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Committee on the Peaceful Uses of Outer Space
Scientific and Technical Subcommittee
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Draft report

Addendum

V. Use of nuclear power sources in outer space

1. In accordance with General Assembly resolution 57/116, the Scientific and Technical Subcommittee continued its consideration of the item on the use of nuclear power sources in outer space under the work plan adopted at its thirty-fifth session (A/AC.105/697 and Corr.1, annex III, appendix).

2. The Subcommittee had before it a note by the Secretariat, entitled "National research on space debris, safety of space objects with nuclear power sources on board and problems relating to their collision with space debris" (A/AC.105/789), as well as a working document submitted by the Russian Federation on "Prospects for the use of nuclear power sources in outer space" (A/AC.105/C.1/L.265 and Corr.1).

3. The Subcommittee also had before it the report of the Working Group on the Use of Nuclear Power Sources in Outer Space entitled "A review of international documents and national processes potentially relevant to the peaceful uses of nuclear power sources in outer space" (A/AC.105/781). According to its work plan, the Subcommittee considered whether or not to take any additional steps concerning the information in the report.

4. The representatives of Argentina, France, the Russian Federation, the United Kingdom and the United States made statements under this item.

5. Pursuant to an agreement of the Subcommittee at its thirty-ninth session (see A/AC.105/786, para. 77) and based on intersessional work of interested members of the Working Group on the Use of Nuclear Power Sources in Outer Space between the thirty-ninth and fortieth sessions of the Subcommittee, the Subcommittee had before it a working paper submitted by Argentina, France, the Russian Federation, the United Kingdom and the United States, entitled "Proposed work plan for

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developing an international technically based framework of goals and recommendations for the safety of nuclear power source applications in outer space" (A/AC.105/C.1/L.261).

6. Based on that proposal, the Subcommittee adopted a further multi-year work plan on the "Use of nuclear power sources in outer space", covering the period 2003-2006, as contained in annex […] to the present report.

7. The Subcommittee was informed of a new initiative contained in the NASA proposed budget for 2004, building on the Nuclear Systems Initiative recently approved by the United States Congress. The new initiative, called Project Prometheus, would develop advanced radioisotope-based power systems and nuclear fission-based power systems. The planned advances in radioisotope-based systems would enable an all-weather exploration of planetary systems, anywhere and at any time, which could be of potential use on the Mars Smart Lander Mission planned for launch in 2009. The initial activity for the nuclear fission-based power system would focus on defining the near-term technology research goals and on identifying planetary science missions uniquely enabled by nuclear fission electric power.

8. In accordance with General Assembly resolution 57/116, the Subcommittee, at its 581st meeting, on 17 February, reconvened its Working Group on the Use of Nuclear Power Sources in Outer Space under the chairmanship of Sam A. Harbison (United Kingdom). The Working Group held [10] meetings.

9. At its […] meeting, on […] February, the Subcommittee endorsed the report of the Working Group (see annex […] to the present report).

10. The Scientific and Technical Subcommittee agreed that the Working Group should be requested to continue its work between the current session and the forty-first session of the Subcommittee, in 2004, as described in the new work plan (see annex […]) and as recommended in the report of the Working Group (see annex [...]). This could be facilitated by informal discussions among interested members of the Working Group in Vienna on 10 June 2003, immediately prior to the forty-sixth session of the Committee on the Peaceful Uses of Outer Space.

VI. Means and mechanisms for strengthening inter-agency cooperation and increasing the use of space applications and services within and among entities of the United Nations system

11. In accordance with General Assembly resolution 57/116, the Scientific and Technical Subcommittee continued its consideration of the item on means and mechanisms for strengthening inter-agency cooperation and increasing the use of space applications and services within and among entities of the United Nations system. The work plan adopted at the Subcommittee's thirty-seventh session (A/AC.105/736, annex II, para. 40) called for the Subcommittee to develop specific and concrete proposals and, as appropriate, action plans for strengthening inter-agency cooperation in the use of space within the United Nations system and for increasing the use of space applications and services within the system in general and among particular United Nations entities.

12. The Subcommittee had before it the following documents:

(a) Report of the Inter-Agency Meeting on Outer Space Activities on its twenty-third session, held in Vienna from 22 to 24 January 2003 (A/AC.105/791);

(b) Report of the Secretary-General on the coordination of outer space activities within the United Nations system: programme of work for 2003 and 2004 and future years (A/AC.105/792).

13. The representatives of Bulgaria, Mexico, the Syrian Arab Republic and the United States made statements under this item. The representative of WMO also made a statement.

14. The Subcommittee heard the following technical presentations under this agenda item:

(a) "The use of remote sensing in support of the Convention for the Protection of the World Cultural and Natural Heritage", by the representatives of ESA and UNESCO;

(b) "Report of the Chairman of the Inter-Agency Meeting", by the representative of WMO.

15. The Subcommittee noted with satisfaction that the Inter-Agency Meeting on Outer Space Activities had held its twenty-third session in Vienna from 22 to 24 January 2003. The Subcommittee noted that the next session of the Inter-Agency Meeting would be hosted by WMO in Geneva in early 2004, before the forty-first session of the Subcommittee.

16. The Subcommittee endorsed the recommendation of the Inter-Agency Meeting on Outer Space Activities (A/AC.105/791, para. 20) that an open informal session, to which representatives of member States of the Committee would be invited, should be held in conjunction with the annual session of the Inter-Agency Meeting. The Subcommittee noted that, in view of the limited time available during the open session, its agenda should be focused on a particular topic, or topics, to be selected in advance through discussions among the focal points for the Inter-Agency Meeting (A/AC.105/791, para. 21).

17. Based on a recommendation of the Inter-Agency Meeting on Outer Space Activities (A/AC.105/791, para. 30), the Subcommittee invited United Nations entities to submit annual reports to the Subcommittee on specific themes. The Subcommittee also encouraged United Nations entities to consider reporting on their work relevant to specific agenda items of the Committee and its subcommittees.

18. The Subcommittee had before it a document prepared by the Office for Outer Space Affairs containing a preliminary draft list of actions recommended in the Plan of Implementation of the World Summit on Sustainable Development with direct or potential relevance to space science and technology and their applications (A/AC.105/C.1/2003/CRP.12). The draft list also included actions that addressed cross-cutting issues to which the use of space science and technology and their applications could contribute. Based on a recommendation of the Inter-Agency Meeting (A/AC.105/791, paras. 35 and 36), the Subcommittee invited member States of the Committee on the Peaceful Uses of Outer Space to complete the list by submitting information on space-related initiatives and programmes that they would carry out in response to specific actions recommended in the Plan of

Implementation of the World Summit. Information submitted by member States could also include links to web sites relevant to the listed initiatives and programmes to provide further information to those interested. The Subcommittee noted that, once completed, the list could serve as a comprehensive survey of the space community's response to the outcomes of the World Summit.

19. The Subcommittee noted that research and development satellite data and products contributed significantly to WMO programmes. While most operations of national meteorological and hydrological services depended critically on data and products from operational satellite missions, research and development systems had now become an integral part of some of their operations.

VII. Implementation of an integrated, space-based global natural disaster management system

20. In accordance with General Assembly resolution 57/116, the Subcommittee continued its consideration of the item on the implementation of an integrated, space-based global natural disaster management system, in accordance with the work plan adopted at its thirty-eighth session (A/AC.105/736, annex II, para. 41). In accordance with the work plan, the Subcommittee reviewed possible global operational structures to handle natural disaster management, making maximum use of existing and planned space systems.

21. The representatives of Canada, China, Colombia, Cuba, Ecuador, France, Germany, India, Indonesia, Japan, Malaysia, Nigeria, Peru and the United States made statements under this item. The observer of the secretariat for ISDR also made a statement.

22. The Subcommittee heard the following technical presentations under this agenda item:

(a) "Earth observation data in seismic risk assessment", by the representative of Greece;

(b) "Small satellite constellations for monitoring of natural and man-made catastrophes", by the representative of the Russian Federation.

23. In the course of the discussion, delegations reviewed national and cooperative efforts in the implementation of space-based natural disaster management systems. Examples were given of national programmes and bilateral, regional and international cooperation.

24. Space technologies were recognized by the Subcommittee as important tools to increase the capacity of all countries to respond effectively in case of national disasters, in particular in developing countries, which were less prepared to face the costly economic consequences and development setbacks caused by natural disasters.

25. The Subcommittee noted with satisfaction the efforts of States to utilize scientific information, satellite data and space technologies, often in tandem with other technologies such as geographic information systems (GIS), as well as their global integrated approach throughout the disaster management cycle, from

preparedness and prediction, to assessment of hazards and damage, to response and recovery and planning and mitigation.

26. The Subcommittee noted that achieving a global management infrastructure for natural disasters would require the use of a "system engineering" approach, which could tie the existing satellite missions to various scientific models of natural phenomena and to decision support systems that would enhance decision-making capabilities during natural disasters. The Subcommittee further noted that such a "systems" collaborative approach would improve the process of implementing operational structures in support of a potential global network for disaster management.

27. The Subcommittee recognized the importance of the political declaration and the Plan of Implementation of the World Summit on Sustainable Development, in which the fundamental link existing between disaster reduction and sustainable development was recognized. That link resided in the long-term nature of disaster reduction and its targeting the communities most at risk.

28. The Subcommittee noted with appreciation the important contribution that the Action Team on Disaster Management had made throughout the course of the Subcommittee's work plan on "Implementation of an integrated, space-based global natural disaster management system". The Subcommittee noted that the Action Team would continue to provide input both to the Subcommittee's work on disaster management and to the General Assembly's five-year review of UNISPACE III in 2004.

29. The Subcommittee recognized the importance of international initiatives, including the work of CEOS, and specifically its Disaster Management Support Group, which had prepared and published its *Final Report on the Use of Earth Observing Satellites for Disaster Support*. The final report described potential global structures for international cooperation and recommended necessary improvements to current and future satellite systems. In particular, the Subcommittee noted that the work of the Working Group was continuing in collaboration with other international partners such as the Office for Outer Space Affairs, the Committee on the Peaceful Uses of Outer Space, the ISDR secretariat, and IGOS-P.

30. The Subcommittee noted with satisfaction that progress toward an operational international structure for handling natural disaster management and making maximum use of existing and planned space systems had been achieved, in part, through the Charter on Cooperation to Achieve the Coordinated Use of Space Facilities in the Event of Natural or Technological Disasters (the "International Charter 'Space and Major Disasters'"), through which the satellites of ESA, CNES, the Canadian Space Agency, ISRO and NOAA could be used to provide Earth observation images to civil protection authorities responding to a major disaster. The Subcommittee also noted that, since its entry into force in November 2000, the Charter had been activated 27 times in a number of countries where natural disasters such as earthquakes, volcanic eruptions, landslides and floods had occurred. In that regard, the Subcommittee welcomed the efforts of civil protection agencies and their involvement in the Charter activities.

31. The Subcommittee took note that CONAE of Argentina and NASDA of Japan were in the final preparatory stage of joining the Charter. The Subcommittee also

noted with satisfaction that the Office for Outer Space Affairs was in the process of becoming a cooperating body of the Charter and would serve as the focal point and authorized user for the Charter within the United Nations system.

32. The view was expressed that the International Charter "Space and Major Disasters" should be a part of the discussions of the Action Team on Disaster Management in order to identify the means that would allow the establishment of a global integrated system.

33. The Subcommittee noted that the International Satellite System for Search and Rescue (COSPAS-SARSAT), which was using satellites in low-Earth and geostationary orbits to detect and locate aviators, mariners and, just recently, land-based users in distress, could serve as another model for how a global operational management system for disaster support might work. Thirty States were participating in the system and more than 12,000 lives had been saved worldwide since the system became operational in 1982.

34. The Subcommittee also noted that Nigeria, through its National Emergency Management Agency, had joined the COSPAS-SARSAT system and approved the establishment of a COSPAS-SARSAT local user terminal and a mission control centre in the country, which should be in operation in 2003. Once it was operational, Nigeria would be able to receive and act as the hub for distributing alert distress data in the West African subregion so that ships, aircraft and any people in distress with the necessary beacons could be located and rescued.

35. The Subcommittee recognized the contribution of ISDR in the development of space programmes and applications that could bring disaster reduction to a higher level of efficiency in all countries and communities exposed to the risk of disaster, as well as the promotion by ISDR of a proactive approach to identify and manage vulnerability and risk rather than responding to the impact of disasters. The Subcommittee took note of the ISDR collaboration with the co-chairs of the Action Team on Disaster Management and its support of the Office for Outer Space Affairs in the organization of the ongoing series of regional workshops on space applications and disaster management.

36. The Subcommittee noted that several objectives foreseen in its work plan on "Implementation of an integrated, space-based global natural disaster management system" for the years 2001 and 2002 had been addressed by a number of States, including the examination of existing satellite and data distribution systems that could be used for disaster management.

37. The Subcommittee noted with satisfaction the efforts of several States aimed at creating national, regional or international satellites and microsatellite constellations for disaster monitoring.

38. The view was expressed that the development of regional or international integrated space-based disaster management structures would require serious efforts to seek international common standards and protocols, as these could result in significant reduction of development costs while at the same time ensuring maximum utilization of all available systems.

IX. Examination of the physical nature and technical attributes of the geostationary orbit and of its utilization and applications, including, inter alia, in the field of space communications, as well as other questions relating to developments in space communications, taking particular account of the needs and interests in developing countries

39. In accordance with General Assembly resolution 57/116, the Scientific and Technical Subcommittee continued its consideration of the item relating to the geostationary orbit and space communications.

40. The representatives of Chile, Colombia, Ecuador, Greece, Mexico, Peru and South Africa made statements on this item.

41. The Subcommittee heard a presentation under this item on "Technical considerations of future geostationary orbit broadband satellites servicing tropical zones", by the representative of Colombia.

42. The Subcommittee noted with satisfaction that, following the invitation of the Subcommittee at its thirty-ninth session (A/AC.105/786, para. 131), IAU made a special presentation on the status of its work on frequency interference with radio astronomy and radio interference-free zones.

43. Some delegations reiterated the view that the geostationary orbit was a limited natural resource with a number of sui generis characteristics, which risked saturation, and that, therefore, it was necessary to ensure that the benefits of its exploitation would be extended to all nations, regardless of their present technical capabilities, taking particular account of the needs and interests of developing countries. Those delegations expressed the view that access to the geostationary orbit should be granted to all nations on an equitable and rational basis, taking into particular account the needs and interests of developing countries and the special geographical position of certain countries.

44. Some delegations expressed the view that the Committee on the Peaceful Uses of Outer Space, the Subcommittee and the Office for Outer Space Affairs should participate actively in the World Summit on the Information Society. For instance, a statement on how space technology can help bridge the digital divide could be prepared for the second phase of the World Summit, to be held in Tunis in 2005.

45. Some delegations noted the serious threat posed by space debris in the geostationary orbit.

46. The view was expressed that, since services such as tele-health and telemedicine for rural areas required access to broadband satellite communications, and because of existing allocations of the radiofrequency spectrum and reduced signal strength due to rain attenuation, access to those services in tropical zones could be provided most effectively through a few specific positions in the geostationary orbit. For those reasons, that delegation expressed the view that tropical countries should be given priority in the allocation of the geostationary orbit positions in question.

47. The view was expressed that the Committee on the Peaceful Uses of Outer Space should pay increasing attention to legal issues and scientific and technical issues relating to equitable access to the geostationary orbit.

X. Mobilization of financial resources to develop capacity in space science and technology applications

48. In accordance with General Assembly resolution 57/116, the Scientific and Technical Subcommittee considered an agenda item on mobilization of financial resources to develop capacity in space science and technology applications.

49. The representatives of Indonesia, Pakistan and the United States made statements under this agenda item.

50. The Subcommittee noted with appreciation the important contribution made by the Action Team on Innovative Sources of Funding and noted that the Action Team would continue to provide input both to the Subcommittee and to the General Assembly's five-year review of UNISPACE III in 2004 on new and innovative sources of funding to implement the recommendations of UNISPACE III.

51. The Subcommittee noted that the mobilization of financial resources to develop capacity in space science and technology applications could be achieved, among other ways, through partnerships between technical agencies, donor organizations, the private sector and users in developing countries involved in sustainable development projects that could serve to build capacity. Some examples of such partnerships included the Global Climate Observing System; the provision of ground stations and training to States in Africa and the Indian Ocean region under a WMO programme operated by the European Organization for the Exploitation of Meteorological Satellites (EUMETSAT); the Congo Basin Forest Partnership, supported by NASA and the United States Agency for International Development (USAID); and the USAID Afghanistan Spring Wheat Project.

52. The Subcommittee also noted that development banks and other funding institutions that financed development projects in developing countries were not always aware of the immense potential of space applications.

53. Some delegations expressed the view that the use of space applications by developing countries faced obstacles owing to the lack of qualified personnel and equipment and the absence of adequate financial resources. Those delegations emphasized the significance of cooperation between developing and developed countries, in particular to promote opportunities for greater access to space science and technology and thereby building and strengthening capacity.

54. The view was expressed that specific measures to address those obstacles could include the following: contributions from industry working in the telecommunication satellite business; an invitation from the United Nations to Member States and other international entities to make contributions to the Trust Fund of the United Nations Programme on Space Applications; public-private partnership in space-related areas; introduction of clauses in national legislation providing a fiscal incentive to contribute to United Nations development activities; and support from international development banks and other financial institutions. That delegation expressed the view that the Office for Outer Space Affairs should prepare a document for submission to industries, containing the recommendations of UNISPACE III and respective concrete proposals for the implementation of recommendations through partnerships.