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Draft report

Addendum

III. Implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III)

1. In accordance with General Assembly resolution 59/116, the Scientific and Technical Subcommittee continued its consideration of agenda item 5, on implementation of the recommendations of UNISPACE III. Pursuant to paragraph 16 of Assembly resolution 59/116, the Subcommittee requested the Working Group of the Whole, established at the 622nd meeting of the Subcommittee, on 23 February, to consider the issue.

2. At its [...] meeting, on [...] March, the Subcommittee endorsed the recommendations of the Working Group of the Whole concerning implementation of the recommendations of UNISPACE III, as contained in the report of the Working Group (see annex [...]).

3. The representatives of Canada, Chile, China, Hungary, India, Iran (Islamic Republic of), Japan, Malaysia, Nigeria, the United Kingdom and the United States made statements on the item. The observers for ISU and SIA also made statements.

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

(a) "Cassini-Huygens mission", by the representative of ESA;

(b) "Human missions to Europa and Titan", by the observer for ISU.

5. The Subcommittee had before it, for its consideration, the 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 (A/59/174).

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6. The Subcommittee welcomed the success of the review by the General Assembly of the implementation of the recommendations of UNISPACE III and thanked all who had helped to make it a success. In particular, the Subcommittee expressed its appreciation to Niklas Hedman (Sweden), the Chairman of the working group that had prepared the report on the subject (A/59/174) for consideration by the Assembly.

7. The Subcommittee emphasized the importance of implementing the Plan of Action contained in the report (A/59/174, sect. VI.B) and endorsed by the General Assembly in its resolution 59/2 of 20 October 2004.

8. The Subcommittee noted that the recommendations of UNISPACE III continued to be implemented by Member States through national and regional programmes and bilateral cooperation, as well as through international cooperation and integration facilitated by the Committee on the Peaceful Uses of Outer Space and its subcommittees at the regional and international levels.

9. The Subcommittee agreed that the establishment of action teams to implement the recommendations of UNISPACE III was a useful mechanism that other bodies of the United Nations system might use to implement the recommendations of other major conferences held within the United Nations system.

10. The view was expressed that the Subcommittee should continue to use a wide range of mechanisms to assist in the implementation of the recommendations of UNISPACE III, including the consideration of a more integrated approach where appropriate.

11. The Subcommittee agreed that the Committee had made considerable progress in the implementation of the recommendations of UNISPACE III by prioritizing and studying the items contained in "The Space Millennium: Vienna Declaration on Space and Human Development", adopted by UNISPACE III,[1] and making further recommendations on the way forward.

12. The view was expressed that the Committee had entered a new phase and that the further implementation of the recommendations of UNISPACE III would involve implementing the recommendations of the action teams established by the Committee.

13. The view was expressed that, while the implementation of the recommendations of UNISPACE III had raised awareness among Member States of the benefits of space for humanity, much more was needed before developing countries could derive practical benefit from the implementation of those recommendations. That delegation was of the view that, by taking action on the recommendations of the action teams established by the Committee, concrete results would be achieved for the benefit of developing countries.

14. The Subcommittee agreed that work should continue on the establishment of a global system to manage natural disaster mitigation, relief and prevention, as recommended in the Vienna Declaration. In that regard, the Subcommittee noted with appreciation that the ad hoc expert group, consisting of experts from interested member States of the Committee and relevant international organizations, had been established, as recommended in paragraph 9 of General Assembly resolution 59/2, to conduct a study on the possibility of creating an international entity to provide for

coordination and the means of optimizing the effectiveness of space-based services for use in disaster management.

15. The view was expressed that a disaster management international space coordination organization should be established under the aegis of the United Nations system. That delegation was of the view that the rapid dissemination of information on the latest results of research and development in the use of satellite-derived data, as well as information for earthquake prediction, should be included in the scope of the disaster management international space coordination organization.

16. Some delegations expressed the view that in considering the creation of an international entity to coordinate space-based services for use in disaster management, the Subcommittee could consider extending the scope of responsibility of the Office for Outer Space Affairs to include such a coordinating function. The view was expressed that, as a United Nations entity, the Office had the qualifications to undertake such a function and that that approach, with a small increase in resources, would be more cost-effective than setting up a new entity.

17. The view was expressed that the ad hoc expert group, in conducting the study on the establishment of a disaster management international space coordination organization, should consider: (a) the potential of building links to other organizational efforts and disaster management systems; (b) the possible organizational structure of such an organization, including the options available for establishing it under an existing entity or independently; and (c) the resource requirements, including financial, with options recommended to ensure the sustainability of such an organization.

18. The Subcommittee agreed that the Office for Outer Space Affairs should continue its efforts to coordinate the use of space technology in disaster management and to promote the use and applications of Global Navigation Satellite Systems (GNSS).

19. The view was expressed that the Office could enhance the impact of the workshops on the use and application of GNSS by expanding the themes of the workshops to include a wider range of applications and could attract the participation of industry by organizing an exhibition or demonstrations on specific applications.

20. The Subcommittee noted with appreciation the reports by Member States on the promotion and organization of public outreach activities in celebration of World Space Week.

V. Space debris

21. In accordance with General Assembly resolution 59/116, the Scientific and Technical Subcommittee continued its consideration of agenda item 7, “Space debris”, in accordance with the work plan adopted at its thirty-eighth session (A/AC.105/761, para. 130).

22. The representatives of Canada, Chile, China, the Czech Republic, France, Germany, India, Indonesia, Italy, Japan, the Russian Federation, the United Kingdom and the United States made statements on the item.

23. The Subcommittee heard the following scientific and technical presentations on the subject of space debris:

(a) "Re-orbiting of INSAT-2DT from GSO", by the representative of India;

(b) "Space debris-related activities in Japan", by the representative of Japan;

(c) "Russian Federation activities in the field of space debris mitigation", by the representative of the Russian Federation;

(d) "United States space debris environment and policy updates for 2004", by the representative of the United States;

(e) "Report on the activities of the Inter-Agency Space Debris Coordination Committee on space debris mitigation guidelines and supporting document", by the representative of the Inter-Agency Space Debris Coordination Committee (IADC).

24. The Subcommittee had the following documents before it:

(a) A note by the Secretariat on national research on space debris, safety of space objects with nuclear power sources on board and problems relating to their collision with space debris, containing replies received from member States on the issue (A/AC.105/838 and Add.1);

(b) Consideration by the Inter-Agency Space Debris Coordination Committee of the comments received from member States on the proposals on space debris mitigation and results of the consultative meeting of the Inter-Agency Space Debris Coordination Committee and the Committee on the Peaceful Uses of Outer Space held in Vancouver, Canada, on 4 October 2004 (A/AC.105/C.1/L.279).

25. The Subcommittee agreed that Member States and regional space agencies should again be invited to provide reports on national research on space debris, safety of space objects with nuclear power sources (NPS) on board and problems relating to their collision with space debris.

26. The Subcommittee agreed that Member States, in particular space-faring countries, should pay more attention to the problem of the collision of space objects, including those with nuclear power sources on board, with space debris and to other aspects of space debris, as well as its re-entry into the atmosphere. It noted that the General Assembly, in its resolution 59/116, had called for the continuation of national research on the question, the development of improved technology for monitoring space debris and the compilation and dissemination of data on space debris. The Assembly also agreed that international cooperation was needed to expand appropriate and affordable strategies to minimize the impact of space debris on future space missions. The Subcommittee agreed that national research on space debris should continue and that Member States should make available to all interested parties the results of that research, including information on practices that had proved effective in minimizing the creation of space debris.

27. The Subcommittee noted that the United States had endorsed the IADC space debris mitigation guidelines and that its domestic agencies were implementing debris mitigation practices consistent with the IADC guidelines. The Subcommittee also noted that Japan had introduced a space debris mitigation standard that was based on the IADC guidelines and that France, Italy and the United Kingdom were using the IADC guidelines, as well as the European code of conduct for space debris

mitigation, as a reference in the regulatory framework established for national space activities.

28. The Subcommittee noted that France had begun de-orbiting its satellite HELIOS 1B and would begin re-orbiting its satellite TELECOM 2B in 2005 and that India had re-orbited its satellite INSAT-2DT as a voluntary measure, which demonstrated their commitment to space debris mitigation measures.

29. The Subcommittee also noted that Canada had considered the effect of orbital debris in the design of the spacecraft RADARSAT-1 and -2 and that India had designed its launch vehicles with passivation features for the final stages.

30. Pursuant to General Assembly resolution 59/116, the Subcommittee, at its 628th meeting, on 28 February, established a working group, under the chairmanship of Claudio Portelli (Italy), to consider, as necessary, the proposals of IADC on space debris mitigation and any related comments that might be received.

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

32. The Subcommittee noted with appreciation that IADC had continued its efforts to achieve further progress in understanding the various technical aspects connected with space debris, taking into account the comments submitted by member States to the IADC space debris mitigation guidelines.

33. Some delegations expressed the view that in order for States to continue having unrestricted access to outer space, all space-faring nations should be implementing space debris mitigation measures as expeditiously as possible.

34. Some delegations were of the view that the Subcommittee should begin preparing a document that would assist States in their efforts to mitigate space debris.

35. Some delegations were of the view that the IADC space debris mitigation guidelines should serve as the technical background for the preparation of such a document by the Subcommittee.

36. Some delegations were of the view that the document on space debris mitigation to be developed by the Subcommittee should be technically consistent with the goals and substance of the IADC guidelines, should remain voluntary and should not be legally binding under international law.

37. Some delegations were of the view that IADC should continue to work separately on the development of technical measures on space debris mitigation and should continue to keep the Subcommittee informed of future revisions of the IADC guidelines, as well as evolving technologies and debris mitigation practices.

38. The view was expressed that the Subcommittee could, following the preparation of its own document on space debris mitigation, invite IADC to develop a detailed technical handbook that would set out the technical basis of and include detailed information on the various debris mitigation guidelines proposed. That handbook would be useful in designing passivation, re-orbiting and other debris mitigation activities.

39. Some delegations expressed the view that the outer space environment should be preserved to enable developing countries to explore outer space for peaceful

purposes in the future, without any constraints, and that those States having the capability to take action on space debris mitigation should take the lead in that area.

40. Some delegations expressed the view that space debris posed a danger to natural resources and the environment, to the extent that it was a serious threat to human life and the economic activities of States.

41. The view was expressed that, in cases where debris originating from the launch of a rocket could affect other States, those States should be notified. The notification should include critical information such as the planned and actual date, time and trajectory of a launch. That delegation encouraged Member States to carefully consider the notification processes in their countries to ensure their adequacy.

42. The view was expressed that space debris mitigation practices were not limited by the licensing of a space system but continued with the treaty-derived need for supervision and control, which was necessary throughout the operational and disposal phases of a space system.

43. The view was reiterated that a network of specialized focal points should be established in all countries that might be concerned by re-entry risks and that the creation of an international database of such focal points would be highly recommended.

44. The view was reiterated that compliance with all space debris mitigation measures would involve additional costs for all commercial operators and it would therefore be desirable to explore ways and means to provide technical and economic support.

45. The view was expressed that by continuing to consider its agenda item on space debris, the Subcommittee could help to ensure the implementation of the recommendations of the Vienna Declaration on Space and Human Development, particularly as regards the improvement of the protection of the near-Earth space and outer space environments through further research in and implementation of space debris mitigation measures.

VI. Use of nuclear power sources in outer space

46. In accordance with General Assembly resolution 59/116, the Scientific and Technical Subcommittee continued its consideration of agenda item 8, “Use of nuclear power sources in outer space”, under the multi-year work plan for the period 2003-2006, adopted at its fortieth session (A/AC.105/804, annex III).

47. The Subcommittee had before it the following documents:

(a) Note by the Secretariat on 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.105/838 and Add.1);

(b) Note by the Secretariat on a proposed outline of objectives, scope and attributes for an international technically based framework of goals and recommendations for the safety of planned and currently foreseeable nuclear power source applications in outer space (A/AC.105/L.253/Rev.1);

(c) Note by the Secretariat on a preliminary draft of flow charts for potential implementation options for establishing an international technically based framework of goals and recommendations for the safety of planned and currently foreseeable nuclear power source applications in outer space (A/AC.105/L.254/Rev.1);

(d) A working paper submitted by the Chairman of the Working Group on Nuclear Power Sources in Outer Space of the Scientific and Technical Subcommittee containing an interim progress report (A/AC.105/C.1/L.278);

(e) A working paper submitted by the Russian Federation containing a review of the use of nuclear power sources in space programmes and international cooperation (A/AC.105/C.1/L.282).

48. The representatives of Argentina, Germany, the Republic of Korea, the United Kingdom and the United States made statements under the item.

49. The following technical presentation on the subject of the use of NPS in outer space was made to the Subcommittee: “Space nuclear power source technology development: pathways for enabling future space exploration”, by the representative of the United States.

50. The view was expressed that the potential implementation options being developed by the Working Group could provide Member States with a solid basis for analysis, which could assist States in reaching consensus on the implementation option to be recommended to the Subcommittee in 2006. That delegation was of the view that the NPS applications used in space missions represented a key element that could assist space-faring nations in meeting the challenges and objectives of space exploration, taking into consideration that discussions regarding NPS at the national and international levels should have a solid technical foundation.

51. The view was expressed that Member States had agreed in the Vienna Declaration to advance scientific knowledge of space and protect the near and outer space environments through research on designs, safety measures and procedures associated with the use of NPS in outer space. That delegation was of the view that all users of space should consider the possible consequences of their ongoing or planned NPS activities in space before further irreversible actions were taken that could affect the future utilization of near or outer space.

52. The view was expressed that, given that a reasonable balance should be struck between the need to use NPS in outer space and the environmental protection of outer space, the use of NPS should be strictly limited to deep space missions in accordance with the Principles Relevant to the Use of Nuclear Power Sources in Outer Space (General Assembly resolution 47/68). That delegation was of the view that the establishment of proper guidelines and relevant criteria was necessary to ensure the highest degree of safety of NPS applications.

53. The view was expressed that work being carried out on the use of NPS should not be restricted only to the use of NPS in deep space. That delegation noted that terrestrial launches were made with NPS systems already on board and that the work of the Working Group on the Use of Nuclear Power Sources in Outer Space should lead to the establishment of standards and norms for the use of NPS in space. The use of NPS in early orbits in situations in which it could prove convenient to use them should not, a priori, be renounced.

54. The view was expressed that, whenever possible, alternative power sources should be used for space missions and the use of NPS should be restricted to a minimum of a few exceptions. That delegation was of the view that the evident risks that could be involved with launch failures or the accidental re-entry of spacecraft carrying NPS on board should be reduced to an absolute minimum, noting that safety was of prime importance.

55. The view was expressed that there was a need to analyse all reports presented by national and regional space agencies with a view to deciding whether it was necessary or not to make amendments to the Principles Relevant to the Use of Nuclear Power Sources in Outer Space (General Assembly resolution 47/68) and to develop safety standards. That delegation noted with satisfaction the successful work being carried out by the Subcommittee and the Working Group.

56. In accordance with paragraph 18 of General Assembly resolution 59/116, the Subcommittee, at its […]th meeting, on […] February, reconvened its Working Group on the Use of Nuclear Power Sources in Outer Space under the chairmanship of Alice Caponiti (United States). The Working Group held [...] meetings.

57. The Subcommittee noted with satisfaction the excellent progress made during the intersessional period by the Working Group, in accordance with the multi-year work plan, on the development of potential implementation options for establishing an international technically based framework of goals and recommendations for the safety of planned and currently foreseeable space NPS applications.

58. The Subcommittee noted that, at its current session, the Working Group had discussed the merits of holding a joint technical workshop with the International Atomic Energy Agency (IAEA) on the objective, scope and general attributes of a potential technical safety standard for NPS in outer space, as proposed in document A/AC.105/C.1/L.278, and the implications that holding such a joint workshop would have for the remaining period of the current multi-year work plan.

59. The Subcommittee noted with satisfaction that the Working Group had agreed on the possibility of holding the joint workshop during the first two days of the forty-third session of the Scientific and Technical Subcommittee, to be held in 2006, and had also agreed to amend the multi-year work plan under this item to allow for the organization and holding of the joint workshop. The agreements and recommendations of the Working Group are contained in document A/AC.105/C.1/L.281.

60. The Subcommittee also noted with satisfaction that the Working Group had revised and agreed upon the texts of the following documents:

(a) Proposed outline of objectives, scope and attributes for an international technically based framework of goals and recommendations for the safety of planned and currently foreseeable nuclear power source applications in outer space (A/AC.105/L.253/Rev.1); for the revised text, see A/AC.105/L.253/Rev.2;

(b) Preliminary draft of flow charts for potential implementation options for establishing an international technically based framework of goals and recommendations for the safety of planned and currently foreseeable nuclear power source applications in outer space (A/AC.105/L.254/Rev.1); for the revised text, see A/AC.105/L.254/Rev.2.

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

62. The Scientific and Technical Subcommittee endorsed the recommendation of the Working Group that it continue intersessional work on the topics described in the multi-year work plan as amended (see annex [...], paragraph [...], to the present report). The Subcommittee noted that the Working Group had agreed to hold its intersessional meeting in Vienna from 15 to 17 June 2005, during the forty-eighth session of the Committee on the Peaceful Uses of Outer Space.

63. The Subcommittee also agreed that the Working Group should discuss the documents reflected in paragraph 13 of the report of the Working Group as well as the preliminary list of potential topics for the joint technical workshop on nuclear power sources in outer space, referred to in paragraph 10 of the report of the Working Group.

VII. Space-system-based telemedicine

64. In accordance with General Assembly resolution 59/116, the Scientific and Technical Subcommittee considered agenda item 9, "Space-system-based telemedicine", under the three-year work plan adopted at its fortieth session. Pursuant to the work plan, in 2005, member States of the Committee were invited to make presentations on the development of electronic biomedical equipment and its compatibility with space-based telemedicine systems and to hold debates on the limitations of space-based telemedicine systems in terms of technical parameters and user acceptability. In accordance with that work plan, specialized agencies such as WHO were invited to make presentations on space-based telemedicine systems.

65. The representatives of China, Colombia, France, India, Nigeria and the United States made statements on the item.

66. The Subcommittee heard the following scientific and technical presentations on the item:

(a) "Special presentation on telemedicine: multimedia medical translator", by the representative of the United States;

(b) "Mobile computing to support remote medicine", by the representative of the United States;

(c) "INTELEMEDINDIA 2005: the International Conference on Telemedicine", by the representative of India;

(d) "Medical capability for space exploration: beyond telemedicine", by the representative of the United States;

(e) "Use of space technology in the global efforts to enhance health and medical services", by the representative of WHO;

(f) "Approach to a global view on telemedicine and e-health", by the observer for the International Society for Telemedicine.

67. The Subcommittee noted that the development of space-system-based telemedicine was focusing on two areas: remote medicine and support for long-

duration manned space missions. The Subcommittee noted that the advances made in both those areas could contribute to meeting the needs of developing countries, especially in responding to medical emergencies in remote static and mobile locations.

68. The Subcommittee noted the broader application of telemedicine in health care and its benefits for epidemiology, off-site radiology services, cardiac monitoring, medical consultations and specialist referrals, correctional care and tele-education in health care. The Subcommittee also noted the development of a number of initiatives in the area of space-system-based telemedicine in developing countries.

69. The Subcommittee noted that space-system-based telemedicine could provide significantly improved and cost-effective access to quality health care, transform the delivery of health care and improve the health of millions of people throughout the world. The Subcommittee noted that space-system-based telemedicine could reduce the current gap between health-care systems in urban areas and those in rural areas in developing countries.

70. The Subcommittee noted that, by taking advantage of recent developments in telecommunications, lower technology costs and the establishment of the Internet, telemedicine would have a profound impact on the delivery of medical care throughout the world and that telemedicine had already demonstrated that it could reduce the cost of health care.

71. The Subcommittee noted the importance of exchanging information on medical practices and that that exchange could be made more effective through the links achieved between electronic biomedical equipment, computers and satellite-based communications. The Subcommittee also noted that communication satellites could be effectively used during natural disasters to inform the affected population of precautions to be taken to prevent epidemics.

72. The Subcommittee noted with appreciation the work that had been carried out by its members and observers in bringing space-system-based telemedicine to countries in Africa, in order to solve problems related to malaria, meningitis, Guinea worm and other diseases.

73. The Subcommittee noted that obstacles to the development of telemedicine included legal and regulatory barriers, lack of acceptance of the use of telemedicine by the traditional medical establishment and the incompatibility of software used in medical data interface units and software used for very small aperture terminal (VSAT) network management.

74. The Subcommittee noted that low cost and easily operated equipment was essential in using space-system-based telemedicine applications in developing countries. The Subcommittee noted that the development of cost-effective equipment, software, interface elements and access to communication satellite capacity could lead to more evenly distributed health-care services in rural and urban areas.

75. The Subcommittee noted that success in the implementation of initiatives in telemedicine was linked to awareness of the benefits of telemedicine, the proactive support of Governments and the reduction of poverty in developing countries.

76. The Subcommittee agreed that bilateral and multilateral partnerships should be promoted in order to bring the benefits of telemedicine applications to developing countries.

X. Examination of the physical nature and technical attributes of the geostationary orbit and 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 of developing countries

77. In accordance with General Assembly resolution 59/116, the Scientific and Technical Subcommittee considered agenda item 12, on the geostationary orbit and space communications, as a single issue/item for discussion.

78. The representatives of Chile, Colombia, Ecuador and Indonesia made statements on the item.

79. The Subcommittee heard a presentation on this item entitled "Geostationary orbit occupancy analyser tool", given by the representative of Colombia.

80. Some delegations reiterated the view that the geostationary orbit was a limited natural resource, which ran the risk of becoming saturated. Those delegations considered that the exploitation of the geostationary orbit should be rationalized and made available to all countries, in particular those that currently lacked technical and scientific capabilities, thus giving them the opportunity to have access to the geostationary orbit under equitable conditions. The needs and interests of developing countries, the geographical position of certain countries and the process followed by the International Telecommunication Union should also be taken into account. They therefore considered that the item on the geostationary orbit should remain on the agenda of the Subcommittee for further discussion.

81. The view was expressed that there was a need to utilize outer space on the basis of an active and selfless international cooperation that took into account the particular needs of developing countries, especially those arising from the geographical position of certain developing countries. That delegation called on developed countries to assist developing countries by providing the means and the technological capacity to have equitable access to the geostationary orbit.

82. The view was reiterated that, in view of the risk of saturation inherent in the geostationary orbit, the nature of exploitation should be kept rational and that preference should be given to countries in tropical areas in the assignment of spectra within the geostationary orbit.

Notes

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