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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**

V. Assessment of the process for implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III)

1. The successful implementation of any recommendation that involves Governments requires a commitment by policy makers in terms of the level of priority to be assigned and the allocation of financial and human resources.

2. As a result of a limited awareness of space benefits for society at large, space activities have not been assigned a high priority in many States, resulting in limited resources being allocated to support space activities. In spite of this, much has been accomplished and concrete progress has been made through the work of the Committee on the Peaceful Uses of Outer Space, including its action teams.

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3. In order for government agencies, research institutions and non-governmental entities to receive broad support from policy makers and the general public for their activities, the objectives must be clearly defined, realistic and linked to the priorities of society at large and the benefits to be derived, including short-term benefits, must be well-articulated. This is essential for the successful implementation of the recommendations and should be done at an early stage, as it could lead to receiving the necessary resources.

A. Recommendations of UNISPACE III where progress has been made

4. The combination of the following elements led to successful implementation of recommendations of UNISPACE III: prioritization of work; flexibility in conducting work throughout the year; maximizing opportunities to meet and communicate; coordination and distribution of work; and strong leadership and secretariat support. For details concerning implementation of the recommendations of UNISPACE III, see annexes [...]-[...]* to the present report.

5. The identification of priority areas and establishment of action teams to implement recommendations of UNISPACE III (see chap. II, sect. C, paras. [...]-[...]**) was an important element for success. The Committee and its action teams benefited from active participation and substantive contributions by various entities of the United Nations system, in particular when the priority areas coincided with the priorities of those entities, such as in disaster reduction and emergency response to disasters.

6. A good coordination mechanism was also important. Coordination at all levels among the action teams, as well as between the Committee, the action teams and the Scientific and Technical Subcommittee at their annual sessions, was a key factor for obtaining good results.

7. Intersessional work also proved very useful, including the consideration by the Scientific and Technical Subcommittee of the use of nuclear power sources in outer space, which was advanced by intersessional meetings in 2002 and 2003 among members of the Working Group on the item, and the examination by the Legal Subcommittee of the preliminary draft protocol on space assets of the Convention on International Interests in Mobile Equipment (see chap. III, sect. A, para. [...]***). Intersessional work has been especially successful when there was strong secretariat support, whether provided by Governments or by the Office for Outer Space Affairs, and a good distribution of work among the members involved.

8. The action teams provided a flexible and dynamic mechanism for conducting work throughout the year by maximizing opportunities to meet and communicate, including face-to-face meetings, teleconferences and extensive use of Internet services, to exchange views and information and to prepare documents. This mechanism sustained progress while ensuring that the Committee and its Scientific

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* The annexes to be attached to the final report of the Committee are contained in draft form in document A/AC.105/L.255/Add.6, annexes I and II and A/AC.105/L.255/Add.7, annexes I-XII.

** The cross-referenced paragraphs appear in paragraphs 29 and 30 of document A/AC.105/L.255.

*** Paragraph 12 of document A/AC.105/L.255/Add.1.

and Technical Subcommittee continued to assume the primary responsibility for implementing the recommendations of UNISPACE III by providing guidance to the action teams. All the action teams met on the margins of the annual sessions of the Committee and the Subcommittee and fulfilled their responsibilities to report to the Committee and the Subcommittee. The implementation of the priority recommendations through the action teams also led to the development of international action-oriented networks to address the use of space applications as a tool to solve global problems.

B. Identification of challenges faced in the implementation of the recommendations of UNISPACE III

9. On the basis of the results of a survey conducted among the action teams, the Committee identified limited awareness of the benefits of space activities among policy makers and the general public, limited financial resources and the limited number of experts on space matters as challenges faced in the implementation of the recommendations of UNISPACE III; the limitations are interlinked. Some of the action teams indicated that these impediments were also linked to difficulties in calculating the cost-benefit advantages of space applications.

10. While participation in the work of the action teams was open-ended, allowing any interested State or organization to participate at any point, and while many States had expressed an interest in participating in the implementation of the recommendations of UNISPACE III, various combinations of the impediments mentioned above constituted major obstacles.

11. Where space-related activities are carried out by multiple government entities, participation in the work at the international level, such as in the action teams, is often difficult if effective coordination mechanisms at the national level are not fully established or fully utilized. Without such coordination mechanisms, it could also be difficult to identify a focal point to respond in a timely manner to a request or invitation from an international body for action in space-related areas.

12. While the engagement of non-governmental entities in the process of implementing the recommendations of UNISPACE III was considered important, engaging the private sector by identifying appropriate and meaningful ways and means for it to work with Governments and international organizations as partners has turned out to be a challenge. Particularly in activities involving multilateral cooperation among States, building a partnership with industry requires a coherent approach by Governments, while taking into account the industrial advantages to be gained by participating States. The downturn of the economy, in particular of the space industry as a whole in the past years, made it difficult for many companies to justify the cost and investment necessary for activities that were not directly related to the future sales of their products and services.

C. Recommendations of UNISPACE III that remain to be addressed

13. Among the 33 recommendations of the Vienna Declaration, 12 recommendations were identified for implementation by the action teams. As part of their agenda items, the Committee on the Peaceful Uses of Outer Space and its

subcommittees are implementing 11 more recommendations. In addition to those 23 recommendations, five other recommendations are being implemented by the Office for Outer Space Affairs or by other international entities. Of the remaining five recommendations, one recommendation calls for action to promote further the peaceful uses of outer space through cooperation between "space-faring" and "non-space-faring" countries as well as among developing countries and through the involvement of civil society. This is already being undertaken through a large number of follow-up activities of UNISPACE III. There are, therefore, four recommendations that remain to be addressed.

14. As requested by the Committee, the Office for Outer Space Affairs circulated a questionnaire among Member States in September 2003 to conduct a survey to examine whether each of the 33 actions recommended in the Vienna Declaration had been sufficiently addressed and whether their implementation should be considered as completed. For each of the recommendations that was not considered completed, Member States were invited to indicate the level of priority that should be assigned to it. A similar survey is expected following the review by the General Assembly at its fifty-ninth session of the implementation of the recommendations of UNISPACE III in order to assess the level of priority given by Member States to the four recommendations that are yet to be addressed.

D. Emerging issues following UNISPACE III

15. While UNISPACE III addressed a broad range of thematic areas where space science and technology and their applications could contribute to enhancing the human condition, there are a few issues that have emerged following UNISPACE III. These are described below.

1. Using space technology to support humanitarian assistance

16. One of the issues to emerge relates to the use of space technology and its applications in refugee operations. Since 1995, the use of satellite products has increased in the management of humanitarian and refugee situations around the world. For example, in 1996, the Office of the United Nations High Commissioner for Refugees used satellite images to analyse the environmental degradation of an area in the Democratic Republic of the Congo designated by the United Nations Educational, Scientific and Cultural Organization (UNESCO) as a world heritage site (the Virunga National Park) that had been caused by the arrival of more than 800,000 refugees fleeing the conflict in Rwanda. During the crisis in Kosovo, very-high-resolution images were used to assess destruction of housing and to assist reconstruction activities.

17. With the arrival of a new generation of satellite imagery at very high resolution, satellite products have become an integral part of the humanitarian response to an international crisis. This is an area where the use of space technologies could significantly contribute to supporting entities of the United Nations system in their operational activities to improve conditions for displaced populations.

2. Achieving development goals and time-bound targets

18. The United Nations Millennium Summit considered that the central challenge was to ensure that globalization became a positive force for all the world's people and identified global poverty as the most daunting of all the problems facing the world. The Summit, in the United Nations Millennium Declaration,[1] identified eight development goals and a set of time-bound targets in the fight against poverty, illiteracy, hunger, lack of education, gender inequality, child and maternal mortality, disease and environmental degradation.

19. The major United Nations conferences and summits that were convened following the Millennium Summit in the economic, social and related fields offered opportunities to review the progress made in implementing the Millennium Declaration and to articulate further actions that would be necessary to achieve the internationally agreed development goals, including those contained in the Millennium Declaration. Those summits and global conferences included the World Summit on Sustainable Development, which adopted the Plan of Implementation,[2] the International Conference on Financing for Development, which adopted the Monterrey Consensus,[3] and the World Summit on the Information Society, the first phase of which adopted a Plan of Action.[4]

20. There has been a convergence of effort towards integrated and coordinated implementation of and follow-up to the outcomes of the major United Nations conferences and summits in the economic and social fields. In its resolution 58/291 of 6 May 2004, the Assembly decided to review in 2005 the progress achieved in implementing all the commitments contained in the Millennium Declaration. It is expected that efforts of bodies to follow up on United Nations conferences and summits would be taken into account in the political process leading to the meeting in 2005.

21. In its report entitled "Inventing a Better Future: A Strategy for Building Worldwide Capacities in Science and Technology",[5] the InterAcademy Council[6] identified science and technology as the engine that drives knowledge-based development, which is essential for social and economic inclusion, achieving equity and enhancing participation in social and economic development. Space science and technology is an extremely powerful tool that should be used in achieving the goals set by the world summits.

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[1] General Assembly resolution 55/2.

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

[3] *Report of the International Conference on Financing for Development, Monterrey, Mexico, 18-22 March 2002* (United Nations publication, Sales No. E.02.II.A.7), chap. I, resolution 1, annex.

[4] WSIS-03/GENEVA/DOC/5-E.

[5] InterAcademy Council (Amsterdam, Netherlands, January 2004).

[6] The InterAcademy Council was created in 2000 by 90 of the world's science academies to provide expert knowledge to international bodies such as the United Nations and the World Bank.

3. Inter-agency coordination bodies dealing with space-related matters

22. Coordination among the entities of the United Nations system is achieved through the work of the United Nations System Chief Executives Board for Coordination. While the Inter-Agency Meeting on Outer Space Activities is not part of the machinery of the Board, the Meeting serves as the focal point for inter-agency coordination in space-related activities and reports to the Committee on the Peaceful Uses of Outer Space.

23. In recent years, new inter-agency coordination bodies that have direct or indirect relevance to space-related activities have started to emerge. One such body is the United Nations Geographic Information Working Group, established in 2000 to facilitate inter-agency cooperation and coordination on specific issues in the fields of cartography and geographic information science. The Working Group seeks to identify and implement protocols for sharing, maintaining and assuring the quality of geographic information within the United Nations system and to develop and maintain a common geographic database as a crucial capacity-building effort to enhance normative, programme and operational capabilities and efficiencies within the United Nations system (see also chap. III, sect. C, para. [...]*). The Task Group on Remote Sensing of the Working Group, for example, is working towards providing a single point of entry for sharable satellite imagery held by individual United Nations entities, allowing access by the entire United Nations community, and exploring how all United Nations entities could be included in multi-user licenses for use of satellite imagery.

24. Established by the General Assembly in its resolution 54/219 of 22 December 1999, the Inter-Agency Task Force on Disaster Reduction has been serving since 2002 as the main forum within the United Nations for continued and concerted emphasis on natural disaster reduction, in particular for defining strategies for international cooperation at all levels. The Task Force endeavours to identify gaps in disaster reduction policies and programmes and to recommend remedial action. Currently, the Task Force has four working groups to address the following topics: climate and disasters; early warning; risk, vulnerability and impact assessment; and wild land fires. While the Task Force does not address the use of space technology for disaster reduction as part of its regular work, the secretariat of the Task Force has been working with the Office for Outer Space Affairs to ensure that the use of space technology will be appropriately taken into account in defining future disaster reduction policies and strategies.

25. In November 2001, the Secretary-General established the United Nations Information and Communications Technologies Task Force pursuant to a request by the Economic and Social Council. The Task Force is intended to provide leadership within the United Nations system by helping to formulate strategies for the development of information and communication technologies and putting those technologies at the service of development. The main areas of the business plan adopted by the Task Force for 2004 include monitoring progress in the application of information and communication technologies for the development goals of the World Summit on the Information Society. Through its five working groups, the Task Force is, for example, supporting the development and applications of information and communication technologies to strengthen health-care systems and

* Paragraph 35 of document A/AC.105/L.255/Add.2.

infrastructure and is working with telecommunication carriers to explore ways of making the excess cable and satellite capacity of those carriers available to developing countries.

26. These inter-agency coordination bodies could serve to articulate the specific needs of various entities of the United Nations system that could be met by space technology and its applications. Interaction between these bodies and space-based systems and service providers could lead to a better use of existing space-based services and products. At the same time, there might be a need to examine ways to enhance coordination between the inter-agency bodies dealing with space-related matters, to ensure that participation in those bodies does not create an additional burden on the United Nations bodies with space-related activities, while keeping the inter-agency bodies well informed of the ongoing and planned space-related programmes and initiatives.

4. Establishing an operational, comprehensive system for Earth observation through global initiatives

27. There have been increasing efforts, in particular among space agencies and satellite operators, to maximize and share the benefits of the existing and planned satellite missions and products, with more focus on meeting societal needs and the requirements of end-users, including those in developing countries. The Committee on Earth Observation Satellites (CEOS) is one such example (see chap. III, sect. D, paras. [...]-[...]*). The participation of CEOS in the Integrated Global Observing Strategy (IGOS) Partnership has also served to enhance the dialogue between satellite operators and the global in-situ observing systems for which the Food and Agriculture Organization of the United Nations, the International Oceanographic Commission of UNESCO and the World Meteorological Organization are responsible. The IGOS Partnership provides the entities of the United Nations system with an opportunity to indicate their specific needs for satellite products and express their views, in particular in terms of the requirements of members of the scientific community involved in Earth observation.

28. The Global Monitoring for Environment and Security (GMES) initiative and the Earth Observation Summit, which resulted in the ad hoc Group on Earth Observations (see chap. IV, sect. D, paras. [...]-[...]**), aim to serve larger communities of end-users in a wide range of human activities that benefit from Earth observations. The idea of creating an international system for Earth observations had been proposed at space-related international meetings prior to

* Paragraphs 40-44 of document A/AC.105/L.255/Add.2.

** Paragraphs 36 and 37 of A/AC.105/L.255/Add.3.

UNISPACE III.[7] The scope of the consultative process adopted by the GMES initiative and the ad hoc Group on Earth Observations in terms of the number of participating States and organizations, the level of participation and the frequency of consultative meetings, is, however, unprecedented. The process adopted by the ad hoc Group on Earth Observations, for example, involves many developing countries, as well as a large number of intergovernmental organizations, including entities of the United Nations system, in defining a global Earth observation network of systems that would meet the information needs of global, regional and local research and applications programmes aimed at providing societal benefits called for, for instance, in the United Nations Millennium Declaration and at the World Summit on Sustainable Development, while placing emphasis on capacity-building of developing countries.

29. These initiatives could lead to a globally coordinated and financially sustained mechanism to address user requirements for Earth observations worldwide and across all application areas in a comprehensive manner. This would also increase benefits from Earth observations for developing countries in a wide range of activities. A challenge for the entities of the United Nations system, with limited resources, as well as for developing countries, is to participate meaningfully in and contribute to the emerging high-level coordination initiatives in a significant manner. Each participating entity needs to identify the optimal level of participation in the coordination bodies of similar initiatives without creating adverse impacts on the delivery of their ongoing programmes and outputs.

5. Growing impact of globalization

30. The twenty-first century has experienced major phenomena of globalization and rapid technological advances. Globalization could well be defined as a global system that is defining the parameters for the speed of commerce, communications and innovation and creating a perspective for economic and social integration. Space technology has contributed to building this new system of globalization.

31. It is now possible to exchange information and act much faster at a global scale and to mobilize resources for much larger profits. There are, however, also challenges associated with globalization. The faster pace of commerce, innovations, communications, decision-making and actions with increasing impacts on others is widening the gap between the rich and the poor. Those without the capability, knowledge and resources to take appropriate and timely action are less likely to survive in this rapidly changing world. They are much more vulnerable to sudden changes in the pattern of trade, finance and investment. In a global world, anything that happens on the planet could affect the entire international community.

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[7] Such proposals include: an international mapping and remote sensing satellite system, presented at the sixteenth Congress of the International Society for Photogrammetry and Remote Sensing (Kyoto, Japan, July 1988); “Mission Peace”, to conduct, among other things, land and ocean monitoring, global ozone monitoring and measurement of air pollution and aerosol, proposed by the Indian Space Research Organization to the Second Meeting of the Space Agency Forum for International Space Year (Frascati, Italy, May 1989); and a World Environment and Disaster Observation Satellite System, an initiative of the Society of Japanese Aerospace Companies presented at the United Nations/Economic and Social Commission for Asia and the Pacific/United Nations Disaster Relief Office Workshop on the Applications of Space Techniques to Combat Natural Disasters (Beijing, September 1991).

32. The unprecedented flow of capital, technology, goods and services across borders has had an impact on the environment in a variety of ways and through various channels. Globalization contributes to economic growth and affects the environment adversely in some stages of development and favourably at other stages. Globalization alters the industrial structure of countries, affecting resource use and pollution levels.

33. Effective environmental management requires sensitivity to local ecological and social conditions, and, thus, calls for a diversity of policies. However, without effective global governance to protect the environment, those countries whose industries are affected by global markets may find it difficult to adopt environmental policies that adversely affect the competitiveness of their industries, even though those policies respect local ecological and social conditions. Cooperation and coordination of policy at the global level in internalizing environmental cost while recognizing the need for diversity could lead to greater welfare for all countries. The more integrated environmental and trade policies are, the more sustainable economic growth would be and the more globalization could be harnessed for the benefit of the environment.

34. Space technology should become a tool to empower individuals and States, particularly those in developing parts of the world, to capitalize on emerging opportunities that globalization offers for economic and social development in a sustainable manner. Space applications, particularly through Earth observations, can provide effective tools for global governance of the environment by providing means of verification for compliance with international agreements relating to environmental protection.

35. Satellite communications have significant potential to bridge the digital divide by contributing to the development and strengthening of the information and communication infrastructure as an essential foundation for a knowledge-based society. To achieve the goal of universal access to the information infrastructure that uses satellite-based services, partnership with the private sector is essential, as space-based communication services have been increasingly undertaken by the private sector.

36. Space technology can enable people to share and contribute to the world's collective knowledge, which could lead to collective action at the global level. That would empower people to be part of global governance, for example by being part of the market drive and public pressures, to reward entities that perform well, either public or private, with capital investment and purchases of goods and services.

6. Enhancing partnership with the private sector

37. Government make policy and provide investment that directly or indirectly supports industry to be competitive and innovative. Through procurement contracts, the Government buys and uses products and services provided by industry for the public good. In the long term, the Government invests in workforce development, public infrastructure and long-term research and development. At the international level, Governments participate in the negotiations on international agreements that may affect industrial competitiveness. In some cases, Governments have promoted technology transfer and export of products and services of their industry.

38. Many of these government activities apply to space activities. The Governments in various space-faring countries have supported the growth of their aerospace industries over a long period of time. The industry has responded, for example, by producing quality products and services, investing further in technologies and ensuring the availability of manufacturing capacity.

39. Perspectives for space industry have significantly changed since the time of UNISPACE III, when commercial systems and services were creating constellations of communication satellites and the commercial satellite operators were expected to drive market growth in the launch business. The decrease in the market for geostationary satellites in terms of the number of orders for satellites per year is 25 to 50 per cent less compared to the 1990s. Expanded size, capacity and design lifetime of modern commercial satellites has also reduced the demand for new satellites. Growth in the satellite market appears to be limited in the near future, as the satellite telecommunications industry continues to consolidate and operators either acquire each other or purchase some of each other's satellites.

40. The world launch market has also experienced a downturn. Compared to the 1990s, the number of launches decreased by 20 per cent, mainly owing to the state of the telecommunications industry, with fewer commercial geostationary orbit satellites to be launched and near disappearance of the commercial low-Earth-orbit satellite market.

41. In the past few years, whether in the satellite or launch business, Governments have increasingly become the major clients for space industry to provide public services. In many countries, possibilities for the Government to increase its budget for civil space activities are limited. Under such circumstances, supporting and strengthening the private space industry by the Government becomes essential to ensure the continuity and reliability of space-based services, particularly those that are being provided as part of essential public services. There is increasing interdependence between Governments and industry in civil space activities.

42. Governments could take various measures to support and strengthen their space industry at the national level, such as by increasing their reliance on commercial capabilities to the maximum practical extent. Governments could also focus their space-based services, products and programmes to meeting the needs of public services that cannot be effectively, affordably and reliably satisfied by commercial providers, so as to avoid competition with their industry. Developing a long-term, sustainable relationship with industry is another measure that could be taken. This could also include finding an appropriate mechanism to engage industry in developing and providing a timely and responsive regulatory environment for licensing the operation and export of commercial space-based products and services. Defining long-term goals and priorities in space activities and making sustained commitment and investment, including investment in long-term basic research and the development of cutting-edge space infrastructure, could also help space industry. As more commercial entities from various States participate in space industry, it becomes more important also for Governments to create a level playing field in the market, such as through reinforcement of international trade agreements.[8]

[8] Some of the international trade agreements that would affect space industry include the General Agreement on Tariffs and Trade, provisions of the World Trade Organization and the Agreement

43. In its fight against poverty, the United Nations has increased its efforts to involve the private sector. An initiative of the United Nations Development Programme launched by the Secretary-General in July 2003, the Commission on the Private Sector and Development was established to develop strategic recommendations on how to promote strong domestic private sectors in the developing world as a key strategy towards achieving the targets set at the United Nations Millennium Summit to halve extreme poverty, halt the spread of HIV/AIDS and provide universal primary education by 2015.

44. In its report to the Secretary-General entitled *Unleashing Entrepreneurship: Making Business Work for the Poor*,[9] the Commission offered recommendations on how the major actors—Governments, public development institutions, the private sector and civil society organizations—could modify their actions and approaches to significantly enhance the ability of the private sector to advance the development process. Among other things, in the public-private sphere, the Commission called for action to facilitate access to broader financing options, assist skill and knowledge development and make possible sustainable delivery of basic services, especially energy and water.

E. Funding and financing

1. Perspective for overall resources to support the implementation of the recommendations of UNISPACE III

45. According to some reports on the analysis of the space sector, the size of the worldwide space sector is estimated at about €144 billion in 2003. This includes the budgets of Governments and space agencies for space-related activities, estimated at about €43.5 billion, as well as the revenues generated by the commercial space applications in the fields of telecommunication, Earth observation and navigation. [10] The revenue for space industry involved in or associated with infrastructure (space-based and ground-based infrastructure and launch vehicles), satellite services, use of space-based data and assets as well as support services, was estimated to be US$ 97 billion in 2003 and is forecasted to grow to exceed US$ 130 billion by 2008. Many space-faring countries plan to invest in expanding launch facilities, refurbishing ground facilities and developing launch vehicles, as well as in satellites for Earth observations, weather forecasting, communications and navigation and positioning, among other things. Some countries also increased government budgets for civil space activities.[11]

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on Subsidies and Countervailing Measures.

[9] Commission on the Private Sector and Development, *Unleashing Entrepreneurship: Making Business Work for the Poor* (United Nations Development Programme, New York, March 2004).

[10] See European Space Agency, *The European Space Sector in a Global Context: ESA's annual analysis 2003*, ESA/C(2004)32 (Paris, 2004).

[11] For example, in the series of the European Commission's framework programmes for research and technical development, consisting of networks of excellent and integrated projects, aeronautics and space was included for the first time as one of the thematic priorities in the Sixth Framework Programme, covering the period 2002-2006. Space-related projects are expected to receive 300 million euros.

46. The implementation of the recommendations of UNISPACE III could rely heavily on the use of existing infrastructure and other resources and services. With a relatively small amount of resources as compared to the total sum of investment in space infrastructure, applications and services, and allowing for the use of space capacities that are not fully utilized, Governments, space industry and the private sector in general could provide significant support to the implementation of the recommendations of UNISPACE III.

47. To achieve the internationally agreed development goals, it is imperative to involve all stakeholders, including multilateral development institutions and bilateral aid agencies, multinational and local corporations and international private sector association,[12] as well as regional players experienced in development efforts.[13] The combination of all these stakeholders could bring additional resources for the use of space science and technology and their applications to provide solutions called for in the United Nations Millennium Declaration in a cost-effective manner. An example of this is the Disaster Response Initiative, which addresses the independent fund provider's need for increased understanding of grants provided in response to a disaster and provides a set of principles and practical guidelines to assist them in responding to disasters in a more effective and accountable manner.

48. The implementation of the recommendations of UNISPACE III has a lot to do with protecting the environment and providing food, shelter, health and education, with a direct link with Millennium Development Goals. The challenge in effectively involving the private sector in any of these areas is to take advantage of shifts in global spending to provide partnership investment opportunities to global companies that meet societal needs and promote sustainable development.

49. The expertise of the stakeholders identified in paragraph 47 above and others should be considered in preparing pilot projects recommended by the action teams to implement recommendations of UNISPACE III. In assisting developing countries to secure sufficient funding, consideration should be given not only to foreign direct investment but also to policies and strategies that allow the participation of the national private sector. There is a need for, and a benefit to, compiling best practices and lessons learned with regard to the participation of the private sector in pilot projects of operational programmes.

2. Resources to support the United Nations Programme on Space Applications

50. Governments have provided the main sources of funding to implement the recommendations of UNISPACE III through cash or in-kind contributions. Member States support the work of the Office for Outer Space Affairs through voluntary contributions and contributions to the regular budget of the United Nations. Other sources of funding include donations from intergovernmental organizations, international and national non-governmental organizations, private companies and individuals.

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[12] Examples of international private sector associations include the World Business Council for Sustainable Development, the World Economic Forum, the Sustainable Development Initiative, the Global Mining Initiative and the Sustainable Fisheries Foundation.

[13] Examples of such regional players include the West African Business Network, the Commonwealth Business Forum, the Council on Foundations and the European Foundation Centre.

51. Regular budget and extrabudgetary resources are the two main sources of funding to support the work of the Office for Outer Space Affairs. The extrabudgetary resources, or voluntary contributions, are allocated to the Office through the Trust Fund for the United Nations Programme on Space Applications, which was established pursuant to General Assembly resolution 37/90 of 10 December 1982 on the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE 82).

52. In addition to support provided by the host countries of the activities of the United Nations Programme on Space Applications (see paras. 56-58 below), in-kind contributions include providing speakers and lecturers to the workshops, training courses, seminars and symposiums organized within the framework of the Programme. Work conducted on a voluntary basis by members of the action teams established by the Committee on the Peaceful Uses of Outer Space is also considered an essential in-kind contribution.

3. Trust Fund for the United Nations Programme on Space Applications

53. In direct response to a recommendation contained in the Vienna Declaration on Space and Human Development[14] to establish a special voluntary United Nations fund for the purpose of implementing the recommendations of UNISPACE III, the terms of reference of the existing Trust Fund were revised to include new activities of the Programme to implement those recommendations. As requested by the General Assembly in paragraph 9 of its resolution 54/68 of 6 December 1999, in 2000 the Secretary-General invited Member States to contribute to the Fund and included in his invitation a list of priority project proposals prepared on the basis of recommendations of the Committee on the Peaceful Uses of Outer Space at its forty-fourth session. The following projects and activities were included in the list:

(a) Support for the operational activities of the regional centres for space science and technology education, affiliated to the United Nations, and the Network of Space Science and Technology Education and Research Institutions for Central-Eastern and South-Eastern Europe;

(b) Development of disaster-specific modules and implementation of pilot projects in developing countries to introduce the use of space technologies in disaster management;

(c) Provision of satellite data, hardware and software to user institutions in developing countries to initiate or strengthen pilot projects that use Earth observation data for protecting the environment and management of natural resources;

(d) Development and implementation of a training module on the use of satellite communications for distance education, telemedicine and tele-health applications;

(e) Organization of outreach activities for young people and the general public.

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[14] *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.

54. The Office for Outer Space Affairs, through the annual report of the Expert on Space Applications,[15] has continued to report to the Committee on the cash and in-kind contributions received in support of the United Nations Programme on Space Applications. In many cases, cash contributions to the Trust Fund for the United Nations Programme on Space Applications are earmarked by donors for specific activities organized within the framework of the Programme. The level of cash contributions varies from year to year, determining the number of workshops, training courses and seminars to be organized, the size of those meetings and the number of projects to be funded with voluntary contributions. Predicting the level of voluntary contributions in any given year makes it difficult to plan activities well in advance. The cash contributions received in the Trust Fund from 2000 to 2003 were as follows:

2000.....	$113 000
2001.....	$164 600
2002.....	$705 000
2003.....	$93 600

55. Diversifying and increasing the sources of voluntary contributions reduces the burden of relying on a few donors for the organization of many activities. However, diversifying the sources of contributions could also mean an increased amount of administrative work associated with receiving funds owing to different administrative requirements by different donors in applying for and receiving funds.

4. Support for the activities of the United Nations Programme on Space Applications and the regional centres for space science and technology education, affiliated with the United Nations

56. States that hosted the workshops, training courses, seminars and symposiums of the Programme made cash and in-kind contributions by, among many other things, defraying the cost of all internal operations, for example, room and board for the participants, meeting facilities, local staff, local transportation and organization of social events for the participants. The Government of Austria has hosted the annual symposium since 1994 and the Government of Sweden has hosted the international training course on remote sensing education for educators since 1990, defraying all local expenses involved in the organization of these activities as well as the international air travel of participants.

57. On average, one third of the cost involved in organizing activities of the United Nations Programme on Space Applications has been covered with resources from the Trust Fund. Another third has been covered by the regular budget of the Office for Outer Space Affairs, and the remainder by the States that hosted activities, including many developing countries.

58. The host countries of the regional centres for space science and technology education have made significant contributions for the establishment and operation of those centres. The regional centres have been established to provide university educators and research and application scientists with education programmes consisting of postgraduate training courses lasting nine months, followed by pilot

[15] Reports of the Expert on Space Applications issued since 2000 are contained in the following documents: A/AC.105/730, A/AC.105/750, A/AC.105/773, A/AC.105/790 and Corr.1 and A/AC.105/815.

projects over a one-year period in their respective countries in order to ensure that the participants make full use of the skills and knowledge gained in the training courses. The level of funding provided by the Office is small compared to the total operational cost covered by the host countries, particularly in cases where more than one nine-month training course is organized in a year. In addition to the training courses organized by the regional centres, as indicated below, some centres have also organized short-term workshops.

Regional centre	*Location and year of inauguration*	*Number and subject of nine-month postgraduate courses organized since inauguration*
Regional Centre for Space Science and Technology Education in Asia and the Pacific	India, 1995	Seven courses on remote sensing and geographic information systems (GIS)
		Four courses on satellite communications
		Three courses on satellite meteorology and global climate
		Three courses on space and atmospheric science
African Regional Centre for Space Science and Technology—in English Language	Nigeria, 1998	Two courses on satellite communications
		Two courses on satellite meteorology
African Regional Centre for Space Science and Technology—in French Language	Morocco, 1998	Three courses on remote sensing and GIS
		Two courses on satellite meteorology and global climate
Regional Centre for Space Science and Technology Education in Latin America and the Caribbean	Brazil and Mexico, 2003	One course on remote sensing and GIS

5. Identifying new sources of funding and support

59. Following UNISPACE III, the Committee and its secretariat have continued to place importance on identifying new sources of funding and support in response to a recommendation by UNISPACE III to identify new and innovative sources of funding.

60. At its session in 2000, the Scientific and Technical Subcommittee noted the suggestions by the Office for Outer Space Affairs on possible sources of funding for the regional centres for space science and technology education. The Office suggested that development programmes of Governments and international development financial institutions should support the centres by providing financial aid, experts and equipment. Space agencies, universities and specialized space-related institutions could support the centres by, among other things, defraying the cost of limited amounts of data for education, training and the implementation of pilot projects, providing educational material and sponsoring individual pilot

projects that would be part of the education programme of the centres. Industry could also consider donating hardware and software for education and the implementation of pilot projects and entering into mutually beneficial partnerships.

61. In 2002 and 2003, the Scientific and Technical Subcommittee considered the mobilization of financial resources to develop capacity in space science and technology applications. The Subcommittee concluded that mobilization of such financial resources could be achieved through, among other things, partnerships between technical agencies, donor countries and organizations, the private sector and users in developing countries involved in sustainable development. The Subcommittee considered it important that the Committee bring the immense potential of space applications to the attention of development banks and other international funding institutions that finance development projects in developing countries. The work conducted by the Subcommittee under the agenda item was complemented by the Action Team on New and Innovative Sources of Funding as well as by the United Nations/International Astronautical Federation Workshop held in 2001, which examined the operational aspects of pilot projects, including strategies for funding. The summary of the recommendations of the Action Team on New and Innovative Sources of Funding can be found in annex [...], appendix [...]*, to the present report.

62. Some organizations that have permanent observer status with the Committee have taken new approaches to identifying sources of funding that could support the implementation of the recommendations of UNISPACE III. For example, the European Space Agency (ESA) has adopted a “pilot project” approach, which is to mobilize funding from development aid agencies to support operational pilot projects in the field of space applications. The ESA approach is twofold: first to provide specialized training, technical advice and fellowships, among other things; and then to support the search for the necessary funding, typically from development aid funds, to support the implementation of the project.

63. The International Society for Photogrammetry and Remote Sensing (ISPRS) is establishing the ISPRS Foundation, to administer an extensive and broadly based international programme that would provide grants, training supplies and other forms of scientific assistance to qualified individuals and organizations that are pursuing and/or applying knowledge for advancing the sciences and technologies associated with the disciplines embodied by ISPRS, especially in developing countries.

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* The annex/appendix to be attached to the final report of the Committee is contained in draft form in document A/AC.105/L.255/Add.7, annex XII.