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Committee on the Peaceful Uses of Outer Space

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Agenda item 9

Report of the Committee to the General Assembly

Draft report

Addendum

Chapter II

C. Report of the Scientific and Technical Subcommittee on the work of its thirty-sixth session (item 6)

1. The Committee took note with appreciation of the report of the Scientific and Technical Subcommittee on the work of its thirty-sixth session (A/AC.105/719), covering the results of its deliberations on the items assigned to it by the General Assembly in resolution 53/45.

1. Space debris

2. The Committee noted that, in accordance with General Assembly resolution 53/45, the Scientific and Technical Subcommittee had continued its consideration of the agenda item on space debris on a priority basis. The Committee took note of the discussion of the Subcommittee on space debris, as reflected in its report (A/AC.105/719, paras. 19-42).

3. The Committee agreed with the Scientific and Technical Subcommittee that consideration of space debris was important and that international cooperation was needed to expand appropriate and affordable strategies to minimize the potential impact of space debris on future space missions and that Member States should pay more attention to the problem of collisions of space objects, including those with nuclear power sources, with space debris, and other aspects of space debris, in accordance with paragraph 31 of General Assembly resolution 53/45 (A/AC.105/719, paras. 20-21).

4. The Committee noted with satisfaction that, following the invitation of the Scientific and Technical Subcommittee, a representative of the Inter-Agency Space Debris Coordination

Committee (IADC) had made a technical presentation on the subject of space debris mitigation practices. The Committee agreed with the Scientific and Technical Subcommittee that IADC should be invited to make a technical presentation on its work to the thirty-seventh session of the Subcommittee (A/AC.105/719, para. 25).

5. The Committee noted with satisfaction that the Scientific and Technical Subcommittee had concluded its work according to the multi-year work plan that it had adopted at its thirty-second session to address specific topics relating to space debris to be covered during the period 1996-1998. In particular, the Committee noted that the Subcommittee had adopted its draft technical report on space debris (A/AC.105/707), which contained the technical changes and amendments proposed during the inter-sessional period, together with the changes proposed by the drafting group during the thirty-sixth session of the Subcommittee (A/AC.105/719, para. 35).

6. The Committee noted with satisfaction that the Subcommittee had submitted to it the final text of the technical report on space debris (A/AC.105/720). The Committee recommended that the technical report should be widely distributed, including by making it available to UNISPACE III, the Legal Subcommittee at its thirty-ninth session, in 2000, international entities, such as COSPAR, IAA, IAF and IADC, and scientific gatherings such as the annual IAF Congress.

7. The Committee agreed that the adoption of the technical report on space debris at its thirty-sixth session was an important achievement. It also agreed that, owing to the complexity of the space debris issue, discussions should continue in order to ensure further progress in developing an understanding of the issue. It also agreed that IADC, as the international organization of experts on space debris, should continue to brief the Subcommittee on the issue on an annual basis, that the Subcommittee should assess the effectiveness of existing mitigation practices and the extent to which they were being implemented and that efforts to model and characterize the debris environment should continue. The technical report on space debris should be reviewed as appropriate and should be updated as new technological developments occurred and as the technical understanding of the space debris environment improved.

[8. The Committee agreed that the Subcommittee, at its thirty-seventh session, should review international application of the ITU standards and IADC recommendations concerning the disposal of satellites in geosynchronous orbit at the end of their useful life. The area of focus could be expanded to include the disposal of upper stages used to achieve geosynchronous orbits and debris issues associated with geosynchronous transfer orbits. The Committee recommended that, to facilitate the review by the Subcommittee, the Secretariat should compile relevant data on space objects in geosynchronous orbit.]

9. The view was expressed that a database on space debris should be developed.

10. The Committee agreed that the Scientific and Technical Subcommittee should continue the consideration of space debris, as a priority item, at its forty-third session.

2. United Nations Programme on Space Applications and the coordination of space activities within the United Nations system

(a) United Nations Programme on Space Applications

11. At the outset of the deliberations on the subject, the Expert on Space Applications reviewed the activities carried out and planned under the United Nations Programme on Space Applications during the period 1998-1999. The Committee expressed its appreciation

to the Expert for the manner in which he had implemented the activities of the Programme within the limited funds at his disposal, in particular, the organization of the regional preparatory conferences for UNISPACE III.

12. The Committee took note of the activities of the Programme as set out in the report of the Scientific and Technical Subcommittee (A/AC.105/719, paras. 47-56). The Committee was pleased to note that further progress was being made in the implementation of the activities of the Programme planned for 1999.

(i) *United Nations conferences, training courses and workshops*

13. With regard to the United Nations workshops, training courses and conferences carried out in the first half of 1999, the Committee expressed its appreciation to the following:

(a) The Government of Romania, as well as ESA, for co-sponsoring the Regional Preparatory Conference for the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space for Eastern Europe, hosted by the Romanian Space Agency and held in Bucharest from 25 to 29 January 1999;

(b) The Government of Jordan, as well as ESA, for co-sponsoring the Workshop on Basic Space Science, held in Mafraq, Jordan, from 13 to 17 March 1999;

(c) The American Institute of Aeronautics and Astronautics (AIAA) for organizing the Workshop on International Space Cooperation: Solving Global Problems, held in Bermuda from 11 to 15 April 1999;

(d) The Government of Sweden, represented by the Swedish International Development Agency, for co-sponsoring the Ninth United Nations/Sweden International Training Course on Remote Sensing Education for Educators, held in Stockholm and Kiruna, Sweden, from 3 May to 11 June 1999.

14. The Committee endorsed the programme of United Nations workshops, training courses, symposia and conferences planned for the remaining part of 1999, including the following, which were described in the report of the Expert on Space Applications (A/AC.105/715, annex IV):

(a) United Nations/China/European Space Agency Conference on Space Applications in Promoting Sustainable Agriculture, to be held in Beijing from 14 to 17 September 1999;

(b) Second United Nations Workshop on Space Technology for Emergency Aid/Search and Rescue Satellite-Aided Tracking System for Ships in Distress, to be held in Maspalomas, Gran Canaria, Spain, in September 1999;

(c) United Nations/International Astronautical Federation Workshop on Space: An Integral Part of Sustainable Development, being co-sponsored by ESA and the European Commission and organized in cooperation with the Government of the Netherlands and the International Institute for Aerospace Survey and Earth Sciences (ITC), to be held in Amsterdam and Enschede, Netherlands, from 30 September to 3 October 1999;

(d) Regional workshop on the role of the African Regional Centre for Space Science and Technology Education—in English language in national and regional development, to be held in Ile-Ife, Nigeria, in September 1999;

(e) Post-UNISPACE III briefing at the Second Asia-Pacific Ministerial Conference on Space Applications for Sustainable Development, to be held in New Delhi from 2 to 8 December 1999.

15. The Committee endorsed the following programme of workshops, training courses, symposia and conferences planned for 2000:

(a) Tenth United Nations/Sweden International Training Course on Remote Sensing Education for Educators;

(b) United Nations/European Space Agency/Committee on Space Research Workshop on Data Analysis Techniques, to be held in India;

(c) United Nations/Austria symposium on space technology and development, to be held in Graz, Austria;

(d) United Nations/International Astronautical Federation workshop on space technology for the benefit of developing countries, to be held in Rio de Janeiro.

16. The Committee noted that other activities would be organized under the auspices of the United Nations Programme on Space Applications on the basis of recommendations of UNISPACE III.

17. The Committee noted with appreciation financial contributions of \$22,000 from the Government of Austria and \$85,000 from ESA to implement the activities of the Programme.

18. The Committee noted with appreciation the provision, by host countries and entities, of experts to serve as instructors and speakers in activities of the United Nations Programme on Space Applications. It also noted the financial and other assistance that had been or would be provided to the Programme by the Department of Physical Geography of Stockholm University in Sweden; Centro Espacial de Canarias of Instituto Nacional de Técnica Aeroespacial (INTA) of Spain, the Institute of Astronomy and Space Sciences, Al-al-Bayt University in Jordan, the Ministry of Science and Technology and the Ministry of Agriculture of China, the Romanian Space Agency and SSC Satellitbild in Sweden.

(ii) *Long-term fellowships for in-depth training*

19. The Committee expressed appreciation to ESA for having offered five training fellowships and to the Government of China for having offered two fellowships in various areas relating to space activities for the period 1998-1999. The status of the fellowships for the period 1998-1999 and the countries whose candidates had received fellowships were indicated in the report of the Expert on Space Applications (A/AC.105/715, annex II).

20. The Committee noted that it was important to increase the opportunities for in-depth education in all areas of space science and technology and related applications projects through long-term fellowships and urged Member States to make such opportunities available at their relevant institutions.

(iii) *Technical advisory services*

21. The Committee noted that the Programme provided technical advisory services in support of projects on regional space applications, as indicated in the report of the Expert on Space Applications (A/AC.105/715, paras. 20-35), including the following:

(a) Assistance in the growth and operation of the Asia-Pacific Satellite Communications Council;

(b) Collaboration with several African countries on the implementation of the project on cooperative information network linking scientists, educators, professionals and decision makers in Africa (COPINE), pursuant to one of the recommendations of the United Nations Regional Conference on Space Technology for Sustainable Development in Africa, held in

Dakar from 25 to 29 October 1993, regarding the establishment, as a matter of urgency, of an efficient communications network among African and European professionals and scientists at the national, continental and intercontinental levels;

(c) Collaboration with ESA on follow-up activities relating to the series of workshops on basic space science and on the use of Earth observation data;

(d) Follow-up to the United Nations international training course series in Sweden on remote sensing education for educators;

(e) Contribution to the Committee on Earth Observation Satellites (CEOS) proposal on the Integrated Global Observing Strategy.

(iv) *Promotion of greater cooperation in space science and technology*

22. The Committee noted that the United Nations was collaborating with international professional bodies within the space community to promote the exchange of experiences on space activities. The United Nations Programme on Space Applications had co-sponsored the United Nations/International Astronautical Federation Workshop on Expanding the User Community of Space Technology in Developing Countries, held in Melbourne in September 1998, in conjunction with the forty-ninth IAF Congress. Participants from developing countries at the Workshop also attended the Congress.

23. The Committee noted that the United Nations Programme on Space Applications had co-sponsored the participation of scientists from developing countries in the thirty-second Scientific Assembly of the Committee on Space Research, held in Nagoya, Japan, from 12 to 19 July 1998.

24. The Committee noted that the United Nations Programme on Space Applications would co-sponsor the participation of scientists from developing countries in the United Nations/International Astronautical Federation Workshop on Space: An Integral Part of Sustainable Development, to be held in Amsterdam and Enschede from 30 September to 3 October 1999, in conjunction with the fiftieth IAF Congress, and that participants at the Workshop would also attend the Congress, which would be held from 4 to 8 October 1999.

(b) International space information service

25. The Committee noted with satisfaction that the Office for Outer Space Affairs had continued to develop a World Wide Web home page (<http://www.un.or.at/OOSA/index.html>), including both information within the United Nations system and access to external databases.

26. The Committee noted with satisfaction the publication of the document entitled *Seminars of the United Nations Programme on Space Applications: Selected Papers on Remote Sensing, Space Science and Information Technology (A/AC.105/711)*.

27. The Committee noted with satisfaction the publication of a booklet entitled *Space for Development*, which gave detailed descriptions of past and current activities of the United Nations Programme on Space Applications and an indication of its future activities.

(c) Coordination of space activities within the United Nations system and inter-agency cooperation

28. The Committee noted that the General Assembly, in its resolution 53/45, paragraph 24, had encouraged all Member States, organizations within the United Nations system and other international organizations with space activities to contribute actively to achieving the objectives of UNISPACE III.

29. The Committee continued to stress the necessity of ensuring continuous and effective consultations and coordination in the field of outer space activities among organizations within the United Nations system and the avoidance of duplicative activities. The Committee also noted that the United Nations Programme on Space Applications should enhance coordination efforts with regional space events such as the Regional Space Applications Programme for Sustainable Development in Asia and the Pacific of the Economic and Social Commission for Asia and the Pacific (ESCAP).

30. The Committee noted with satisfaction that the Inter-Agency Meeting on Outer Space Activities had held its nineteenth session at the United Nations Office at Vienna on 2 and 3 June 1998 and that the report on its deliberations (A/AC.105/701) and the report of the Secretary-General entitled "Coordination of outer space activities within the United Nations system: programme of work for 1998 and 1999 and future years" (A/AC.105/700) were before the Committee.

31. The Committee noted that the sessions of the Inter-Agency Meeting on Outer Space Activities would continue to be convened at the United Nations Office at Vienna and to be hosted by the Office for Outer Space Affairs prior to the sessions of the Scientific and Technical Committee each year, without prejudice to any invitation by an interested agency to host a session at its headquarters. The Committee noted that the twentieth session of the Inter-Agency Meeting on Outer Space Activities, scheduled to be held at the United Nations Office at Vienna from 2 to 4 February 2000, would address, among other things, coordination of activities related to the plan of action of UNISPACE III.

(d) Regional and interregional cooperation

32. The Committee noted with appreciation the continuing efforts undertaken by the United Nations Programme on Space Applications, in accordance with General Assembly resolution 45/72 of 11 December 1990, in leading an international effort to establish regional centres for space science and technology education in existing national or regional educational institutions in developing countries. The Committee also noted that, once established, each centre could expand and become part of a network that could cover specific programme elements related to space science and technology in established institutions in each region.

33. The Committee recalled that the General Assembly, in its resolution 50/27 of 6 December 1995, had endorsed the recommendation of the Committee that the centres be established on the basis of affiliation to the United Nations as early as possible and that such affiliation would provide the centres with the necessary recognition and would strengthen the possibilities of attracting donors and of establishing academic relationships with national and international space-related institutions.

34. The Committee recalled that the General Assembly, in its resolution 53/45, had noted with satisfaction that, in accordance with paragraph 30 of its resolution 50/27, the Centre for Space Science and Technology Education in Asia and the Pacific had continued its education programme in 1998 and that significant progress had been achieved in establishing regional centres for space science and technology education in the other regions.

35. The Committee noted with satisfaction that the Centre for Space Science and Technology Education in Asia and the Pacific had been conducting its seventh nine-month course at the Space Applications Centre at Ahmedabad, India, on 1 July 1999. The course would continue until 31 March 2000. The theme of the course was satellite communications.

36. The Committee recommended that the Member States concerned in Asia and the Pacific should undertake further consultations, with the assistance of the Office for Outer Space

Affairs, with a view to making the Centre for Space Technology Education in Asia and the Pacific grow into a network of nodes.

37. The Committee noted with satisfaction that the African Regional Centre for Space Science and Technology—in French language (CRASTE-LF) had been inaugurated on 24 October 1998 in Morocco. The Committee also noted with satisfaction: (a) that CRASTE-LF would convene a first session of training in Remote Sensing and Geographic Information Systems in January 2000 and a second session of training in Space Telecommunication in the spring of 2000; (b) that CRASTE-LF had prepared a questionnaire to be sent to Member States, for completion by scientists and specialized institutions, and that the information gathered by means of the questionnaire would be incorporated in an annual directory of information on African capabilities in space science and technology; and (c) that CRASTE-LF was planning to organize a workshop on its scientific orientation, in order to identify the needs of African countries in the area of space science and technology, and that the workshop would be held before the convening of the regular meeting of its Administrative Council, which was expected to take place at the end of October and the beginning of November.

38. The Committee also noted with satisfaction that the African Regional Centre for Space Science and Technology Education—in English language had been inaugurated on 24 November 1998 in Nigeria. A document on the proposed activities of the Centre, which had been developed for implementation in March 1999, as well as other matters relating to the Centre, would be reviewed at the resumed session of the Governing Board of the Centre in September 1999.

39. The Committee noted with satisfaction that the regional centre for space science and technology education in Latin America and the Caribbean, to be located in Brazil and Mexico, was to be inaugurated in 1999 and that, in preparation for the opening of the campus of the centre in Brazil, the National Institute for Space Research (INPE) of Brazil had carried out a number of activities for the benefit of States in the region, as presented in the report of the Expert on Space Applications (A/AC.105/715, para. 12).

40. The Committee noted that missions had been sent to Jordan and the Syrian Arab Republic from 24 June to 1 July 1998 to evaluate the establishment of a regional centre for space science and technology education in western Asia and that the reports of those missions were being finalized, in consultation with the Governments of the two countries, with a view to selecting a host country for the Centre.

41. The Committee noted that a mission had been sent to Bulgaria, Greece, Hungary, Poland, Romania and Turkey from 24 November to 7 December 1998, with the objective of undertaking a technical study and providing a report that could be used in determining an agreed framework for the operation of a network of space science and technology education and research institutions for central eastern and south-eastern European countries. The Committee also noted that the steering committee for the network had held a meeting in February 1999 to discuss further procedures for the operation of the network.

42. The Committee noted that the satellite-based COPINE project would offer an excellent opportunity for the exchange of information needed to promote progress in health care, agriculture, education, science and technology, and the management and survey of natural resources and the environment in Africa. The Committee noted that such cooperation would provide long-term benefits to the participating African countries and would contribute to economic growth in the region. The Committee also noted that the Provisional Governing Board of COPINE, at its meeting held in London on 27 April 1998, had made conclusions and

recommendations concerning the future of the project (A/AC.105/715, para. 21). It was noted that the Office for Outer Space Affairs was continuing consultations on the implementation of the project with a number of interested countries.

43. The Committee noted with satisfaction that the regional preparatory conferences for UNISPACE III had served to promote regional and interregional cooperation.

44. The Committee emphasized the importance of regional and international cooperation in making the benefits of space technology available to all countries by such cooperative activities as sharing payloads, disseminating information on spin-off benefits, ensuring compatibility of space systems and providing access to launch capabilities at reasonable cost.

3. Future work of the Scientific and Technical Subcommittee

[Paragraphs to be added.]

45. The Committee noted with satisfaction that the theme fixed for special attention at the thirty-seventh session of the Scientific and Technical Subcommittee should be "Space commercialization: an era of new opportunities". The Committee also noted that COSPAR and IAF, in liaison with Member States, should be invited to arrange a symposium with as wide a participation as possible, to be held during the first week of the thirty-seventh session of the Subcommittee, in order to complement its discussions on the special theme (A/AC.105/719, para. 81).

46. The Committee recalled that, at its forty-first session, it had agreed that the Scientific and Technical Subcommittee and the Legal Subcommittee would invite special presentations on new launch systems and ventures at their sessions in 2000 with a view to attaining a better understanding of those launch activities.¹

47. In accordance with the four-year work plan of the Scientific and Technical Subcommittee, the Committee requested the Secretariat to invite Member States and international organizations to submit to the Subcommittee at its thirty-seventh session, in 2000, information on the identification of terrestrial processes and technical standards that might be relevant to nuclear power sources, including factors that distinguished nuclear power sources in outer space from terrestrial nuclear power sources.

¹ *Official Records of the General Assembly, Fifty-third Session, Supplement No. 20 (A/53/20), para. 153.*