



**REPORT
OF THE
COMMITTEE
ON THE PEACEFUL USES
OF OUTER SPACE**

GENERAL ASSEMBLY

OFFICIAL RECORDS: THIRTY - FIRST SESSION

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NOTE

Symbols of United Nations documents are composed of capital letters combined with figures. Mention of such a symbol indicates a reference to a United Nations document.

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I. INTRODUCTION

1. The Committee on the Peaceful Uses of Outer Space held its nineteenth session at United Nations Headquarters from 21 June to 2 July 1976 under the chairmanship of Mr. Peter Jankowitsch (Austria). Mr. Ion Datcu (Romania) served as Vice-Chairman and Mr. Luiz Paulo Lindenberg Sette (Brazil) as Rapporteur. The verbatim records of the Committee's meetings are contained in documents A/AC.105/PV.157-167.

Meetings of subsidiary bodies

2. The Legal Sub-Committee held its fifteenth session at the United Nations Office at Geneva from 3 to 28 May 1976 under the chairmanship of Mr. Eugeniusz Wyzner (Poland). The summary records of the Sub-Committee's meetings are given in documents A/AC.105/C.2/SR.246-265. The report of the Sub-Committee was issued under the symbol A/AC.105/171.

3. The Scientific and Technical Sub-Committee held its thirteenth session at the United Nations Office at Geneva from 22 March to 7 April 1976 under the chairmanship of Mr. J. H. Carver (Australia). The summary records of the Sub-Committee's meetings are contained in documents A/AC.105/SR.153-168, 170, 173 and 174. The report of the Sub-Committee was issued under the symbol A/AC.105/170.

Nineteenth session of the Committee

4. The Committee on the Peaceful Uses of Outer Space, at its opening meeting, on 21 June 1976, adopted the following agenda:

1. Statement by the Chairman.
2. General debate.
3. Consideration of:
 - (a) Report of the Legal Sub-Committee (A/AC.105/171);
 - (b) Report of the Scientific and Technical Sub-Committee (A/AC.105/170).
4. Other matters.
5. Report of the Committee to the General Assembly.

5. Representatives of the following Member States attended the session: Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, Czechoslovakia, Egypt, France, the German Democratic Republic, Germany (Federal Republic of), Hungary, India, Indonesia, Iran, Italy, Japan, Lebanon, Mexico, Mongolia, Nigeria, Pakistan, Poland, Romania, Sierra Leone, Sweden, the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland, the United States of America and Venezuela.

6. Representatives of the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP) as well as representatives of the following specialized agencies attended the session: International Telecommunication Union (ITU), Food and Agriculture Organization of the United Nations (FAO), United Nations Educational, Scientific and Cultural Organization (UNESCO), World Health Organization (WHO). The representatives of the European Space Agency (ESA), the Committee on Space Research (COSPAR) of the International Council of Scientific Unions (ICSU), and the International Astronautical Federation (IAF) also attended the session.

7. A list of the representatives of the Member States and specialized agencies attending the session is contained in document A/AC.105/XIX/INF.1.

8. In addition to the reports of its subsidiary bodies, the Committee had before it the following documents:

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| A/AC.105/172 | Report of the Secretary-General on a United Nations programme of public information on the peaceful uses of outer space |
| A/AC.105/174 | Information on proposed regional ground station for remote sensing: note verbale dated 20 May 1976 from the Permanent Mission of India to the United Nations |
| A/AC.105/175 | Fifteenth report by the International Telecommunication Union on telecommunication and the peaceful uses of outer space |
| A/AC.105/L.88 | Note by the Secretariat transmitting a letter from the Chairman of the Committee on Conferences |
| A/AC.105/L.89 | Technical characteristics of systems providing communication and/or radio-determination using satellite techniques for aircraft and/or ships: note by the Secretariat |
| A/AC.105/L.90 | Letter dated 11 May 1976 from the President of the International Astronautical Federation (IAF) addressed to the Chairman of the Committee on the Peaceful Uses of Outer Space |
| A/AC.105/L.91 and
Corr. 1 and 2 | International problems arising from the exploitation of solar and other related energies: working paper submitted by Argentina |
| A/AC.105/(XIX)CRP.1 | Solar power stations in space: background paper prepared by the Secretariat |

9. At the opening of the session, at the 157th meeting, the Chairman of the Committee made a statement reviewing the work of the Committee's subsidiary bodies and outlining the work of the Committee. The text of the Chairman's statement is annexed to the present report.

10. At the same meeting, the Committee decided, without objection, to grant observer status to the International Astronautical Federation (IAF).

11. At its 159th meeting, the Committee welcomed the crew of the USSR space craft Salyut-4, cosmonauts Piotr Klimuk and Vitaly I. Sevastyanov, and heard a statement by cosmonaut Vitaly I. Sevastyanov.

12. The Committee held its general debate on the items before it at the 157th to 160th meetings from 21 to 23 June 1976, in the course of which statements were made by the representatives of Argentina, Australia, Austria, Belgium, Canada, Chile, Czechoslovakia, Egypt, France, the German Democratic Republic, Germany (Federal Republic of), India, Indonesia, Iran, Italy, Japan, Mexico, Mongolia, Nigeria, Sweden, the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland, the United States of America and Venezuela. Those statements are contained in the verbatim records of the 158th to 160th meetings of the Committee (A/AC.105/PV.158-160).

13. The representatives of COSPAR and IAF also made statements which appear in the records of the 157th meeting (A/AC.105/PV.157) and 165th meeting (A/AC.105/PV.165), respectively.

14. After considering the various items before it, the Committee at its 167th meeting, on 2 July 1976, adopted its report to the General Assembly containing the recommendations and decisions set out in the paragraphs below.

II. RECOMMENDATIONS AND DECISIONS

A. Report of the Legal Sub-Committee

15. The Committee took note with appreciation of the report of the Legal Sub-Committee on the work of its fifteenth session (A/AC.105/171) covering the results of its deliberation on the four items assigned to it by General Assembly resolution 3388 (XXX).

16. The Committee took note of the work done by the Sub-Committee in its effort to complete the text of the draft treaty relating to the moon as indicated in paragraphs 19 to 22 of its report and the report of the Chairman of Working Group I contained in annex I of the report of the Sub-Committee. The Committee noted, in particular, that Working Group I of the Sub-Committee continued to give priority to the question of natural resources of the moon, which it considered on the basis of articles X and X bis elaborated at the previous session of the Sub-Committee as well as other relevant proposals before it. The Committee furthermore noted that during the exchange of views conducted by the Working Group serious efforts had been made to reach a compromise solution which, unfortunately, had proved unsuccessful owing to lack of consensus.

17. In the course of its present session, the Committee heard statements by its members underlining some basic issues with which the Sub-Committee had been confronted. In view of the fact that a large measure of compromise had already been found possible, the Committee expressed the hope that, at the next session of the Sub-Committee, further determined efforts would be made to finalize the text of the draft treaty relating to the moon.

18. The Committee therefore agreed that the Legal Sub-Committee at its sixteenth session should continue to consider, as a matter of high priority, the draft treaty relating to the moon.

19. The Committee noted that the Legal Sub-Committee had made considerable progress in the elaboration of principles governing the use by States of artificial earth satellites for direct television broadcasting, with a view to concluding an international agreement or agreements, in accordance with General Assembly resolutions 2916 (XXVII) of 9 November 1972 and 3388 (XXX) of 18 November 1975. In particular, the Committee noted with satisfaction that the Sub-Committee, through its Working Group II, had been successful in formulating the nine principles referred to in paragraphs 26 of its report and the report of the Chairman of Working Group II in annex II of the report of the Sub-Committee. The nine principles dealt with purposes and objectives, applicability of international law, rights and benefits, international co-operation, State responsibility, duty and right to consult, peaceful settlement of disputes, copyright and neighbouring rights, and notification to the United Nations.

20. The Committee also noted that the Legal Sub-Committee had decided not to formulate principles relating to spill-over and disruption. Furthermore, it noted that there was an exchange of views on three subjects, namely, consent and participation, programme content, and unlawful/inadmissible broadcasts, but it was incomplete.

21. The Committee during its current session heard further elaborations of views earlier expressed by its members on these and other principles, and commended these additional expressions of concern to the attention of the Sub-Committee.

22. The Committee agreed that the Legal Sub-Committee at its sixteenth session should continue to consider as a matter of high priority the elaboration of principles governing the use by States of artificial earth satellites for direct television broadcasting, with a view to concluding an international agreement or agreements, in accordance with General Assembly resolutions 2916 (XXVII) and 3388 (XXX).

23. The Committee noted that the Legal Sub-Committee, in continuing its detailed consideration of the item relating to legal implications of earth resources survey by remote sensing satellites as requested by General Assembly resolution 3388 (XXX) of 18 November 1975 had also made progress. The Committee noted with satisfaction that, through its Working Group III, the Legal Sub-Committee had been able to formulate the texts of five draft principles and identify three new common elements referred to in paragraphs 6 and 7 of the report of the Working Group.

24. The Committee recommended that the Sub-Committee continue, on the basis of high priority, to give detailed consideration to the legal implications of remote sensing, with the particular aim of formulating draft principles on the basis of common elements identified by the Sub-Committee.

25. The Committee also noted that questions relating to the definition and/or delimitation of outer space and outer space activities had also been discussed by the Legal Sub-Committee in the course of two of its meetings and that this discussion had been the occasion for new exchange of views which were both useful and interesting. In addition, the Committee noted that, in the course of the discussion, the renewed importance of the subject had been underlined and that the hope had been expressed that the Sub-Committee would proceed to examine the question in greater detail. For this purpose and to facilitate the work of the Legal Sub-Committee, the Committee requested the Secretariat to prepare a synoptic table of the proposals made within the framework of the Committee and the two Sub-Committees with regard to this question as well as a revision of document A/AC.105/C.2/7.

26. The Committee decided that, at its sixteenth session, the Legal Sub-Committee should pursue its work on questions relative to the definition and/or delimitation of outer space and outer space activities. The Committee recommended to the Legal Sub-Committee, in discussing the definition and/or delimitation of outer space, to bear in mind constantly the possible implications for the already existing instruments in the area of outer space law.

27. The Committee, having discussed the report of the Legal Sub-Committee relating to (a) the draft treaty relating to the moon, as referred to in paragraphs 16-18 above, (b) the elaboration of principles governing the use by States of artificial earth satellites for direct television broadcasting, as referred to in paragraphs 19-22 above, (c) legal implications of remote sensing of the earth from space, as referred to in paragraphs 23 and 24 above, and (d) matters relating to the definition and/or delimitation of outer space and outer space activities, as referred to in paragraphs 25 and 26 above, and having heard the views expressed by its members in regard to the priority items to be considered by the Legal Sub-Committee at its next session, recommended that the Legal Sub-Committee continue

to consider with the same high priority the issues covered by items (a), (b) and (c) and called upon the Legal Sub-Committee to continue its work on this basis at its next session. The Committee also requested the Legal Sub-Committee to continue its work on item (d) above.

B. Report of the Scientific and Technical Sub-Committee

28. The Committee took note with appreciation of the report of the Scientific and Technical Sub-Committee on the work of its thirteenth session (A/AC.105/170). In considering the various recommendations of the Sub-Committee contained in the report, the Committee expressed its views as set out in the following paragraphs.

1. Remote sensing of the earth from space

29. The Committee noted with satisfaction that the Scientific and Technical Sub-Committee, in its examination of the question of remote sensing of the earth from space, had continued to consider in detail both the current pre-operational/experimental phase as well as a possible future global/international operational phase.

30. The Committee noted in this connexion the opinion expressed by the Sub-Committee that its assessment of the current pre-operational/experimental phase and description of alternatives pertaining to the future operational phase should not be construed as prejudging the consideration by Member States at any time of the elaboration of any organizational and/or legal framework for satellite remote sensing activities.

31. The Committee was of the view that the various conclusions and observations made by the Sub-Committee in regard to the current pre-operational/experimental phase and a future operational phase of remote sensing deserve the careful attention of Member States. It shared, in particular, the findings reached by the Sub-Committee that progress to date suggested that satellite remote sensing systems would one day, like satellite weather and communication systems, become operational and, in that event, the use of satellite data could be expected to become an integral part of national economies as well as planning activities. It endorsed the conclusion that international co-operation would be therefore needed since a cost-effective approach for acquiring the benefits of satellite remote sensing in the interest of all countries could be assured only through such co-operation.

32. The Committee was pleased to note that, in its review of the current experimental phase of satellite remote sensing activity, the Scientific and Technical Sub-Committee attached importance to the role being played by the United Nations in such areas as training and education, exchange of information and promotion of awareness as well as to current international co-operative programmes.

33. As regards a future operational remote sensing system, the Committee endorsed the renewed affirmation by the Sub-Committee, as referred to in paragraph 59 of its report, that regional co-operation, whether in an international or a national framework, would be desirable for reception of remote sensing data from satellites and noted the view of the Sub-Committee that ground facilities for receiving, pre-processing and disseminating data from remote sensing satellites would be most likely financed, owned and operated by the individual users or association of users.

34. The Committee also shared the view that the United Nations could not be expected to own or operate either the ground or space segment of such a system in the foreseeable future.

35. In the case of existing satellite systems, the Committee noted the view that, for purposes of effecting economy and making data available to users as rapidly as possible, it would be desirable to co-locate the function of data distribution with those of reception and pre-processing at these stations.

36. The Committee was also of the same view as that expressed by the Sub-Committee that, in order to realize maximum benefits from space technology, especially in developing countries, there was a need for wide dissemination of information on the technical characteristics of the present and future generations of remote sensing satellites as well as on the technical characteristics of the facilities needed for adequate reception of data from these satellites, including education and training of users.

37. The Committee endorsed the view that questions relating to dissemination of data from remote sensing satellites deserved the most careful attention because of their legal, organizational and technical implications involving the access of States to data pertaining to their own territories as well as the availability of such data to other States, bearing in mind that different legal, organizational and technical alternatives for future operational remote sensing activities from space might have different effects and implications with regard to data dissemination. The Committee recommended that the term "data" be clearly defined, taking into consideration, for example, the distinction made in paragraph 8 of annex III of the report of the Legal Sub-Committee.

38. The Committee also took account of the discussions of the Sub-Committee on the possible co-ordinating role for the United Nations in the area of remote sensing. It shared the conclusion of the Sub-Committee that there was scope for the United Nations to play a co-ordinating role in the field of remote sensing from satellites even in the current pre-operational/experimental phase and that such role might, without infringing on existing bilateral agreements, comprise co-ordination inside and between regions on such points as training and technical assistance and programme-orientation of special interests to the developing countries. The number of points was likely to be considerably greater in a future operational phase.

39. The Committee further noted the conclusion reached by the Sub-Committee that it would not be possible at its present session to take any decision regarding specific new steps to be taken to establish a co-ordinating role for the United Nations in the field of remote sensing beyond that already agreed within the Sub-Committee itself as endorsed by the Committee on the Peaceful Uses of Outer Space.

40. In this connexion, the Committee considered the three options set out in paragraph 80 of the report of the Scientific and Technical Sub-Committee. It recommended the adoption of option (c): full utilization by the Committee and its subsidiary bodies of their existing terms of reference. It decided to request its two subsidiary bodies to examine ways in which this full utilization might be achieved and to return to the subject at its next session. The Committee also heard views expressed in favour of option (a) (establishment of a working group) and also in favour of (b) (establishment of a panel of experts) and recommended that the Scientific and Technical Sub-Committee might give them further consideration at an appropriate time.

41. The Committee noted that paragraphs 26 through 48 in the report of the Scientific and Technical Sub-Committee present a survey of current and anticipated experimental, pre-operational and operational programmes in the remote sensing field, including training activities and international organizations' programmes. The Committee considered it highly useful to have such summary surveys available to interested States and recommended that States and international organizations continue to submit, as appropriate, information describing such programmes as significant developments occur.

42. In regard to the specific steps recommended by the Scientific and Technical Sub-Committee, the Committee endorsed the view which had been reaffirmed by the Sub-Committee that further study of organizational, technical and financial matters should progress together with consideration of the legal aspects of remote sensing; it also endorsed the recommendation of the Sub-Committee that the Secretariat should be requested to prepare for the consideration of the Sub-Committee at its fourteenth session the following studies:

(a) A revised version of the feasibility study contained in document A/AC.105/154, which should, inter alia, explore the functions of a possible international centre if established during the present pre-operational phase, and the pros and cons of having one or more such centres, as well as the terms of reference for the possible establishment of a remote sensing panel to operate during the pre-operational/experimental phase and the operational phase, bearing in mind the options suggested above;

(b) A listing of available studies, reports relevant to the consideration of remote sensing from satellites; this listing should be made separately for aspects relating to the current pre-operational phase and the possible future international/global phase, respectively. Further, a matrix presentation might be considered using the system elements and aspects for study, as set forth in paragraph 23 of the report of the Scientific and Technical Sub-Committee;

(c) Updating of document A/AC.105/155 containing information on existing or planned national or regional ground stations for direct reception of remote sensing data from satellites.

43. With a view to facilitating the task of the Secretariat in undertaking studies on the space segment of a remote sensing system, the Sub-Committee recommended that the Committee request the Secretary-General to seek from Member States or international agencies engaged in remote sensing activities any information they might consider useful for this purpose in regard to their activities in launching remote sensing satellites in the pre-operational, and possibly operational, phase of remote sensing. The Committee also endorsed this recommendation.

2. United Nations programme on space applications

44. The Committee noted the United Nations programme on space applications as set out in chapter II of the report of the Sub-Committee and was pleased to note that further progress had continued to be made in the implementation of that programme.

45. In this connexion, the Committee expressed its appreciation to the Expert on Space Applications for the effective manner in which he had implemented the United Nations programme within the limited funds at his disposal.

46. The Committee endorsed the United Nations programme on space applications for 1977 as proposed to the Scientific and Technical Sub-Committee by the Expert on Space Applications. It noted in particular that a number of delegations had expressed the view that the United Nations space applications programme should be extended as regards both its content and its scope and that it should receive greater financial support.

47. The Committee expressed its appreciation to the Government of Canada for having acted as host, in co-operation with UNESCO, from 12 to 30 May 1975, to an interregional seminar which considered the problems other countries might face in establishing and operating an integrated multidisciplinary remote sensing programme; to the Government of Mexico for having acted as host, from 2 to 11 September 1975, to a joint United Nations/UNESCO regional seminar on satellite broadcasting systems for education and development; to the Government of Kenya for having acted as host, from 6 to 11 October 1975, to a joint United Nations/WMO regional seminar on analysis and interpretation of meteorological satellite data and its application to tropical areas of Africa; to the Government of Indonesia for having acted as host, from 19 to 28 November 1975, to a joint United Nations/FAO regional seminar on remote sensing techniques applicable to tropical environments, particularly in the area of the Economic and Social Commission for Asia and the Pacific (ESCAP) and to the Government of India for having acted as host to the SITE winter school, from 16 to 28 January 1976 planned by the United Nations and UNESCO on satellite instructional television experiment undertaken by India using the United States ATS-6 satellite.

48. It also expressed appreciation to the Government of the United Kingdom for its offer to serve as host at Reading, from 22 July to 10 August 1976, to a joint United Nations/FAO training seminar on remote sensing techniques for the benefit of developing countries; to the Government of the Federal Republic of Germany for its offer to act as host to a joint United Nations/FAO seminar in Munich, from 9 to 20 August 1976, on the use of remote sensing techniques; and to the Government of Pakistan for offering to act as host in Karachi, from 7 to 18 February 1977, to a United Nations training seminar on remote sensing applications for the benefit of Member States in the ESCAP region as well as those in the region of the Economic Commission for Western Asia (ECWA) and to the Government of the Union of Soviet Socialist Republics for its offer to act as host to a seminar in September 1977 on remote sensing applications for surveying resources and the environment for the benefit of developing countries.

49. Furthermore, the Committee expressed its appreciation to the IAF which, in co-operation with the American Institute of Aeronautics and Astronautics, was to conduct at Anaheim (California) from 26 September to 9 October 1976 a training workshop on satellite data acquisition, processing, analysis and uses designed for participants from developing countries.

50. The Committee also shared the appreciation of the Sub-Committee that an experimental training course on remote sensing applications was being organized in Rome from 25 October to 12 November 1976 under the United Nations space applications programme in co-operation with FAO. The Committee took note, in particular, of comments made by members during the session that training in the area of remote sensing technology must place emphasis on on-site training. The Committee expressed its appreciation to the Government of Italy for offering fellowships for participation in that training course and for taking part in the advisory group

established by the United Nations Outer Space Affairs Division for the training course. The Committee also expressed its appreciation to UNESCO for having co-operated in the training course. The Committee also shared the appreciation expressed by the Sub-Committee to Member States that had contributed to the successful results of the various seminars, to the specialized agencies, particularly FAO, UNESCO, ITU, WMO, as well as to UNDP, and to IAF, COSPAR and ESA for the assistance they had provided in co-sponsoring or participating in the regional seminars and workshops and other assistance and contributions extended. The Committee also expressed appreciation to the Governments of Austria, Belgium and the United Kingdom for granting fellowships to developing countries for advanced study and training in areas related to space applications.

3. Possible United Nations conference on outer space

51. The Committee noted with satisfaction that, in response to its request made last year, the Scientific and Technical Sub-Committee devoted a series of meetings to the consideration of the options relating to a possible United Nations conference on outer space matters and to that end, established an informal Working Group to consider the various proposals before the Sub-Committee.

52. The Committee took note in particular of the consideration by the Scientific and Technical Sub-Committee of the question of convening a United Nations conference on space matters, as reflected in paragraph 101 of the Sub-Committee's report.

53. The Committee also noted that the Sub-Committee, in its consideration of the question, took into account additional information brought to its attention. Among other possibilities included in that information were IAF's conducting one of its regularly scheduled annual meetings to highlight space applications, ITU's plan to hold the Third World Telecommunications Exhibition and World Forum for 1979, and the possibility of including questions of space technology in the thematic agenda of the United Nations Conference on Science and Technology scheduled for the late 1970s.

54. At its current session, the Committee heard comments by its members on this subject elaborating their views.

55. In view of those observations, the Committee endorsed the recommendation of the Sub-Committee contained in paragraph 103 of its report and in particular the request to the United Nations Secretariat to prepare a study in depth on the question of convening a United Nations conference on space matters.

56. A number of suggestions were made by delegations during the present session as to the particulars with which the study could be prepared. The Committee noted in particular the suggestion that, in preparing the report and setting out the objectives which a possible United Nations conference should serve, the Secretariat should go beyond the views and observations expressed by Member States. The Committee in endorsing the recommendation of the Sub-Committee therefore requested the Secretariat to take into account this and other suggestions made by members at the present session in preparing the above study.

4. Co-ordination of activities between the Legal Sub-Committee and the Scientific and Technical Sub-Committee

57. The Committee noted that the Sub-Committee considered its request that the Sub-Committee help the work of the Legal Sub-Committee by reviewing, at an appropriate time:

(a) Possible scientific and technical criteria relevant to the definition for purposes of remote sensing, of the terms "natural resources of the earth" and "data on the natural resources of the earth acquired by means of remote sensing". (The consideration of this topic is reflected in paras. 64-69 of the report of the Sub-Committee);

(b) Criteria connected with the definition and/or delimitation of outer space, taking into account the contents of earlier United Nations documents on the subject. (The consideration of this topic is reflected in para. 110 of the report of the Sub-Committee);

(c) Scientific and technical criteria for defining the notion of "natural resources of the moon and other celestial bodies", and possible ways, means and time-limits for their exploitation. (The consideration of this topic is reflected in para. 111 of the report of the Sub-Committee.)

58. The Committee shared the view of the Sub-Committee that questions relating to remote sensing require particular attention from the point of view of co-ordination of activities between the two subsidiary bodies.

5. Co-ordination within the United Nations system

59. Regarding the need for ensuring efficient co-ordination of the activities of the United Nations and the specialized agencies in the area of space applications, as reported by the Sub-Committee (paras. 112-113), the Committee noted with satisfaction that further efforts made by organizations within the United Nations system had resulted in the recent decision of the Administrative Committee on Co-ordination (ACC) to establish a Sub-Committee on outer space activities.

60. The Committee welcomed that decision and expressed the hope that with the creation of the ACC Sub-Committee co-ordination of activities within the United Nations system, especially those relating to practical applications of space technology, would be effectively accomplished.

61. The Committee in this connexion expressed its appreciation to the specialized agencies, particularly FAO, ITU, UNESCO, IMCO and WMO for the continued co-operation they had provided the Committee and its subsidiary bodies. It noted in particular the report submitted by the organizations within the United Nations system for consideration of the Scientific and Technical Sub-Committee, including those relating to co-ordination of activities conducted through the ACC machinery.

62. The Committee noted with interest the statement made by the representative of the Centre for Natural Resources, Energy and Transport concerning its activity in the field of remote sensing and also the discussions on the activities of the Centre that took place in the Scientific and Technical Sub-Committee, which are reflected in paragraph 46 of the Sub-Committee's report.

63. The Committee also took note with interest of the FAO report entitled "Facilities and services of the Remote Sensing Unit" (AGD(RS)1/76) and of the discussion of the activities of FAO in the area of remote sensing, particularly those relating to the storage, analysis, training and practical applications in the use of remote sensing data, as reflected in paragraph 45 of the Sub-Committee's report.

64. The Committee also noted with interest the fifteenth report of the International Telecommunication Union on telecommunication and the peaceful uses of outer space (A/AC.105/175).

6. Exchange of information

65. The Committee noted with appreciation the reports submitted by Member States on their national and co-operative space programmes during the calendar year 1975 (A/AC.105/167 and Add.1-4).

66. The Committee welcomed the report of the Secretary-General on ways and means by which the United Nations system might implement a full-scale programme of public information on the peaceful uses of outer space, particularly on those aspects of space applications which have a special reference to the problems being faced by developing countries (A/AC.105/172).

67. The Committee also was gratified with the participation of COSPAR and IAF in the work of the Sub-Committee and for the valuable information they had provided in submitting their reports on scientific and technical developments in the exploration and practical uses of outer space, which were considered useful by the Sub-Committee, and expected that they would submit similar reports in the future emphasizing, whenever possible, areas and problems under discussion in the Committee and its Sub-Committees.

7. International sounding rocket launching facilities

68. The Committee shared the satisfaction expressed by the Sub-Committee in paragraph 129 of its report on the work carried out at the Thumba Equatorial Rocket Launching Station of the Vikram Sarabhai Space Centre in India and the CELPA Mar del Plata Rocket Launching Station in Argentina relative to the use of sounding rocket facilities for international co-operation and training in the peaceful scientific exploration of outer space. The Committee accordingly recommended that the General Assembly continue to grant sponsorship to these two ranges.

8. Future work of the Sub-Committee

69. The Committee took note of the views of the Scientific and Technical Sub-Committee regarding its future role and work as expressed in paragraphs 104 to 108 of the Sub-Committee's report.

70. In particular, the Committee took note of the observation made by the Sub-Committee that matters relating to remote sensing should continue to have the highest priority in its future agenda and should continue to be given a considerable proportion of the time available to the Sub-Committee.

71. The Committee endorsed the recommendation of the Sub-Committee that for its fourteenth session priority should be given to the three items contained in paragraph 106 of its report, namely,

1. Questions relating to remote sensing of the earth by satellites;
2. Consideration and review of the United Nations programme on space applications;
3. Consideration of the options relating to a possible United Nations conference on outer space matters.

III. OTHER MATTERS

A. Solar energy through space technology

72. The Committee noted with appreciation the working paper submitted by the delegation of Argentina entitled "International problems arising from the exploitation of solar and other related energies" (A/AC.105/L.91). It also took note with appreciation of the background paper prepared by the Secretariat entitled "Solar power stations in space" (A/AC.105(XIX)CRP.1). In this connexion, the Committee recommended that the Secretary-General request Member States to provide information on ongoing and planned programmes in the field of generation or transmission of solar energy by means of space technology, and that they submit information thereon to the Scientific and Technical Sub-Committee at its fourteenth session, so that the Sub-Committee may consider the matter and prepare appropriate recommendations for any future consideration deemed desirable.

B. Strengthening of the Outer Space Affairs Division

73. The Committee took note of the statement by the Chief of the Outer Space Affairs Division describing the increased activity of the Division. The Committee recommended that the Outer Space Affairs Division report annually on its activities. In particular, the Committee was made aware of the extra workload which would be imposed on the Division by the coming into force of the Registration Convention, by requests for assistance from the Outer Space Affairs Division by regional organizations, as well as by Member States in the field of remote sensing reception facilities, and in the training of personnel in the operation of such facilities and in the interpretation and use of remote sensing data; at the same time, it was also aware of the inability of the Division, because of lack of available experts, to meet all these requests. The Committee recognized that these requests came to the Outer Space Affairs Division as a result of its position as the administrative arm of the Committee, and of the Committee's mandate as the focal point for international co-operation in this area of activity, the Committee recommended that the Secretary-General, in the light of paragraph 8 of General Assembly resolution 3388 (XXX), consider strengthening the Outer Space Affairs Division so that it would have the necessary technically qualified personnel available to meet such requests for assistance in the future.

IV. SCHEDULE OF WORK OF THE COMMITTEE AND ITS SUBSIDIARY BODIES

Schedule of meetings for 1977 and 1978

74. The Committee considered the suggestion of the Committee on Conferences to the effect that subsidiary bodies of the General Assembly meet biennially (A/AC.105/L.88); the Committee was of the opinion that that proposal would not meet with its working needs nor with the requirements of its subsidiary bodies. It, therefore, decided to adhere to its regular annual schedule of meetings and agreed on the following time-table for 1977 and 1978:

	<u>Time</u>	<u>Location</u>
Scientific and Technical Sub-Committee	14-25 February 1977	New York
	13-24 February 1978	-----
Legal Sub-Committee	14 March-8 April 1977	New York
	13 March-7 April 1978	-----
Committee on the Peaceful Uses of Outer Space	13-24 June 1977	New York
	12-23 June 1978	-----

The Committee requested that the General Assembly at its thirty-first session examine resolution 3491 (XXX) of 15 December 1975, adopted on the basis of the report of the Fifth Committee relating to Pattern of Conferences, 1/ so that the possibility of maintaining its agreed system of alternating the sessions of the Sub-Committees in Geneva and in New York could be discussed by the General Assembly.

1/ Official Records of the General Assembly, Thirtieth Session, Annexes, agenda item 100, document A/10480.

ANNEX

Opening statement by the Chairman at the 157th meeting
of the Committee on 21 June 1976

It is the customary privilege of the Chairman to address the Committee at the outset of its work and, in proceeding to do so, I wish at the very beginning to welcome all members of the Committee to its nineteenth session. I am particularly gratified to see so many of you who have been here before and who have participated for many years together with me and my predecessors in our work on the peaceful uses of outer space. I am sure that, as in the past, we shall continue to conduct our deliberations in the traditional spirit of co-operation which has so often enabled us to make progress in the pursuit of our common aim.

The year under review has been one of further and sometimes spectacular advance in international co-operation in the peaceful uses of outer space. Achievements of primary importance have taken place and I should like to recall some of those with you.

The most spectacular event perhaps was the successful performance of the Apollo-Soyuz Test Project (ASTP), a joint endeavour of the United States of America and the Union of Soviet Socialist Republics as part of the agreement on co-operation in space signed between those two countries in May 1972, under which they agreed to develop compatible rendezvous and docking systems and to conduct a joint experimental mission to rendezvous and dock a manned Apollo space craft with a manned Soyuz-type space craft. That momentous event happened on 17 July 1975. Some of us had the privilege of being present at the launching of the Apollo space craft at Cape Canaveral. The two space ships docked and remained linked up for two days while the crews jointly conducted a number of scientific experiments chiefly in the field of space applications and various fields of technology.

On 8 and 14 June 1975, the Soviet Union launched the Venera 9 and Venera 10, both of which landed on the planet Venus in October and successfully obtained photographs of the Venusian surface, the first views of that planet, which were relayed back to earth by the orbiting space craft of the mission. Under existing agreements, data resulting from the probes will be provided to the United States for its own Venus probes.

On 1 August 1975, a one year experiment called SITE - Satellite Instructional Television Experiment - produced by India, began to transmit instructional television programmes with the aid of the United States ATS-6 satellite to 5,000 isolated villages throughout India. The programmes stressed improved agricultural techniques, family planning and hygiene, school instruction and teacher education as well as occupational skills.

On 17 January 1976, the Canadian/United States Communications Technology Satellite (CTS) was launched. It carries the most powerful transmitter yet devised for space applications. The satellite will be used in an experimental programme to pioneer new methods of providing communications services. Such satellite systems provide the capacity for satisfying many human needs throughout

the world, and their continued development can result in substantial benefits to mankind.

On 19 February 1976, the world's first commercial maritime communications satellite, Marisat I, was launched by the United States. A second is to be launched soon and will provide coverage of the area between Singapore and the United States coastline. Each will offer 14 voice channels or more than 300 data links, providing direct ship-to-shore voice communications for terminal-equipped vessels.

On the same day, 19 February 1976, the earth station for space communications placed at the disposal of the United Nations and linked to the "Symphonie" programme of France and the Federal Republic of Germany entered into service, transmitting a message from General Silaasvuo, the Co-ordinator of the United Nations forces in the Middle East, to the Secretary-General at United Nations Headquarters in New York.

Those are some outstanding events among a number of other equally important space activities. They are not only impressive, but they have also heightened international co-operation in this field, as each one of them has been carried out as a joint venture of two or more participating States. I should like, on behalf of the members of the Committee, to congratulate the countries concerned on the tremendous success science and human ingenuity have thus achieved through their efforts. At the same time, I should like to express the hope that such activities will continue to be carried out as collaborative efforts of the international community.

Turning now to the work before us, we can note with some satisfaction that our two Sub-Committees have again, this year, performed important and valuable work in the promotion, first, of the progressive development of a legal order in space, and secondly, in initiating and co-ordinating activities in the broad and still broadening field of practical applications of space technology.

In this context, I should like to extend the thanks and appreciation of the Committee to the Chairmen of the Sub-Committees, Ambassador Wyzner of Poland and Mr. Carver of Australia, for the outstanding work they have again performed during the past year.

As you are aware, the main basis for our discussions here will again be the report of our Legal and Scientific and Technical Sub-Committees, which have been distributed and are before you, and which I should like to review briefly in order to give you the background to the work which we shall have to carry out in the next few days.

Once again, I begin with the work of the Legal Sub-Committee. Members will note that in accordance with the provisions of General Assembly resolution 3388 (XXX), it gave priority at its last session to three principal areas of work: first, the draft treaty relating to the moon; secondly, the elaboration of principles governing direct broadcast satellites; and, thirdly, implications of remote sensing of the earth by satellites.

The Sub-Committee re-established its three working groups which had carried out work at the last session in those three areas respectively. The

Working Group on the draft moon treaty was presided over by Professor Harazti of Hungary; the Working Group on direct broadcast satellites was presided over by Ambassador Mishra of India; and the Working Group on remote sensing was presided over by Ambassador Mettel of Austria. Considerable progress was made in the Working Groups, and their extensive discussions have contributed to a reconciliation of conflicting views, as well as to a narrowing of the issues involved.

Focusing now, for a moment, on the draft moon treaty, you may be aware that 21 articles, constituting its main component, had already been agreed upon at previous sessions of the Legal Sub-Committee. The main outstanding issues relate to the scope of the treaty and the status of the natural resources to be covered by the treaty, the latter being regarded by many delegations as the most important single problem, and the key to resolving the other issues.

The Working Group, in discussing the question of natural resources, based itself on the texts of article X and X bis, as elaborated during the last session, and strove to reach agreement on the words or phrases which, owing to a lack of consensus, were placed in square brackets or on alternative formulations at that session.

Several important proposals were submitted regarding the outstanding issues, and serious efforts were made in the Working Group to reach a compromise solution; but, unfortunately, it could not arrive at a successful conclusion. I might venture to mention, however, that the Working Group came fairly close to agreement, and the remaining issues have again been narrowed down. The gap separating various views on the issues is indeed a very narrow one, and perhaps I might be allowed to echo here the hope expressed by several delegations in the Legal Sub-Committee that we might perhaps be able to resolve the difficulties during the current session of this Committee, or at least achieve further progress. A serious effort in the next few days, in our customary spirit of compromise and conciliation, could perhaps help us to achieve a final compromise on the remaining outstanding issues.

On the question of the elaboration of principles governing the use by States of artificial earth satellites for direct television broadcasting, draft texts of a complete set of principles were worked out at the previous session of the Legal Sub-Committee in 1975. However, each of the texts, as you are aware, included a certain number of elements on which agreement had not yet been achieved, and which again appear in square brackets. This year, the Legal Sub-Committee concentrated mainly on removing such square brackets and on the words or phrases placed within them, and also tried to eliminate the alternative formulations which had survived.

The legal Sub-Committee, through a Working Group, was successful in eliminating the square brackets and alternative formulations and finalizing the texts of the following nine principles: purposes and objectives, applicability of international law, rights and benefits, international co-operation, States' responsibility, duty and right to consult, peaceful settlement of disputes, copyright and neighbouring rights, and notification of the United Nations. You might also notice that, in view of the progress reached in related areas, the Working Group decided there was no further need to formulate principles on spill-over and disruption.

The remaining principal points of contention relate to the differing positions held with regard to the principles of freedom of information and the sovereignty of States, which form the basis of the remaining three articles relating to consent and participation, programme content and unlawful broadcasts - matters on which only an exchange of views took place.

Now that the Sub-Committee has completed the work on all other items, it is possible to give full attention to this central issue. Several compromise proposals, aiming towards a compromise on these issues, have been made to the Legal Sub-Committee, as well as to the General Assembly, and I hope this Committee will be able to undertake a serious discussion with a view to clarifying the outstanding issues and reaching an agreement on them, particularly as the issues are very few and fairly distinct, although, as we all realize, of paramount importance.

The third matter before the Sub-Committee was the consideration of the legal implications of the earth resources survey by remote sensing satellites, which had begun during the previous session of the Legal Sub-Committee. At this session the Sub-Committee was able to complete, through its Working Group on remote sensing, the texts of five draft principles which were worked out on the basis of the "common elements" identified at the last session from various proposals put forward by Member States. These five principles relate to the objectives of remote sensing, to the applicability of international law, to international co-operation and participation, to the protection of the natural environment, and to the provision of technical assistance. Some of the words and phrases in these five principles still appear in square brackets, indicating that consensus is still lacking. The Working Group was also successful in identifying three further important "common elements" in the proposals before it concerning (a) the role of the United Nations and other international organizations in the co-ordination of activities and the provision of technical assistance in this field, (b) the provision of information concerning impending natural disasters, and (c) the prohibition of the use of data and information to the detriment of other States.

The Working Group has also defined the term "data" and the term "information" as these terms are to be understood in the context of the principles being drafted. In its deliberations the Working Group also recognized the need for defining the subject-matter of remote sensing activities which should be included within the framework of the draft principles.

The main outstanding issues in this respect would appear to relate to the question of whether or not prior consent is required for a launching State to conduct remote sensing over the territory of another State and to dispose of information to third parties. Certain aspects of this issue were also touched upon in the deliberations of the Scientific and Technical Sub-Committee. In this connexion, a new approach was suggested by the Union of Soviet Socialist Republics at the last session of the Scientific and Technical Sub-Committee, providing certain scientific criteria on which to develop the necessary international regulation, as referred to in paragraphs 65 to 67 of the report of the Scientific and Technical Sub-Committee.

In the Legal Sub-Committee, several other proposals have been made, and I am confident that these and the other views hitherto expressed on this subject

will provide the necessary impetus for successfully negotiating this delicate issue. I am hopeful, therefore, that we may conduct a useful discussion here that will provide the Legal Sub-Committee with the necessary guidelines to resolve these outstanding issues at its forthcoming session in 1977.

Finally, with respect to the work of the Legal Sub-Committee, it should be noted that a brief discussion took place relating to the question of definition and/or delimitation of outer space and outer space activities, which stressed the renewed importance of the subject.

Turning now to the work of the Scientific and Technical Sub-Committee, we note that that Sub-Committee gave primary consideration to remote sensing by satellites and to the co-ordinating role to be played by the United Nations in the further development of remote sensing activities. To serve as a basis for discussion, the Sub-Committee had before it four reports prepared by our diligent Secretariat, and the comments thereon made by the specialized agencies.

As on previous occasions, the Sub-Committee considered both the current pre-operational/experimental phase of remote sensing and possible future global/international operational remote sensing system or systems. It affirmed the value of keeping in mind the distinction between those two phases with, inter alia, technical, organizational and financial aspects likely to be the major different elements between them.

The Sub-Committee has found that satellite remote sensing systems will one day, like weather and communications systems, become an integral part of the planning and production of national economies and that international co-operation will be essential at that stage as the only cost-effective approach for the majority of countries. It was noted by the Sub-Committee, however, that a wide variety of practical problems needed to be solved and that there were various possibilities for the operation of a future international space segment. With regard to the ground facilities for the receiving, pre-processing and dissemination of data, the Sub-Committee indicated that, in the operational phase, they would in all likelihood be financed, owned or operated by individual users or associations of users. A possible alternative to a world network of ground stations might, in the view of the Sub-Committee, be a system whereby remote sensing data would be relayed to a central processing facility via communications satellites and from there to regional centres for further processing and dissemination. However, the Sub-Committee felt that such a system would be more costly.

With regard to the co-ordinating role to be played by the United Nations in this field, the Sub-Committee has emphasized that the United Nations role would be different in a future operational phase, and it was unable to define it at this time. It felt, however, that the United Nations could fulfil a co-ordinating function, even in the current pre-operational and experimental phase of the activity. The Sub-Committee saw that role as being carried out under the auspices of this Committee and it has recommended in paragraph 80 of its report (A/AC.105/170) that this Committee might make a choice among the following possible options in determining the form of the United Nations involvement in this field: (a) the establishment of a working group on remote sensing under the Committee on the Peaceful Uses of Outer Space covering all aspects of the activities; (b) the establishment of a panel or ad hoc body of experts appointed by the Sub-Committee itself, and concerned particularly with the needs of the

developing countries; or (c) the full exercise by the Committee on the Peaceful Uses of Outer Space and its two Sub-Committees of their existing mandates without the necessity of creating additional bodies.

Members may wish to take note of the view of the Sub-Committee that the selection of any one of these three options concerning the involvement of the United Nations in remote sensing would, of course, inevitably affect its own role.

In this connexion, it is important to note that the Sub-Committee has expressed the view that under the Committee on the Peaceful Uses of Outer Space, as the focal point for outer space matters within the United Nations system, the Sub-Committee was already exercising a certain co-ordinating function over the current activities in remote sensing, and that that role was likely to become greater in the possible future global operational phase.

The Sub-Committee, reiterating its view that further study of organizational, technical and financial matters should progress together with the consideration of the legal aspects of remote sensing, has recommended to this Committee, in paragraph 82 of its report, that the Secretariat should be requested to submit several further studies for consideration by the Sub-Committee at its next session.

Finally, with regard to remote sensing, the Sub-Committee has also brought to our attention that wide dissemination of information on the technical characteristics of present and future hardware for remote sensing and emphasis on training and education, especially on on-site training for developing countries, are essential if the developing countries are to be certain to get the full benefits from this technology.

Moving on now to the Sub-Committee's consideration of the United Nations programme on space applications, the Committee will note that the Sub-Committee has expressed its appreciation of the many panels, seminars and training workshops that have been organized in most regions of the world with the participation of the specialized agencies of the United Nations system - in particular the Food and Agriculture Organization of the United Nations, the International Telecommunication Union, the United Nations Educational, Scientific and Cultural Organization, the World Meteorological Organization, as well as the United Nations Development Programme, the International Astronautical Federation, and the Committee on Space Research and the European Space Agency. Individual Governments acted as host to these activities and the Sub-Committee expressed its appreciation - which I should like to echo - in particular, to the Governments of Canada, Indonesia, India, Kenya and Mexico for having received such panels or seminars. At the same time, it expressed its appreciation to the Governments of the United Kingdom, Federal Republic of Germany, Pakistan and the Union of Soviet Socialist Republics for agreeing to act as hosts to further panels or seminars in the forthcoming 1976-1977 period. The Sub-Committee also expressed its appreciation to several Governments, particularly Austria, Belgium, India, Italy, the United Kingdom and the United States of America for training experts in various fields of practical applications of space technology.

Having reviewed the space applications programme for 1977, the Sub-Committee approved the programme as proposed by the Expert on Space Applications, with the financial implications set out in paragraph 3 of document A/AC.105/C.1/L.74, which is before the Committee. It also noted that a number of delegations

expressed the view that the United Nations space applications programme should be expanded as regards both its content and its scope, and that it should receive greater financial support.

Having considered the question of convening a United Nations conference on space matters, which was another priority item on the Sub-Committee's agenda, the Sub-Committee noted that the majority of Member States had not yet expressed their views in response to the questionnaire directed to them on this issue by the Secretary-General; that those that were in favour of convening a conference would make it contingent upon a clear definition of the objective to be achieved; and that others, while not opposed in principle, seemed to maintain some reservations.

After considering the comments and views thus expressed by Member States, the Sub-Committee recommended to this Committee, in paragraph 103 of its report, that the Secretariat should be asked to study this matter further so that the Sub-Committee could have more detailed information for consideration at its next session.

Turning to a matter of common interest to both the Scientific and Technical and the Legal Sub-Committee, members here will recall that the Scientific and Technical Sub-Committee was asked by this Committee last year to assist in the work of the Legal Sub-Committee by reviewing, at an appropriate time, the criteria connected with the definition and/or delimitation of outer space and the scientific and technical criteria for defining the notion of "natural resources of the moon and other celestial bodies", and possible ways, means and time-limits for their exploitation.

In this connexion, in paragraphs 109 to 111 of its report, the Sub-Committee expressed the view that to consider the request of the Committee thoroughly it would require more specific guidance regarding the purpose for which these criteria are to be reviewed. Bearing in mind the views of the Legal Sub-Committee on these questions, the Committee might therefore wish to consider this matter further and provide the necessary guidance to the Scientific and Technical Sub-Committee for its consideration at its next session.

Members will also note that the Sub-Committee expressed its satisfaction concerning the work carried out at the Thumba Equatorial Rocket Station of the Vikram Sarabhai Space Centre in India and the CELPA Mar del Plata Rocket Launching Station in Argentina and recommended that the United Nations should continue to grant sponsorship to those ranges.

Among the other matters studied by the Sub-Committee were questions relating to the exchange of information and the strengthening of the Outer Space Affairs Division. The views of the Sub-Committee concerning these questions are to be found in paragraphs 117 to 128 and 114 to 116, respectively.

In reviewing its future work, the Sub-Committee, reiterating the significance of the questions concerning remote sensing, unanimously recommended that they should once again have high priority in its future work. The consideration of other items, especially the United Nations programme on space applications and the question of convening a United Nations conference on outer space matters, should be continued, also on a priority basis.

Now that I have thus reviewed the work carried out by our two Sub-Committees, members will, I hope, agree with me that they have indeed performed most useful work and have discharged their responsibilities in an exemplary manner. Having had such outstanding assistance, I have no doubt our work here will be greatly facilitated, but members will note that, at the same time, the two Sub-Committees have left large responsibilities for this Committee by referring to it for decision several matters to which I have already made reference. In addition, we shall as usual, have to give further guidance for the work of the two Sub-Committees for the next year. Members of the Committee will note that there are several other matters that the Committee will have to consider during our session this year. I should like to make brief reference to them, as members already have full details before them and reference to them has been made also in the annotated agenda.

Members will note that the Committee has before it an information paper submitted by India offering facilities for the setting up of a regional ground station in India and requesting that this offer be placed before the Committee. The information paper submitted by India refers to the high degree of consensus that had developed in the discussions of the Scientific and Technical Sub-Committee in favour of the establishment of regional ground stations for direct reception of remote-sensing data from satellites. Members will no doubt want to give most serious attention to this offer, which has been circulated in document A/AC.105/174.

Members will also recall that at our last session we requested the Secretary-General to submit to the Committee a paper outlining ways and means by which the United Nations system might implement a full-scale programme of public information on the peaceful uses of outer space, particularly on those aspects of space applications which have special reference to the problems being faced by developing countries. In response to that request, the Secretary-General has now submitted for the Committee's consideration at this session a report (A/AC.105/172) outlining the information programme that could be undertaken through the existing means of public information at the disposal of the United Nations.

Members will also recall that in my opening statement to the Committee a/ last year I made reference to the obligations incumbent upon the Committee as the focal point of the United Nations for all space-related matters and, in this connexion, pointed out to the Committee the growing importance of the possibility of finding future sources of energy in outer space, citing solar energy as a possible example. I then quoted to the Committee a paper on this matter prepared by Professor William E. Heronemus of the School of Engineering at the University of Massachusetts, which contained a most pertinent evaluation of some uses of solar energy for international systems. A paper on this matter has now been circulated to Committee members in document A/AC.105/(XIX)CRP.1, reviewing the present state of development of solar energy and the prospects of its generation in outer space. The paper comments that while some applications of solar energy, including space heating and hot water supply, are already in widespread use, others, such as the generating of electricity, require substantial research and development before they will be economical for large-scale use. It notes that solar cells for direct conversion of solar radiation electricity are used as the power supply for most space craft and that proposals have been made for a large

a/ Official Records of the General Assembly, Thirtieth Session, Supplement No. 20 (A/10020), annex, p. 20.

array of solar cells to be placed in geosynchronous orbit to transmit power to the ground by microwaves, but that the present cost will have to be reduced by a substantial factor if they are to be competitive for commercial power production.

Another working paper, entitled "International problems arising from the exploitation of solar and other related energies", has been circulated separately in document A/AC.105/L.91 and Corr. 1 and 2. This working paper, submitted by Argentina, discusses the international problems, particularly the legal implications that might arise in this field. As members will note from the report of the Legal Sub-Committee, it was first circulated informally to the members of the Legal Sub-Committee in Geneva but its Chairman felt that this was a matter that should be discussed in the main Committee and, in response to a suggestion made by him, the paper has now been submitted to this Committee. I have no doubt that these papers will give sufficient material for an interesting and useful discussion on this question here in this Committee.

Moving on, finally, to two decisions the Committee must take in the procedural area, members will note that the Committee received a letter from the Chairman of the Committee on Conferences, which was circulated to members in document A/AC.105/L.88, suggesting that our Committee, as a subsidiary body of the General Assembly, consider meeting bi-annually. The letter informs us that the Committee on Conferences did not wish to make such suggestions to the General Assembly if they were incompatible with the requirements of bodies such as ours and has, therefore, requested the comments of our Committee and its two Sub-Committees as well as any additional or alternative suggestions we might wish to make in this connexion. No doubt the Committee will want to review this matter and make the appropriate recommendations to the Committee on Conferences and, ultimately, to the General Assembly.

The other matter I should like to mention relates to a request received by me, and circulated to members in document A/AC.105/L.90, from the International Astronautical Federation (IAF) for observer status with this Committee. Members will note that the document before them outlines the very useful work IAF has carried out in co-operation with this Committee or its Sub-Committees and gives details of the fruitful co-operation we have had in the past. Members are, of course, aware that IAF was accorded observer status with the Scientific and Technical Sub-Committee, and it is now up to the Committee to decide on the new request. If there is no objection, it is my intention to give this matter early consideration so that the representatives of IAF could participate as observers to the present session of our Committee, should we arrive at a positive decision on this matter.

I should now like to make a few concluding remarks.

I note that our Committee is approaching its twentieth session. Since this marks some kind of anniversary, it might be appropriate to review some of our past achievements, while at the same time assessing future developments in the technological field, as well as the role this body is likely to assume in the future.

A wealth of studies, some completed only recently, forecast massive space technology for the years 1980 to 2000. Some of these studies suggest that human activity in outer space, as well as the uses of space technology, will continue

to grow. With the growth of such activities in the last decades of this century, the importance and the relevance of our own work will increase.

Earth-oriented space activities seem to be among those that will have the greatest chance of being developed in a substantial manner, both qualitatively and quantitatively. Their impact, for instance, on the exploration, production and management of resources, including energy, on the prediction and protection of the environment, and on the development of communications is likely to remain of vital significance.

Extraterrestrial activities might help to answer such important questions as these: How are changes brought about by man's increasing dominance of nature affecting the global climate? Has the change in the chemistry of the atmosphere already altered the solar radiation reaching the surface? If the amount of atmospheric pollution keeps increasing at the present rate for, say, the next 25 years, will we trigger a new ice age or initiate the melting of the polar ice? Broadly speaking, space activities of an extraterrestrial orientation might bring a solution to such fundamental issues as the nature of the universe, the origins and fate of matter, the evolution of the solar system, and the origins and future of life itself. Space-related technology, such as in the field of automated intelligence, management of energy, environment and matter, will also be increasing rapidly.

I have referred to those questions because dealing with matters of outer space is dealing with something which a generation ago would have been described as purely utopian. But it still seems highly legitimate and useful in our specific field of work to inject a small element of utopia into our designs, which, more than in other fields of human activity, need to precede the spread of new ideas, of new technology, rather than trailing behind them timidly.

For, indeed, few fields of human endeavour have been so successful at inspiring the creative imagination of the human mind as this one. The continued search for extraterrestrial life is just one example of the creative phantasies which can be engendered by the conquest of outer space. I read, for instance, in a recent article in a large newspaper that a sociologist at Palm Beach Junior College is already teaching a course on how to handle meetings with extraterrestrial life. At the United Nations, however, scientific utopia must be married with political realism. I am confident that their offspring, which we are called upon to produce, will be able to meet the requirements of the coming age, that the results of our work, if undertaken in the right spirit, will stand up not only to the test of our own world, but also - if I may for one moment pursue the ideas of our sociologist from Palm Beach Junior College - to the challenges of the other world to which our work is directed.