippine Astronomical Society.

2. *Brief mission statement*:

To address global challenges to enhance weather and climate forecasting through expanded international cooperation in the field of meteorological satellite applications.

3. *Findings*:

(a) The plans existing within the United Nations system and in particular the World Meteorological Organization (WMO) planning process directly address activities needed to enhance weather and climate forecasting through expanded international cooperation in the field of meteorological satellite applications;

(b) The Action Team agreed that mechanisms within and outside of the United Nations system constituted an effective means for international cooperation to achieve the goals set forth in the WMO planning process.

4. *Recommendations for further action*:

(a) Strengthen support for member States through their national meteorological and hydrological services in the implementation of the WMO long-term plan, including the necessary financial resources;

(b) Support for national and international organizations providing space systems (operational as well as research and development) that seek to meet WMO observational requirements.

5. *Implementation already initiated*:

The present space-based observing system is adequate to provide the data, products and services required for the present weather and climate forecasting needs and the vision for the future system responds to the increased needs for weather and climate forecasting. Two specific international groups are the Coordination Group for Meteorological Satellites and the Committee on Earth Observation Satellites. The Coordination Group started as an informal group in 1972, to coordinate the first global geostationary system among satellite providers. The European Space Research Organization, the National Oceanic and Atmospheric Administration of the United States of America and the Japan Meteorological Agency were founder members. In 2002, research and development space agencies contributing to the space-based component of the global observing systems became members of the Coordination Group for Meteorological Satellites. The Committee on Earth Observation Satellites was created in 1984 as a result of recommendations from the Economic Summit of the Group of Seven major industrialized countries. It serves as the focal point for international coordination of space-related, Earth observation activities among space agencies and encourages complementarity and compatibility among experimental and operational space-borne Earth observing systems through coordination in mission planning, promotion of full and non-discriminatory data access, setting of data product standards and development of compatible data products, services and applications.

6. *Indication of impediments to implementation*:

Limited resources to support national and international organizations and to provide adequate training, especially in developing countries.

7. *Benefits to be derived from implementation*:

The extension of reliable weather and climate forecasting and assessment of the causes and course of longer-term Earth system change were two major accomplishments of WMO and its partner organizations that have a demonstrable value to humanity. However, they also opened a door towards a greater range of possibilities in the future. Annual losses due to natural disasters, most of which are weather-related, exceed on average 50,000 lives and tens of billions of dollars. Some research activities indicate that longer-term climate change would have an impact on the distribution, frequency and intensity of severe weather events. Annual decisions on food and fibre production, multi-year investments in infrastructure development and management of fresh water resources, to name just a few contemporary socio-economic issues, could benefit significantly from reliable, extended services and products, such as:

(a) *A 30-minute warning of very destructive weather events*: for example, tornado prediction beyond 10 minutes is notoriously difficult but necessary in susceptible areas;

(b) *A 5-day hurricane track prediction to +/-30 km*: to reduce the number of false warnings resulting from the present landfall location uncertainty of 400 km at 3 days;

(c) *A 10-14 day weather forecast*: new measurements, especially tropospheric winds, and substantial advances in modelling capability can push short- and medium-term weather prediction to the limits;

(d) *A 12-month regional rain rat*e: recent efforts in global water cycle modelling indicate the potential to determine regionally specific water cycle projections from global-scale water cycle observations;

(e) *A 15-20 month El Niño prediction*: "hindcasting" of the two most recent El Niño events indicates that this is possible with an adequate system of space-based and in situ observing capability paired with focused modelling efforts;

(f) *A 10-year climate prediction*: decade-scale climate prediction is theoretically possible with the extension of the research systems now being deployed to future operational systems.

8. *Progress made by the Action Team*:

Since its formation, the Action Team has held several workshops and meetings, including those held during sessions of the Committee on the Peaceful Uses of Outer Space and its Scientific and Technical Subcommittee. The review by the Action Team is complete and the implementation of the recommendations listed above will further enhance weather and climate forecasting through expanded international cooperation in the field of meteorological satellite applications.

[a] To be contacted through the Office for Outer Space Affairs of the United Nations Secretariat.

Annex IV

Action Team on Public Health

Action team number: 6	*Chairperson*: J. Hamilton (Canada)

1. *Membership*:

(a) *Countries*: Argentina, Australia, Azerbaijan, Bulgaria, Canada, China, Cuba, Czech Republic, Ecuador, Iran (Islamic Republic of), Iraq, Italy, Kazakhstan, Lebanon, Nigeria, Pakistan, Philippines, Portugal, Saudi Arabia, Slovakia, Syrian Arab Republic, Turkey and United States of America;

(b) *Organizations*: Economic and Social Commission for Asia and the Pacific, World Health Organization,[a] Space Generation Advisory Council, Manila Observatory and Philippine Astronomical Society.

2. *Brief mission statement*:

To improve public health services by expanding and coordinating space-based services for telemedicine.

3. *Findings*:

(a) There is a legitimate need for space-based services for telemedicine, whether in countries that are members of the Group of Eight or in less developed countries;

(b) In addition to telemedicine, space-based technologies have other applications to improve public health, for example:

(i) To identify and monitor situations conducive to emergence of specific diseases;

(ii) To conduct surveillance at the national level to identify and monitor spread of infectious diseases;

(iii) To maintain data on best medical practices and disseminate that information on a global basis;

(iv) To use space-based technologies for continuing education for the general public and for medical professionals;

(c) The uses of space-based technologies listed above are specifically applicable to disaster monitoring and mitigation in addition to improving general public health.

4. *Recommendations for further action*:

(a) Establish a secretariat;

(b) Identify resources for fulfilling the mission as stated above and for delivering the products in accordance with the work plan of the Action Team, namely, organization of a United Nations conference for telemedicine specialists, development of an international disease management network and preparation of a report on the status and potential of telemedicine worldwide.

5. *Implementation already initiated*: (a) A preliminary discussion has taken place with the Space Generation Advisory Council regarding its possible provision of secretariat assistance; (b) Bulgaria has suggested the possibility of holding a telemedicine conference in conjunction with a telemedicine and telehome-care trade fair planned in Luxembourg in April 2004.
6. *Indication of impediments to implementation*: Inability to identify adequate resources; lack of funding is the principal impediment.
7. *Benefits to be derived from implementation*: (a) Overall improvement of the well-being of people worldwide; (b) Better disease monitoring and management at both national and global levels; (c) Improved educational opportunities for the general public and for medical professionals; (d) Assistance in natural or man-made disaster monitoring and mitigation.
8. *Progress made by the Action Team*: (Information not provided)

[a] Only to receive information.

Annex V

Action Team on Disaster Management

Action team number: 7	*Chairpersons*: Li Chuanrong (China), J. Breton (France) and S. Parashar (Canada) *Secretariat*: Canada, China and France

1. *Membership*:

(a) *Countries*: Argentina, Australia, Azerbaijan, Belarus, Bolivia, Canada, Chile, China, Colombia, Cuba, Czech Republic, Ecuador, Egypt, Finland, France, Germany, Greece, Hungary, India, Indonesia, Iran (Islamic Republic of), Italy, Japan, Kazakhstan, Lebanon, Malaysia, Mexico, Morocco, Nigeria, Pakistan, Peru, Philippines, Portugal, Russian Federation, Saudi Arabia, Senegal, Syrian Arab Republic, Thailand, Turkey, United Kingdom of Great Britain and Northern Ireland and United States of America;

(b) *Organizations*: Office of the United Nations High Commissioner for Refugees, Office for the Coordination of Humanitarian Affairs of the United Nations Secretariat, secretariat of the International Strategy for Disaster Reduction, Economic and Social Commission for Asia and the Pacific, United Nations Environment Programme, United Nations Office for Project Services, Food and Agriculture Organization of the United Nations, United Nations Educational, Scientific and Cultural Organization, World Health Organization,[a] European Space Agency, European Association for the International Space Year, Space Generation Advisory Council, Manila Observatory and Philippine Astronomical Society.

2. *Brief mission statement*:

Studying and recommending the implementation of an integrated operational global system, especially through international cooperation to manage natural disaster mitigation, relief and prevention efforts through Earth observation, communications and other space-related services, making maximum use of existing capabilities and filling gaps in worldwide coverage.

3. *Findings*:

(a) Disasters such as floods, earthquakes, fires, oil spills, droughts and volcanic eruptions indiscriminately affect all parts of the globe; thus, coordinated international efforts are required to minimize their impact. Disaster relief requires timely and up-to-date geo-social databases or thematic maps and situational analyses through the full cycle of disaster management, namely prevention and mitigation, preparedness, response and recovery;

(b) Space technology such as for Earth observation (including meteorological satellites), communications, as well as navigation and positioning, can provide the necessary information for disaster management and the means to transmit that information to decision makers in a timely manner. Considerable investment has been made, and is planned to be made, globally to build up space assets in the above areas as well as their associated ground infrastructure;

(c) However, the applicability and utilization of such assets in support of disaster management continue to lag significantly behind development efforts and remain a major challenge in almost all parts of the world. There are some notable international efforts such as the Charter on Cooperation to Achieve the Coordinated Use of Space Facilities in the Event of Natural or Technological Disasters (also known as the International Charter on Space and Major Disasters), the Disaster Monitoring Constellation, the Global Monitoring for Environment and Security initiative, the Integrated Global Observing Strategy and the recent Group on Earth Observations process, which aim to address the development needs and use of space assets more suited to disaster management; all these ongoing initiatives need to continue and be strengthened;

(d) A considerable gap, however, exists and is likely to remain in all areas of space technology application (technical, operational, educational/training, organizational and financial) to disaster management on a global basis unless a more integrated, coordinated approach is taken. This is because of the diversity and enormity of the challenge and the lack of sustained, focused and coordinated efforts to meet the needs of the disaster management community;

(e) In virtually all countries, the responsibility for managing disasters is distributed and authorities responsible for civil protection lack understanding of the benefits that space technologies bring to them. They lack the capacities, for example tools, infrastructure and expertise, necessary for knowing or evaluating what space-derived information is required, generating the required information from space assets and transmit, absorbing or utilizing the information in a timely manner.

4. *Recommendations for further action*:

(a) *Recommendation 1*. Establish an international space coordination body, nominally identified as the "disaster management international space coordination organization", to (i) provide affordable, comprehensive and universally beneficial space-based service delivery in support of disaster management by fully utilizing the existing and planned space- and ground-based assets and infrastructures, with the full participation of existing organizations and mechanisms, including disaster management authorities; and (ii) achieve the development, implementation and operation of an integrated global disaster management space support system that will address all phases of disaster management, including prevention, mitigation, preparedness, response and recovery, and will include all stakeholders, such as space operators, value-added providers and national capabilities.

The Action Team recommends a pragmatic approach, building on the experience of existing operational initiatives such as the International Charter on Space and Major Disasters in the response phase and expanding the role of the proposed organization to the full cycle of disaster management.

The proposed organization would support (i) the efforts of the Integrated Global Observing Strategy, the Earth Observation Summit, the Global Monitoring for Environment and Security initiative and others in developing space infrastructure more suited to the needs of the disaster management community and filling information and observational gaps; (ii) education and training efforts of the Economic and Social Commission for Asia and the Pacific, the United Nations Educational, Scientific and Cultural Organization, and others to ensure progressive enhancement of disaster management;

(b) *Recommendation 2*. Establish a fund to provide sustainable resources that can be used to apply space technology in support of disaster management and to build the capacity of civil protection authorities to use space technology.

The primary contributors to the fund should be development and relief agencies and those who would be the main beneficiaries of disaster reduction, such as insurance companies, lending institutions and end-users;

(c) *Recommendation 3*. Strongly encourage Member States to allocate a portion of their disaster management resources and funds to using space technology and to identify single points of contact to focus their internal disaster management efforts and provide liaison with external efforts.

5. *Implementation already initiated*:

The Action Team developed proposals for action plans to implement each recommendation as indicated below:

For recommendation 1:

(a) Secure critical support for the start-up of the proposed organization;

(b) Set up a small coordination office composed of seconded personnel from member States;

(c) Define key functions of the proposed organization (administration, policy coordination, product standardization, capacity-building for developing countries, provision of education and training for end-users and stakeholders and analysis and promotion of space benefits);

(d) Establish a web site for centralized access to Earth observation data archives;

(e) Establish sample product catalogue;

(f) Establish a case history of benefits;

(g) Within six months, develop an implementation plan to define:

(i) Management and organizational structure;

(ii) Functionality requirements;

(iii) Resource requirements;

(h) Secure approval of the implementation plan;

(i) Achieve the goal to have a fully functioning organization within three to five years.

For recommendation 2:

(a) Secure critical support to study the concept behind the fund;

(b) Set up a working group to establish needs, develop options, propose preferred solutions and recommend an implementation plan;

(c) Achieve the goal to set up preliminary funds one year after approval and full funds in three years.

For recommendation 3:

(a) Raise awareness of issues and needs;

(b) Promote benefits, namely education efforts, pilot projects for developing countries and proof of concept for space-based response.

6. *Indication of impediments to implementation*: In order to realize this important initiative and recommendations of the Action Team, there should first be a commitment and willingness on the part of the space agencies that have sponsored the work of the Action Team to coordinate and utilize their various space assets for the said purpose. Secondly, they should contribute along with other stakeholders to start the implementation process towards the proposed disaster management structure.
7. *Benefits to be derived from implementation*: (a) Easier access to space-derived information in all phases of disasters for all countries; (b) Establishment of an international entity dealing with space and natural and technological disasters in a coherent, coordinated fashion; (c) In the long term, significant reduction of the price paid by each country as a result of natural disasters, having adopted enhanced policies in the disaster prevention phase for urban planning and land use, established a more accurate and credible information base for risk prediction and early warning; and built a more comprehensive capability to utilize space services fully in the emergency response phase.
8. *Progress made by the Action Team*: The Action Team completed its final report.

[a] Only to receive information.

Annex VI

Action Team on Knowledge-sharing

Action team number: 9	*Chairpersons*: M. Othman (Malaysia) and V. Cassapoglou (Greece) *Secretariat*: Malaysia

1. *Membership*:

   (a) *Countries*: Belarus, Dominican Republic, Greece, Indonesia, Iran (Islamic Republic of), Malaysia, Russian Federation, Thailand and Turkey;

   (b) *Organization*: Space Generation Advisory Council.

2. *Brief mission statement*:

   Promotion of the use of space-based communication services to improve knowledge-sharing.

3. *Findings*:

   (a) The ability to communicate is fundamental to development for many communities in the world. Serving isolated areas such as islands and mountainous areas using terrestrial means is often not possible. Space-based communication services are not restricted by geography and, as such, become the only option for many communities;

   (b) Space-based communication systems are capable of providing high-end technology such as broadband communications, mobile telephony and bandwidth on demand;

   (c) Space-based communication services have always been large-scale projects and are generally undertaken by the private sector in response to competitive market forces;

   (d) The creation and application of new knowledge is essential to the survival of almost any economy and can be used to generate future economic benefits. In order to make knowledge-sharing a reality, appropriate information and communication technology infrastructure should be available. Space-based communication services could provide the connectivity to improve such knowledge-sharing.

4. *Recommendations for further action*:

   (a) Identify existing and planned space-based communication infrastructure that is committed to universal access;

   (b) Identify the barriers to the implementation of a space-based communication system;

   (c) Develop policies and strategic plans that could lead to promoting the use of space-based communication systems in improving knowledge-sharing.

5. *Implementation already initiated*:

   A survey is currently being conducted to assess the current space-based communication capabilities within Member States. A questionnaire has been prepared and, with the assistance of the Office for Outer Space Affairs, circulated to Member States.

6. *Indication of impediments to implementation*: Impediments have not been identified as the survey findings have yet to be reviewed.
7. *Benefits to be derived from implementation*: Promoting national, regional and global cooperation on using space-based communication services to improve knowledge-sharing.
8. *Progress made by the Action Team*: (a) The Action Team held two meetings in Vienna during the sessions of the Committee on the Peaceful Uses of Outer Space and its Scientific and Technical Subcommittee; (b) The Action Team held a meeting in Bangkok in conjunction with the Workshop on the Contribution of Space Communication Technology to Bridging the Digital Divide, which was organized for the benefit of the countries in the Asia and Pacific region; (c) The Action Team is in the process of compiling information on space-based communication infrastructure within Member States.

Annex VII

Action Team on Global Navigation Satellite Systems

Action team number: 10	*Chairpersons*: K. Hodgkins (United States of America) and M. Caparole (Italy) *Secretariat*: India, Malaysia (for compilation of the report) and International Telecommunication Union (for the web board management)

1. *Membership*:

(a) *Countries*: Australia, Austria, Belarus, Brazil, Bulgaria, Canada, Chile, China, Colombia, Czech Republic, Egypt, France, Germany, Hungary, India, Iran (Islamic Republic of), Iraq, Italy, Japan, Lebanon, Malaysia, Mexico, Mongolia, Morocco, Nigeria, Pakistan, Philippines, Poland, Portugal, Republic of Korea, Romania, Russian Federation, Saudi Arabia, Syrian Arab Republic, Turkey, Ukraine, United States of America and Zambia;

(b) *Organizations*: Economic and Social Commission for Asia and the Pacific, International Civil Aviation Organization, International Telecommunication Union, European Space Agency, European Commission, European Organisation for the Safety of Air Navigation (Eurocontrol), Civil GPS Service Interface Committee, European Association for the International Space Year, American Institute of Aeronautics and Astronautics, International Association of Institutes of Navigation, International Association of Geodesy, International Bureau of Weights and Measures, International Cartographic Association, International Federation of Surveyors and International GPS Service.

2. *Brief mission statement*:

(a) Survey current efforts to achieve a seamless satellite-based radio navigation and positioning system;

(b) Assess current models of international cooperation and identify those with potential applicability to evolving global navigation satellite systems (GNSS) and services;

(c) Propose specific recommendations for entities of the United Nations, its Member States and other international organizations on actions to promote GNSS user interests, increase the level of awareness and improve the quality and facilitate the utilization of GNSS services, in particular in developing countries.

3. *Findings*:

(a) GNSS and their augmentations are generally recognized as being useful for a wide range of societal, civil and commercial applications. System providers are working to increase awareness among policy makers of the benefits of this technology, but the task is beyond the resources of any individual operator. A coordination mechanism involving operators of GNSS and their augmentations, as well as appropriate international organizations, could easily be established for this purpose;

(b) It appears that the general public and governmental and non-governmental experts understand the basic utility of navigation, positioning and timing services offered by GNSS. While current and future GNSS operators are in a competitive mode, it is fully expected that collaboration will increase in order to serve the user community better. Outreach efforts must move beyond simple awareness among the general public and experts to provide assistance in the integration of GNSS into the basic infrastructure (government, commercial and scientific) of countries, in particular in the developing world. This requires the convening of regular regional workshops (similar to those recently organized by the Office for Outer Space Affairs of the United Nations Secretariat) and the development of "road maps", as well as the preparation of technical reports for the introduction of GNSS services in developing countries;

(c) GNSS signal security and integrity are one of the top priorities for the global user community, regardless of application. There is an urgent need for assistance to national and regional authorities, in particular in developing countries, to establish mechanisms for identifying and eliminating sources of interference that could degrade signals from GNSS and their augmentations.

4. *Recommendations for further action*:

(a) GNSS and augmentation providers should establish an international committee on GNSS that would include appropriate international organizations for the purposes of (i) encouraging compatibility and interoperability; (ii) identifying mechanisms for implementing measures to protect the reliability and integrity of signals at the national, regional and global levels; (iii) establishing user information centres; (iv) developing "road maps" and preparing technical reports for the introduction of GNSS services; (v) organizing regional workshops; and (vi) providing training opportunities in GNSS, in particular in developing countries. It could be necessary to have a secretariat for the proposed committee. It would aim to facilitate the exchange of information among users and providers of GNSS, without prejudice to the roles and functions of GNSS service providers and intergovernmental organizations such as the International Civil Aviation Organization (ICAO), the International Maritime Organization and the International Telecommunication Organization;

(b) (i) The Office for Outer Space Affairs, through the United Nations Programme on Space Applications, should continue to hold regional workshops for promoting the use of GNSS and their augmentations in developing countries;

(ii) The regional centres for space science and technology education affiliated to the United Nations should consider including GNSS programmes in their training activities;

(iii) In cooperation with GNSS and augmentation providers, or the proposed international committee, the Office should maintain a web site to be developed to include information on systems descriptions, recent application developments, training opportunities, sources for assistance in integrating GNSS into national infrastructure as well as in protecting signal reliability and integrity at the national and regional levels. The proposed committee could develop a concept and structure for the web site, as well as identify working methods to collect and update the information on a regular basis. Once that has been done, the web site could become part of the web site of the Office for Outer Space Affairs, to be maintained by the Office in cooperation with the proposed committee, subject to the availability of sufficient resources.

5. *Implementation already initiated*:

The implementation of recommendation 4 (b) (i) above has already started with a series of four regional workshops (held in Austria, Chile, Malaysia and Zambia) and two international expert meetings on GNSS for sustainable development, held in the period 2001-2003 with co-sponsorship of the United Nations, the United States and the European Space Agency. An international workshop held in December 2003 reviewed progress on the implementation of recommendations made by the international meeting of experts that was held in November 2002. That workshop focused on the establishment of terms of reference for the proposed committee. Another meeting is planned for December 2004 in Vienna.

6. *Indication of impediments to implementation*:

As for the recommendations that require action by the Office for Outer Space Affairs, one of the major impediments would be limited resources, including staff resources, to carry out additional work, in particular within the framework of the United Nations Programme on Space Applications. The same would hold true for those recommendations requiring additional resources from system providers. Whereas the civil aviation applications of GNSS are well coordinated through ICAO, the proposed committee would face an uphill task in promoting the use of GNSS for applications in fields other than civil aviation. This is primarily because some of the non-civil aviation applications for providing accurate position location and navigation services are dependent on telecommunications and other infrastructure available in the country. As yet, there is no international body to oversee and coordinate the specifications of the equipment and services in these areas.

7. *Benefits to be derived from implementation*:

Benefits from the implementation of recommendation 4 (a) above would include increased awareness on the part of policy makers of the benefits of GNSS and a subsequent increase in the political support that would result in government funding for the integration of GNSS into the national infrastructure. Benefits from the implementation of recommendations listed under 4 (b) above would include increased training opportunities in GNSS for developing countries, enhanced access by developing countries to information on GNSS and augmentations, as well as their applications and available services, and enhanced technical advisory services for developing countries to use GNSS in their development activities.

8. *Progress made by the Action Team*:

The Action Team has held eight meetings and has (i) compiled comprehensive information on GNSS and augmentations, including policies, system descriptions and associated activities carried out through international cooperation; (ii) conducted a global survey on the existing training opportunities in the field of GNSS; and (iii) identified GNSS applications unique to regions. On the basis of the preliminary findings and recommendations of the Action Team, work is now under way to establish the proposed committee.

Annex VIII

Action Team on Sustainable Development

Action team number: 11	*Chairperson*: A. A. Abiodun (Nigeria) *Secretariat*: Nigeria

1. *Membership*:

(a) *Countries*: Azerbaijan, Belarus, Bolivia, Chile, China, Czech Republic, Egypt, India, Iran (Islamic Republic of), Iraq, Lebanon, Malaysia, Monaco, Mongolia, Morocco, Nigeria, Pakistan, Peru, Philippines, Portugal, Russian Federation, Saudi Arabia, South Africa, Syrian Arab Republic, Turkey, United Kingdom of Great Britain and Northern Ireland and United States of America;

(b) *Organizations*: Economic and Social Commission for Asia and the Pacific, United Nations Educational, Scientific and Cultural Organization,[a] International Society for Photogrammetry and Remote Sensing, European Association for the International Space Year, National Space Society, Space Generation Advisory Council, Manila Observatory and Philippine Astronomical Society.

2. *Brief mission statement*:

(a) Examine the features that single out space technology as an indispensable component of any viable sustainable development agenda and specifically address how space technology can enhance human understanding and management of fundamental life-support systems—air, land and water—including the assessment and management, for example, of agriculture and food security, safety, the environment, education, transportation, health care and disaster mitigation;

(b) Determine the critical steps that each country should take in order to achieve the space capability necessary to support its sustainable development goals.

3. *Findings*:

(a) The collection and analysis of space-acquired data, including the use of geographical information, is a starting point on the path towards sustainable development. The inability of many societies to undertake development efforts that are sustainable is rooted in poor quality collection, organization and management of data;

(b) Space technology has brought into sharper focus the interdependence of the world on sustainable development issues. This is exemplified by the Principles Relating to Remote Sensing of the Earth from Outer Space (General Assembly resolution 41/65, annex), the volcanic eruption of Mount Pinatubo in 1991 and the entry into force, on 1 November 2000, of the Charter on Cooperation to Achieve the Coordinated Use of Space Facilities in the Event of Natural or Technological Disasters (also known as the International Charter on Space and Major Disasters);

(c) There is growing investment and participation by Member States, in particular by developing countries, in space activities as a result of their recognition of the role of space technology as a viable sustainable development tool.

4. *Recommendations for further action*:

(a) Each country should urgently develop the necessary policy, commensurate with its capability, for space-related sustainable development programmes and should periodically sensitize its decision makers to the value and contribution of space science to human development through the organization of appropriate national and regional conferences. Each country should urgently develop its indigenous personnel through participation in regional centres of excellence in space science and technology and establish networks among national and regional institutions in order to facilitate and enhance collaborative research opportunities;

(b) In order to provide active coordination in environmental activities, international institutions, such as the United Nations Environment Programme and the Food and Agriculture Organization of the United Nations, should provide Member States with intellectual leadership that is built on a strong scientific and technical foundation. In order to provide a reliable basis for decision-making, existing conventions relating to sustainable development should forge stronger links with science-based institutions worldwide, such as the International Society for Photogrammetry and Remote Sensing, the Committee on Space Research and the International Astronautical Federation, and their scientific advisory bodies should be expanded to include experts in the fields of space science and technology;

(c) At the level of political leadership, African and West Asian countries should urgently emulate the organization of programmes at the regional level similar to the activities of the Space Conference of the Americas and the Ministerial Conference on Space Applications for Sustainable Development in Asia and the Pacific. The General Assembly should find a way to evaluate regularly the compliance of Member States with globally agreed sustainable goals.

5. *Implementation already initiated*:

(a) Establishment of regional centres for space science and technology education affiliated to the United Nations;

(b) The ongoing organization of sustainable development activities by the Office for Outer Space Affairs of the United Nations Secretariat, the European Space Agency, the Committee on Earth Observation Satellites and the International Astronautical Federation, in cooperation with Member States;

(c) The entry into force of the International Charter on Space and Major Disasters on 1 November 2000.

6. *Indication of impediments to implementation*:

(a) Space activities, in particular those which can support sustainable development programmes, are not being identified as a national priority;

(b) Failure to provide the necessary political support at the national level and to make the necessary national financial and other commitments for space-based sustainable development programmes.

7. *Benefits to be derived from implementation*:

(a) Availability of skilled personnel who can contribute to the generation and use of scientific and technical knowledge and the making of adjustments in existing institutional arrangements;

(b) Establishment of regional and international agreements focusing on areas of cooperation in space activities that could support sustainable development efforts, including the establishment of appropriate networks;

(c) Availability of space-related advisory panels that can support the various existing international conventions relevant to sustainable development;

(d) Establishment of agreements between each country and funding entities, such as the United Nations Development Programme, the World Bank and the International Monetary Fund, focusing on providing support for those aspects of the country's development agenda which emphasize sustainable development.

8. *Progress made by the Action Team*:

(a) Through the development of the Action Team's report and participation in international meetings and conferences, members of the Action Team have contributed to the ongoing global awareness of the role of space science and technology in sustainable development;

(b) The Action Team is cooperating with international organizations, such as the Office for Outer Space Affairs, the United Nations Educational, Scientific and Cultural Organization, the Committee on Earth Observation Satellites and the European Space Agency, in their activities on sustainable development for the benefit of Member States;

(c) The Action Team is sensitizing Member States to the need to bridge the digital divide within and across regional blocks and to the role and importance of the International Charter on Space and Major Disasters.

[a] To be contacted through the Office for Outer Space Affairs of the United Nations Secretariat.

Annex IX

Action Team on Near-Earth Objects

Action team number: 14	*Chairperson*: R. Tremayne-Smith (United Kingdom of Great Britain and Northern Ireland) *Secretariat*: United Kingdom, with assistance from the United States of America, the Committee on Space Research, the International Astronomical Union and the Spaceguard Foundation

1. *Membership*:

   (a) *Countries*: Australia, Brazil, China, Czech Republic, Finland, Iran (Islamic Republic of), Iraq, Japan, Kazakhstan, Lebanon, Pakistan, Poland, Russian Federation, Saudi Arabia, Syrian Arab Republic, United Kingdom of Great Britain and Northern Ireland and United States of America;

   (b) *Organizations*: European Space Agency, Committee on Space Research, International Astronomical Union, National Space Society, Space Generation Advisory Council, Spaceguard Foundation and European Space Science Committee of the European Science Foundation.

2. *Brief mission statement*:

   (a) Review the content, structure and organization of ongoing efforts in the field of near-Earth objects (NEOs);

   (b) Identify any gaps in the ongoing work where additional coordination is required and/or where other countries or organizations could make contributions;

   (c) Propose steps for the improvement of international coordination in collaboration with specialized bodies.

3. *Findings*:

   (a) The threat posed by NEOs is believed to be comparable to more familiar hazards and the risk is global;

   (b) A range of scientific areas require support and coordination in order to improve the evaluation and assessment of risk;

   (c) Planned, integrated collaboration offers the most cost-effective response for scientific efforts (search, study and planning for mitigation), as well as emergency or civil contingency action.

4. *Recommendations for further action*:

   (a) Encourage increased international collaboration to address the issues and improve understanding of the nature of the threat; write improved guidelines for risk management organizations by 2005;

(b) The International Council for Science should consider, and encourage its member organizations to consider, the recommendations contained in various reports (see the work plan and other reference documents, such as the report of the task force on potentially hazardous NEOs commissioned by the Government of the United Kingdom and the findings and conclusions of the Organisation for Economic Cooperation and Development (OECD) Global Science Forum Workshop on Near Earth Objects: Risks, Policies and Actions, held in Frascati, Italy, in January 2003, and help plan the necessary multidisciplinary activity (International Council for Science activity planned for 2004, details to be provided);

(c) Relevant activity needs to be better coordinated at the national, regional and international levels using and enhancing existing mechanisms wherever possible. Such activity could be coordinated by the Committee on the Peaceful Uses of Outer Space, possibly by including an agenda item on the subject in the Scientific and Technical Subcommittee at its forty-second and forty-third sessions, in 2005 and 2006. The Action Team will provide a report in support of the agenda item in order to stimulate discussion. The draft work plan will be discussed at the forty-first session of the Subcommittee, in 2004.

5. *Implementation already initiated*:

Activity initiated by the International Council for Science in the NEO area will also consider the issues arising from the OECD Global Science Forum Workshop held in Frascati, Italy. Missions related to NEOs are increasingly being coordinated internationally. The OECD Global Science Forum working group is developing a country-level risk analysis for NEOs as a follow-up to the Workshop.

6. *Indication of impediments to implementation*:

(a) Overlap and competition exist in search and discovery activity and there is no automatic follow-up of observations in many cases;

(b) An overall solution requires the involvement of government as well as science. Scientific disciplines need to work together more and also to address the needs of civil emergency staff.

7. *Benefits to be derived from implementation*:

(a) Greater coordination and cooperation will lead to improved search capability and increased efficiency in the utilization of the telescopes and related resources used for discovery and follow-up activities;

(b) Government needs and research objectives will be given a common frame of reference and will be related to longer-term needs. Common understanding and, thus, communication will be established between government planning for emergencies and relevant academic research. This should lead to an understanding of the need for appropriate and timely data access together with the resource implications.

8. *Progress made by the Action Team*:

Progress has been made in developing the understanding of the Action Team and the Committee on the Peaceful Uses of Outer Space on NEO issues, through presentations made by members of the Action Team at the recent sessions of the Scientific and Technical Subcommittee and the Committee.

Annex X

Action Team on Capacity-building

Action team number: 17	*Chairperson*: T. Kurasaki (Japan) *Secretariat*: Japan

1. *Membership*:

(a) *Countries*: Argentina, Azerbaijan, Bolivia, Brazil, Canada, Colombia, Ecuador, Egypt, France, Hungary, India, Iran (Islamic Republic of), Japan, Kazakhstan, Lebanon, Mexico, Morocco, Nigeria, Pakistan, Peru, Philippines, Portugal, Saudi Arabia, Syrian Arab Republic and United States of America;

(b) *Organizations*: Economic and Social Commission for Asia and the Pacific, United Nations Educational, Scientific and Cultural Organization, European Space Agency, Committee on Earth Observation Satellites, Committee on Space Research, International Astronautical Federation, International Astronomical Union, National Space Society, Space Generation Advisory Council and Manila Observatory.

2. *Brief mission statement*:

To enhance capacity-building activities through (a) sharing information on existing infrastructure such as fellowship programmes; (b) determining how to enhance education and training opportunities; and (c) organizing and developing mechanisms for the exchange of capacity-building information, including established teaching methods, training materials and expertise.

3. *Findings*:

(a) In order to enhance capacity-building as a whole, it is necessary to reduce the gap between space-faring countries and developing countries. Emphasis should be placed on enhancing educational and training opportunities in developing countries by improving access to educational and training information, such as on best-practice cases of space-faring countries. In this regard, more effective utilization of existing training opportunities offered within the United Nations system, such as those by the regional centres for space science and technology education affiliated to the United Nations, should be promoted and an interregional network should be established for information exchange;

(b) All levels of educational and training opportunities, from children to post-doctoral fellows, teachers and experts, should be promoted. For this purpose, educational and training information for all levels should be disseminated and shared, bearing in mind the emphasis placed in developing countries on capacity-building at the university level because of the importance of effective capacity-building, especially in space applications for those countries;

(c) For true capacity-building, it is necessary to look for long-term solutions to today's challenges and, more importantly, greater commitment should be made by the space community and Governments to support local and regional space-related education and training activities.

4. *Recommendations for further action*:

(a) Promote the sharing of educational materials and information;

(b) Coordinate international activities on capacity-building;

(c) Increase assistance to activities of the regional centres;

(d) Enhance opportunities for the ongoing exchange of ideas on capacity-building;

(e) Facilitate the augmentation of budgetary resources and fellowships;

(f) Prepare and distribute educational booklets.

5. *Implementation already initiated*:

(a) Various types of capacity-building activities are being carried out, such as the Global Learning and Observations to Benefit the Environment (GLOBE) Programme, Eduspace of the European Space Agency, the Space Education Programme of the United Nations Educational, Scientific and Cultural Organization (UNESCO), Space Generation Advisory Council activities, the Ad Hoc Working Group on Earth Observation Education and Training of the Committee on Earth Observation Satellites, the Space Technology Applications and Research (STAR) programme of the Asian Institute of Technology and the activities of the Subgroup on Capacity Building of the ad hoc Group on Earth Observations. These activities are summarized in the final report of the Action Team;

(b) A forum for capacity-building was organized by the Action Team in Houston, Texas, United States, on 15 October 2002, with 52 participants from 17 countries and organizations. The results of the forum are available on the web site of the Office for Outer Space Affairs of the United Nations Secretariat (www.oosa.unvienna.org/unisp-3/followup/action_team_17/houston2002/index.html).

Information on the activities of the Action Team, including its coordination meetings, is available on the web site of the Action Team (www.bonnoffice2002.org/UN).

6. *Indication of impediments to implementation*:

(a) There is a large gap in capacity-building between space-faring countries and developing countries;

(b) The language problem is one of the barriers that must be taken into account, especially in space education for very young students, as most of the information is available only in English; countries are expected to translate various materials into their own languages, by using the multilingual space dictionary of the International Academy of Astronautics;

(c) Member States and organizations should contribute to the efforts by the Office for Outer Space Affairs in cooperation with UNESCO to enhance coordination at the international level of activities on capacity-building.

7. *Benefits to be derived from implementation*:

Capacity-building activities would be facilitated, especially in developing countries, and capacity-building would be enhanced at all levels and in all regions, contributing to the enhancement of peaceful uses of outer space.

8. *Progress made by the Action Team*:

The Action Team has already held nine coordination meetings. On the basis of input provided in response to the questionnaire circulated by the Action Team and other input from member countries, member organizations and other interested cooperating countries, the Action Team has prepared and submitted its final report, which proposes concrete action plans that should be implemented, for the time being, through international coordination of capacity-building efforts.

Annex XI

Action Team on Increasing Awareness

Action team number: 18	*Chairpersons*: L. Sperry (United States of America) and J. Wimmer (Austria)

1. *Membership*:

(a) *Countries*: Australia, Austria, Bolivia, Brazil, Czech Republic, Egypt, France, Iran (Islamic Republic of), Iraq, Italy, Kazakhstan, Lebanon, Malaysia, Morocco, Nigeria, Pakistan, Peru, Philippines, Portugal, Saudi Arabia, Syrian Arab Republic and United States of America;

(b) *Organizations*: Economic and Social Commission for Asia and the Pacific, United Nations Educational, Scientific and Cultural Organization,[a] European Space Agency, Committee on Space Research, International Law Association, International Society for Photogrammetry and Remote Sensing, International Space University, European Association for the International Space Year, National Space Society, Space Generation Advisory Council, Spaceweek International Association, Austrian Space Agency, Manila Observatory and Philippine Astronomical Society.

2. *Brief mission statement*:

(a) Evaluate ongoing efforts to increase awareness among decision makers and the general public of the value of space activities and the role space activities can play;

(b) Prepare a listing of illustrative examples of successful outreach activities;

(c) Identify potential outreach activities and potential target audiences, in particular with regard to the work of the Committee on the Peaceful Uses of Outer Space and the Office for Outer Space Affairs of the United Nations Secretariat;

(d) Provide recommendations on future outreach activities and potential target audiences.

3. *Findings*:

(a) Recommendation 18 of UNISPACE III to "increase awareness among decision makers and the general public of the importance of space activities" is being implemented at various levels (the intergovernmental, governmental and non-governmental levels), partly within the framework of specifically designed activities;

(b) As it is not possible to compile a complete list of relevant activities worldwide, the Action Team is focusing on examining and selecting illustrative examples;

(c) Considerable differences remain as to the emphasis placed by the various relevant actors on increasing awareness.

4. *Recommendations for further action*:

(a) Assessment by the Committee on the Peaceful Uses of Outer Space in the course of its work on reviewing the progress made in the implementation of the recommendations of UNISPACE III in 2003 and 2004;

(b) Observations and recommendations by the Committee and the General Assembly in 2004 regarding the state of implementation of the recommendation and types of possible future action for all relevant actors; (c) Practical suggestions for future activities of the Committee and the Office for Outer Space Affairs in the framework of the United Nations.
5. *Implementation already initiated*: (See "Findings", section 3 (a), above.)
6. *Indication of impediments to implementation*: The vastness of the subject makes a comprehensive evaluation and assessment very difficult.
7. *Benefits to be derived from implementation*: Increased awareness would lead to a better understanding on how space activities can, in particular, contribute in a cost-effective manner to sustainable development, environmental protection and human security.
8. *Progress made by the Action Team*: The Internet-based process of gathering information from Governments and non-governmental entities through specially designed questionnaires is well on track; an interim report was planned to be prepared for the Committee at its forty-sixth session, in 2003.

[a] To be contacted through the Office for Outer Space Affairs of the United Nations Secretariat.

Annex XII

Action Team on Innovative Sources of Financing

Action team number: 32	*Chairperson*: M. Laffaiteur (France)

1. *Membership*:

(a) *Countries*: Algeria, Australia, Colombia, Czech Republic, France, Germany, Iran (Islamic Republic of), Kazakhstan, Mexico, Morocco, Nigeria, Pakistan, Philippines, South Africa and Syrian Arab Republic;

(b) *Organizations*: Economic and Social Commission for Asia and the Pacific, European Space Agency, National Space Society, Space Generation Advisory Council, Manila Observatory and Philippine Astronomical Society.

2. *Brief mission statement*:

For many years, the use of space applications, mainly by developing countries, encountered various problems, including the lack of qualified personnel and equipment and especially the absence of financial resources for the implementation of the process. The large scope of the utilization of space technologies, mainly in Earth observation, has been demonstrated during the last 20 years. However, these promising technologies have not supported development as much as they should have.

In this regard, it was decided at UNISPACE III to conduct a study to adopt measures aimed at identifying new and innovative sources of financing at the international level, including in the private sector, in order to support the implementation of the recommendations of UNISPACE III in developing countries. The work plan of the Action Team for 2002 and 2003 was adopted by the Scientific and Technical Subcommittee at its thirty-ninth session, in 2002.

3. *Findings*:

The Action Team has identified three main prerequisite elements for any development project that involves the use of space applications:

(a) *Funding*: Lack of funding is often the major obstacle in introducing space technology into operational development programmes or projects. That obstacle is generally linked to (i) limited awareness of the possibilities and requirements for securing adequate financial resources to support priority programmes; and (ii) difficulty in proving the cost-benefit advantage of space application techniques to decision makers and potential users. Decision makers responsible for these programmes or projects must ensure they provide adequate information to the development banks or aid agencies;

(b) *Political commitment*: Government support is essential for projects or programmes of national scope and for projects for which international funding will be sought. The institutions that would participate in a pilot or demonstration project using space applications should make a firm commitment, in cash and/or in kind, to the implementation of the project, as this will add credibility to the project proposal. The institutions that have been identified as users in the project proposal should clearly indicate their commitment to using the space application upon demonstration of its cost-effectiveness;

(c) *Education and training*: There is a pressing need to provide developing countries with further education and training opportunities in all areas of space science and technology. Trained personnel are essential if space technologies are to be integrated into operational programmes.

4. *Recommendations for further action*:

(a) To study carefully, in close liaison with the space industry, how it can contribute to the existing Trust Fund for the United Nations Programme on Space Applications. This should be done by the Action Team in order to present proposals to the Scientific and Technical Subcommittee at its forty-first session, in 2004;

(b) The United Nations should urgently request all Member States to contribute to the Trust Fund for the United Nations Programme on Space Applications. It would be a matter of a strict application of the corresponding provisions of the resolution adopted at UNISPACE III, which stipulates that all States should be invited to support financially or in kind in an annual letter from the Secretary-General that will, inter alia, identify priority project proposals for enhancing and assisting technical cooperation activities, in particular for human resources development;[a]

(c) In order to mobilize space industry on the partnership issue, the Scientific and Technical Subcommittee should prepare a "white paper" that should be submitted to space industry. The document should contain a presentation of the main recommendations of UNISPACE III and the needs for the coming years;

(d) To study how to promote contributions by non-governmental entities, including space industry and individuals, to an integrated system for the management of natural disaster consequences;

(e) Experts in development banks or aid agencies are not always aware of the possibilities of space application techniques. It could be useful to include in the United Nations Programme on Space Applications the organization of short workshops for such experts in order to present the possibilities offered by space applications to support development, utilizing the results of pilot projects or techniques already used in application programmes.

5. *Implementation already initiated*:

No concrete action has been undertaken.

6. *Indication of impediments to implementation*:

(a) The difficulty to convince development banks and aid agencies to support development programmes using space applications;

(b) Well-trained people are necessary, but they need good prospects. This requires a long-term political commitment.

7. *Benefits to be derived from implementation*:

Increased availability of funding sources for the implementation of the recommendations of UNISPACE III.

8. *Progress made by the Action Team*:

The report prepared by the Action Team (A/AC.105/L.246) should lead to greater awareness of the difficulties faced by developing countries in the utilization of space applications. The report should help decision makers, including those in development banks and aid agencies, in the use of space applications for the implementation of development projects. As the funding problem is inherent in a large number of recommendations of UNISPACE III, the proposals contained in the report should certainly be useful for enhancing the implementation of the recommendations.

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