UNITED NATIONS

GENERAL ASSEMBLY

Distr.
GENERAL

A/AC.105/PV.212
14 July 1980

ENGLISH

COMMITTEE ON THE PEACEFUL USES OF OUTER SPACE

VERBATIM RECORD OF THE TWO HUNDRED AND TWELFTH MEETING

Held at Headquarters, New York,
on Monday, 30 June 1980, at 10.30 a.m.

Chairman: Mr. JANKOWITSCH (Austria)

Applications of space science and technology and activities in outer space:

(a) Remote sensing of the earth by satellites

(b) Direct television broadcasting by satellites

(c) Definition and/or delimitation of outer space and outer space activities, bearing in mind, inter alia, questions relating to the geostationary orbit

(d) Use of nuclear power sources in outer space

(e) Space transportation systems and their implications for future activities in space

Programme and activities of the United Nations relating to outer space

(a) United Nations programme on space applications

(b) Co-ordination of outer space activities within the United Nations system

(c) Co-ordinating role of the United Nations in the use of space science and technology, particularly in the developing countries

80-61458

The meeting was called to order at 11.05 a.m.

APPLICATIONS OF SPACE SCIENCE AND TECHNOLOGY AND ACTIVITIES IN OUTER SPACE:

(a) REMOTE SENSING OF THE EARTH BY SATELLITES

(b) DIRECT TELEVISION BROADCASTING BY SATELLITES

(c) DEFINITION AND/OR DELIMITATION OF OUTER SPACE AND OUTER SPACE ACTIVITIES, BEARING IN MIND, INTER ALIA, QUESTIONS RELATING TO THE GEOSTATIONARY ORBIT

(d) USE OF NUCLEAR POWER SOURCES IN OUTER SPACE

(e) SPACE TRANSPORTATION SYSTEMS AND THEIR IMPLICATIONS FOR FUTURE ACTIVITIES IN SPACE

PROGRAMME AND ACTIVITIES OF THE UNITED NATIONS RELATING TO OUTER SPACE

(a) UNITED NATIONS PROGRAMME ON SPACE APPLICATIONS

(b) CO-ORDINATION OF OUTER SPACE ACTIVITIES WITHIN THE UNITED NATIONS SYSTEM

(c) CO-ORDINATING ROLE OF THE UNITED NATIONS IN THE USE OF SPACE SCIENCE AND TECHNOLOGY, PARTICULARLY IN THE DEVELOPING COUNTRIES

The CHAIRMAN: I call on Mr. Padang, the Expert in charge of Space Applications.

Mr. PADANG (Expert in Charge of Space Applications): I am grateful to you, Mr. Chairman, for the opportunity of briefing members of the Committee on developments in the implementation of the Space Applications Programme since the meeting of the Scientific and Technical Sub-Committee in February this year.

Members will notice from the documents under this item, in particular document A/AC.105/267, that for 1981 four regional seminars have been planned, namely, for the Economic Commission for Africa (ECA), the Economic Commission for Latin America (ECLA), the Economic and Social Commission for Asia and the Pacific (ESCAP), and the Economic Commission for Western Asia (ECWA) and the Mediterranean region. These regional seminars will generally deal with the applications of remote sensing technology and satellite communications for education and development. The venue for the ECLA seminar will be Argentina, and we have just received confirmation from the Economic Commission for Africa that the ECA seminar will be held at ECA headquarters in Addis Ababa. We expect a confirmation from a host country

(Mr. Padang)

for the regional seminar in the ESCAP region. An interregional seminar planned for 1981 will be hosted by the Government of France, and, as we heard from the representative of France last week, will be held in Toulouse. Also planned for 1981 are two training courses. One of these is the sixth international training course on remote sensing to be held at Food and Agriculture Organization (FAO) headquarters in Rome, and the other training course, also on remote sensing, will be held in one of the Member States in the region, possibly Bulgaria.

As we are entering the second half of 1980, I am pleased to report to members of the Committee that all training seminars planned for the first half of the year have been held, including the one held in Ouagadougou early in this year, the Fifth International Training Course on Applications of Remote Sensing to Water Resources, held in Rome in May and June and the United Nations/FAO seminar organized jointly by the Environmental Research Institute of Michigan (ERIM) and hosted by the Costa Rican Government on the applications of remote sensing for development, held in April this year.

In connexion with the seminar in Costa Rica, we have benefited from the presence of leading experts from the Latin American region at the ERIM fourteenth international symposium and have had useful consultative meetings with them on the proposed ECLA regional seminar. Similar consultations are also being planned in connexion with the seminar to be held in Tokyo where some experts from the developing countries of the ESCAP region are expected to attend the International Astronautical Federation (IAF) Congress which will be held the week following the proposed United Nations seminar to be hosted by the Government of Japan in Tokyo.

(Mr. Padang)

Arrangements are under way for the holding of regional training seminars on remote sensing for land resources, to be held in Athens from 7 to 17 October this year. Similarly, as was indicated by the representative of Japan at the Committee's meeting on 25 June, arrangements are proceeding for the holding of a United Nations Seminar on the Applications of Remote Sensing for Land Use, to be co-sponsored and hosted by the Japanese Government in Tokyo from 15 to 20 September. Arrangements are likewise proceeding as planned, as indicated by the representative of the USSR, for the holding of a regional remote sensing seminar on the applications of remote sensing to hydrology and geology, to be hosted by the USSR Government in Baku from 17 to 29 November.

In the context of the programme on space applications, one particular seminar deserves some special mention in this progress report to the Committee. This has to do with the organization for the past few years of courses in the applications of remote sensing technology to renewable resources, which have been jointly co-sponsored by the United Nations and the Food and Agriculture Organization of the United Nations (FAO) with the co-operation of the Government of Italy and held in Rome. The response from developing countries to this seminar has increased steadily and, in fact, the number of applications has grown to such an extent that it has become increasingly difficult for the Programme to come to an arrangement that is satisfactory to all interested parties. As the Committee will recall, under the United Nations Space Applications Programme, as budgeted and approved by the Committee and the General Assembly, each year the Programme could fund the participation of up to 20 candidates from developing countries.

Last year, there were over 70 applicants. This year, the number has grown to over 80. Most of the applicants are qualified officials who would certainly deserve to be selected for participation in the Programme. Unfortunately, under the funding arrangements, and with the facilities available at FAO, the number could not exceed 20. Even for the limited number of 20 that has been thought reasonable under the Programme, funding of participants has become increasingly difficult, primarily as a result of the tremendous global increase in air fares. Members of the Committee are undoubtedly aware of the increase, but we should like to mention merely that a review of

(Mr. Padang)

the cost of air fares between last year and this year alone would show an average increase of between 23 and 45 per cent, depending on the season and the flight arrangements to the destinations concerned. While it was still possible under the 1980 programme budget to accommodate the funding of the participants to the Rome seminar, it would appear to be increasingly difficult in the future to fund even the 20 persons with the limited budget approved by the Committee.

Yet, the need for continued arrangements to make the benefit of the latest remote sensing knowledge available to developing countries can hardly be over-emphasized. The funding constraints must therefore be reconciled with the ever-increasing requirements of developing countries for practical training in this field. In due course, the Scientific and Technical Sub-Committee will be informed of what possible alternatives could be envisaged to meet the rising needs of developing countries to participate in the Programme and the extent to which assistance could be extended.

I should also like to report that arrangements are under way to update the information on a remote sensing catalogue requested by the Scientific and Technical Sub-Committee to be made available to Member States, in regard to which a number of Member States expressed their opinion last week. The assistance of Member States in providing the Secretariat with the necessary information would, of course, greatly facilitate the task of compiling a catalogue that would be useful in the context of the needs of Member States.

May I now report on the offer of fellowships from Member States in the area of training in the practical applications of space technology. The Government of Austria has offered two scholarships for the training of officials from developing countries to study microwave technology and satellite communication. We are heartened to report that the response from developing countries to this offer has been most encouraging. The Government of India has recently offered fellowships for the training of up to 15 candidates from developing countries in the area of frequency and orbit planning for satellite communication systems. Also, the Government of Belgium, as you recall, has renewed its offer of two fellowships for training in management for the operation of ground receiving stations. The details of these fellowships will be made known to Member States soon.

(Mr. Padang)

As in the past, the response to offers of training opportunities to developing countries has been quite positive. Obviously, the more comprehensive the followship in terms of funding, the more likely it will be to receive a large response from interested Member States. It is our hope that such offers of fellowships will not only be continued by Member States but be increased in due course to allow developing countries, as the representative of Benin already indicated, to benefit from the vast growing areas of applications of space technology for development.

May I now, in conclusion, be permitted to refer to agenda item 5 (b) before you, "Co-ordination of outer space activities within the United Nations system". An interagency meeting on outer space activities will be held in Geneva in September this year. The purpose of the meeting is to discuss the various stages of preparation of background papers for UNISPACE 82 which are being assigned to interested agencies and organizations within the United Nations system and to discuss the contributions to the integrated report of the Secretary-General of the United Nations on assistance being extended to developing countries in the area of practical applications of space technology.

Mr. SANCHEZ PENA (Argentine) (interpretation from Spanish): The Argentine delegation attaches great importance to United Nations outer space programmes and activities. The Expert's report (A/AC.105/257), which we have studied with interest, is, in our view, highly productive, particularly in the light of the limited bedget that was available for the programme on space applications.

(Mr. Sanchez Peña, Argentina)

As part of this programme, our country was the host to the regional training course on remote sensing, which was concerned particularly with non-renewable natural resources, held between 5 and 23 November 1979. What is more, Buenos Aires will be the site of the preparatory regional seminar for the ECLA region. This will be held between 31 March and 8 April 1981. Its subject will be "Remote sensing and communications for education and development".

We consider that Latin America is increasingly developing its capacity for space applications. We would urge the Latin American members of the Committee to participate in the 1981 seminar to the utmost so that it will have fruitful results, as we would urge the developed countries to give it their maximum support. We would recall that the United Nations Conference on Science and Technology for Development was held at a critical moment in the development of the world's economic situation and in international economic relations, which were characterized by a series of crises in the world economy that resulted, in particular, in a fresh deterioration of the situation in the developing countries.

The developed countries are carrying out approximately 95 per cent of all research and development, whereas the developing countries, which make up 70 per cent of the world's population, have only 5 per cent of the world's capacity to conduct research and development activities and only the tiniest fraction of this small capacity is devoted to space activities and space applications. And yet in recent years almost every country has been carrying out activities that are more or less directly related to space activities. The figures I mentioned earlier indicate the immense size of the problem and the task facing the international community. The experience of recent decades shows that it is necessary to take decisive measures at the national and international level to correct this state of affairs. Without such measures, the imbalance of the present situation will worsen and increasingly widen the gap between the developing and the developed countries.

International co-operation for development in science and technology should help the developing countries to strengthen their creative capacity and their ability to innovate, and stimulate indigenous scientific and technological progress. Fundamental changes are necessary in the present patterns of international relations in this field so that there would be a substantial increase in international co-operation with a corresponding increase in the opportunities available to

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developing countries to expand and strengthen their own scientific and technological capacity in line with each country's needs and real situation and its vision of the future, as well as in the light of changes in international procedures for the transfer of technology so that there would be a smoother and bigger flow of technology to the developing countries, and they would have considerably greater access to the technology that they require, including advanced and sophisticated technology such as that used in outer space.

We have studied the section of the document (A/AC.105/267) dealing with the co-ordination of the outer space activities within the United Nations system, and we feel that co-ordination should continue. We consider that it would be useful for developing countries if, as a by-product of this co-ordination, the Secretariat could prepare a document listing in chronological order all the activities related to outer space undertaken by the United Nations, such as seminars, courses and scientific and technical meetings. The delegations would thereby receive detailed information through a single channel, and this would enable professionals and specialists in Member countries to co-ordinate their own activities, while drawing upon what is available through the United Nations Organization.

Lastly, our delegation noted that the Scientific and Technical Sub-Committee at its sixteenth session agreed to take up the co-ordinating role of the United Nations in the use of science and technology, for the benefit, in particular, of the developing countries and that this question should be included as a separate item on the agenda of its seventeenth session. The Committee concluded that before there could be an assessment of the benefits to be obtained from co-ordination it would be necessary to study the various existing programmes in more detail through closer consultation between the various organizations and bodies. Our delegation hopes that we shall be able to reach a satisfactory solution that will be specially tailored to the needs of developing countries.

Mr. KARAKASHEV (Bulgaria) (interpretation from Russian): For almost 20 years now, the Committee on the Peaceful Uses of Outer Space has clearly shown the evident truth that it is the most important centre where complex questions connected with the use and exploration of outer space are being discussed, a centre that encourages the development of international co-operation in this very important sphere. It is also a centre that makes its contribution to the

(Mr. Karakashev, Bulgaria)

settlement, on the basis of equality and adherence to the principle of consensus, of relations among States and plays a most important role in the formulation of the newest part of international law, that is, outer space law.

Our delegation has listened with much interest to the statements made by more than 20 members of this Committee and also by the representatives of the various organizations represented here, who have explained the position of their Governments and organizations on the main items on our agenda.

We note with satisfaction the desire of all delegations to discuss the matters before this Committee in a spirit of business-like co-operation, mutual understanding and compromise, and we hope that this will be the approach that will be taken by all delegations in discussing one of the most important problems, a problem that has been on the Committee's agenda for many years.

I am speaking of the question of direct television broadcasting by satellites. In making this statement and in the interests of truth, we must recognize that the work of co-ordinating the principles that should govern the use of satellites for direct television broadcasting has been made unnecessarily complicated by some delegations. This is a question that faces the State with a whole set of political, economic, cultural and other problems, which in our opinion must be resolved on a clear-cut legal basis that clearly reflects the position that direct television broadcasting by satellite can be carried on only in the interests of peace, progress and the strengthening of friendly relations and mutual understanding among peoples. On the other hand, one must also take into account the fact that any State is competent to decide, in virtue of its sovereign right, all questions that pertain to the receiving of information through direct television broadcasting by satellite and that the control of foreign sources of information is a question that lies within the domestic jurisdiction of States. This is an extremely important question, particularly if we bear in mind the fact that, through direct television broadcasting, some States or organizations may, intentionally or unintentionally, exert a negative influence on customs, morality, and religious beliefs, and that some States in different political situations can actually use such broadcasts to kindle hatred and enmity between peoples and thus act to the benefit of those forces that are interested in bringing about difficulties and international tensions and in instigating conflicts and wars.

(Mr. Karakashev, Bulgaria)

Direct television broadcasting by satellite, as well as many other activities undertaken by States in the exploration and uses of outer space, of course falls within the scope of international outer space law. The legal problems which arise from direct television broadcasting indicate that this particular space activity, because of its peculiarities and its enormous possibilities, requires international regulation and, what is most important, the strengthening of internationally recognized principles governing a number of questions, such as, for example, the prohibition of television broadcasting to other States without the clear consent of the receiving States and also the complete prohibition of propaganda for war, militarism, racism and other crimes condemned by international law, as well as the prohibition of interference in the domestic affairs of sovereign States and the recognition of the international responsibility of States for the content of their broadcasts whether they emanate from governmental or non-governmental organizations.

As was shown by the statements made on this agenda item, most States are interested in very clear-cut guarantees against the abuse of such an important medium - namely, direct television broadcasting - which is capable of having a strong impact on public opinion. Our delegation views with some justified optimism the possibility of reaching an agreement, even at this session, on the questions that have not so far been settled. Of course, additional efforts will probably be needed on the part of certain delegations. It is important to assess this positively from a political point of view and to display a maximum willingness to accept a compromise decision, which would then appropriately crown the work of the Committee and its organs on this question, which has been under discussion for eight years.

The acceptance of principles on the use of satellites for direct television broadcasting and also agreement on a convention governing this activity would certainly be a very important contribution to the development of co-operation among States in the practical implementation of their programmes on the peaceful uses of outer space and also foster mutual understanding and promote the economic and social progress of all peoples. Broadcasting television programmes by satellite is one of the most promising possibilities of the peaceful uses of outer space to satisfy human needs. However, the existence of such broadcasts

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of course creates new problems which must be faced by mankind - problems connected with the need to ensure conditions under which this new realm of space technology will truly serve peace and mutual understanding among peoples. That is why we believe that it is important, first of all, to protect the sovereignty of States from any outside interference and not to allow such broadcasts to be turned into a source of possible international conflicts and dissensions.

Mr. KIRSCH (Canada): In the context of item 4 of our agenda, I should like to make a few observations on the use of nuclear power sources in outer space. These observations will be related mostly to the treatment of the item in the Legal Sub-Committee.

With respect to the work of the Scientific and Technical Sub-Committee on nuclear power sources, we of course share the disappointment of a number of delegations at the lack of progress in the Working Group on nuclear power sources, but we believe that this lack of progress was largely due to the particular circumstances prevailing this year, which should not recur in 1981. In particular, by the time of the next session of the Working Group of experts on nuclear power sources, delegations will have had ample time to consider the technical papers submitted and to draw conclusions therefrom. We are also confident that the other necessary conditions for a fruitful session will be present in 1981. I am thinking specifically of the continuing contributions made by Governments to the work of that Group, including the participation of government experts on nuclear power sources, suitable arrangements in terms of time and location and, of course, the spirit of co-operation which has allowed this Committee and its Sub-Committees to achieve positive results in many areas in the past.

We very much hope that a general agreement similar to that which now exists concerning future work on nuclear power sources within the Scientific and Technical Sub-Committee will soon be reached concerning the future work of the Legal Sub-Committe I should like now to review some developments connected with the session of the Legal Sub-Committee held in Geneva last March and to outline the reasons why we believe that revised arrangements are now required with a view to devising a special legal régime applicable to nuclear power sources.

(Mr. Kirsch, Canada)

The item that was placed on the agenda of the Legal Sub-Committee included two aspects: review of international law, on the one hand, and consideration of the desirability of new instruments, on the other. The Canadian delegation to the Legal Sub-Committee believed that a review of international law ought not to be an academic exercise. Its value depended very much on whether we were able to identify the discrepancies between what already existed in international law and what the international community wanted international law to provide for the particular case of nuclear power sources. The Canadian delegation therefore submitted a working paper which included general elements - elements which we and - judging from the views expressed at past sessions - many other delegations thought should form part of a legal régime to be established on nuclear power sources. This working paper now appears as annex III of the report of the Legal Sub-Committee (A/AC.105/271).

(Mr. Kirsch, Canada)

We also proceeded to review the applicable legal instruments. That review clearly demonstrated to us that those instruments need to be supplemented. A comparison between the existing provisions in outer space law and the provisions applicable to the use of nuclear power in other areas than outer space is extremely revealing. For all areas other than outer space, it has been deemed indispensable to devise specific codes and standards because of the obvious implications of the use of nuclear power for the safety and integrity of the human environment. In addition, international standards have been developed by a number of organizations with respect to the use or transportation of nuclear materials in domains such as land, ocean and air. Of course, the adoption in 1977 by the International Commission on Radiological Protection of basic recommendations on protection against exposure to ionizing radiation represented another important step forward. A common objective of all those efforts has been to ensure that there is adequate containment of nuclear materials under normal operating conditions and also in accident situations.

There is nothing comparable in outer space law. The Canadian working paper to which I referred earlier mentions four areas in which provisions on nuclear power sources are, in our view, required: information concerning their use; notification prior to re-entry; assistance to States, and particularly developing countries; and radiation exposure levels. Our examination of the existing provisions of international law with those objectives in mind showed that those provisions were incomplete, unsatisfactory or non-existent. In order not to repeat here what has already been said in the Legal Sub-Committee, I would simply refer members of this Committee to a statement made by my delegation in the Legal Sub-Committee, which contains a detailed examination of applicable provisions as well as views as to how they should be supplemented. That statement was distributed as a working paper of the Legal Sub-Committee, and I assume that it is still available.

What, then, was achieved at the session of the Legal Sub-Committee? In our view the results of the session can be summarized as follows. First, the

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importance attached by delegations to the question of nuclear power sources in outer space was once again confirmed. Almost all the delegations represented at the session spoke on the question, thus making it the most debated item in the plenary meetings of the Legal Sub-Committee. Secondly, an overwhelming majority of those delegations that made statements were of the view that the review of international law carried out during the session had led to a good understanding of the main applicable provisions of international law and to the inescapable conclusion that new, specific provisions were required. Thirdly, an overwhelming majority of delegations also felt that better working arrangements would be required in order to permit constructive work at future sessions of the Legal Sub-Committee.

I should like to dwell for a moment on this last question. Essentially, new arrangements are needed because it is time to start considering what the new legal provisions should be. For our part, we suggested that appropriate standards and safeguards should be developed and embodied, as a first step, in principles to be approved by the General Assembly.

It is time to move ahead. Although it is true that an item on nuclear power sources was placed on the agenda of the Legal Sub-Committee, for the first time this year, the issue had in fact been on the agenda, in one form or another, since early 1978. The proposals which were made in 1980 were in large part based on ideas already expressed in the two preceding years. The work accomplished by the Working Group of the Scientific and Technical Sub-Committee was useful in identifying problems and in establishing priorities but the basic aspirations of States represented here as to the main elements of a régime have not substantially changed. It is clear that the growing use of nuclear power sources, as was again demonstrated by recent events, makes a legal régime necessary. It is clear that such a régime would respond to the wishes of the international community. It is clear that such a régime will in fact be developed. It would not be productive to attempt to delay constructive work on the matter.

In trying to define what elements should be included in a legal régime, we should of course take into account existing, applicable provisions in international law so that the final product can be integrated in the existing

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body of law in a coherent fashion. We should also keep in mind, on a continuing basis, the work which is being done within the framework of the Scientific and Technical Sub-Committee. It has always been the position of the Canadian delegation that a legal régime must be based on a good understanding of the relevant technical factors. Finally, it will be important to take into account the views, priorities and concerns of all of us, including those States which do use nuclear power sources in outer space. But it will be equally important to ensure that our concern with taking all factors into account does not result in paralysing progress under the pretext that all legal, technical and political details have not been exhaustively dealt with even prior to undertaking the exercise. I should emphasize here in particular (and I could elaborate on this aspect of the question if required) that there would be an obvious complementarity - not a contradiction - between the work of a working group within the Legal Sub-Committee and the work of a working group on nuclear power sources within the Scientific and Technical Sub-Committee.

In order to pursue our legal work in a meaningful fashion, we believe it is essential that the nuclear power sources item in the Legal Sub-Committee should now become a priority item and that a working group be formed. The small number of meetings that we had this year perhaps suited our purposes for a first, preliminary consideration of the item but similar arrangements in the future would clearly condemn us to a fruitless, endless repetition of general positions. We can do better than that. We believe also that since the need for new provisions of international law has been demonstrated by the review that was carried out, the title of the item should be changed accordingly. Those adjustments must be made before the next session of the Legal Sub-Committee. Although the increasing use of nuclear power sources in outer space may be understandable, as was explained to us, the risks inherent in that use exceed the benefits which most members of the international community are deriving from it. It is our collective responsibility to work constructively on a régime designed to meet the concerns raised by the use of nuclear power sources, in order effectively to protect our peoples and our environment. It is also our collective responsibility to avoid setting up obstacles which might unnecessarily complicate the unification of this essential task.

(Mr. Kirsch, Canada)

We are fully confident that this Committee will be able, in its best tradition, to live up to these responsibilities and to the challenges of new technical developments in outer space.

Mr. PEDERSEN (United States of America): The representatives in this Committee are keenly aware of the benefits to be achieved from mankind's conquest of space. In science and technology, and in exploration and earth applications, we are only now beginning fully to appreciate the scope of our abilities.

The global benefits of our space programmes are nowhere more clearly defined than in the field of remote sensing from space. At a time when supplies of food, water and energy are dwindling, our ability to acquire data about our planet from outer space is contributing to world efforts to manage our precious resources. For more than two decades successive generations of satellites have increased our ability to learn more about our planet. Data from our satellites in the United States LANDSAT series, for example, are now being used by more than 100 national and international organizations in a wide range of applications.

In 1979 the President of the United States announced a commitment over the coming decades to the continuity of land remote sensing data, based on the experimental LANDSAT system. The National Oceanic and Atmospheric Administration (NOAA) has been charged with the responsibility of developing and administering an operational land remote sensing system.

In moving towards a fully operational system the United States will build upon and further encourage the use of remote sensing data by international users. We plan to continue our policy of non-discriminatory open dissemination of LANDSAT-type data, including direct read-out to authorized foreign-owned and operated ground stations. We will continue to provide data to foreign users under pricing policies consistent with those applicable to domestic United States users. The United States will also seek to promote the development of complementary nationally operated satellite systems through co-ordination with prospective satellite-operating nations, and we will continue to encourage the establishment of regional remote sensing training and data analysis centres to complement national remote sensing activities.

In recognition of the critical importance of remote sensing from space, the United States strongly supports the efforts of this Committee and its Legal Sub-Committee to continue a detailed consideration of the legal implications of remote sensing of the earth from space with the goal of formulating and agreeing upon principles. Those principles should complement

(Mr. Pedersen, United States)

the extensive international co-operative arranements now in place and must in our view serve to foster and facilitate the maximum use by all interested nations of this new and important capability. Legal principles on remote sensing should not be permitted to render these practical arrangements more difficult or even impossible.

As shown in the video presentation prepared by the United States delegation for this meeting, the primary LANDSAT data available for purchase world-wide, either in the form of magnetic tapes or in so-called false-colour images, already have measurement errors and distortions corrected. The primary data in image form thus may be overlayed without further effort onto standard maps to aid in interpretation. But comprehensive interpretation of the data, relating what can be sensed from space to real data on the ground, requires field observations and experimentation. In turn that requires the world-wide users of LANDSAT data to combine the data with knowledge obtained from sources other than satellite-borne remote sensors in an analytical process using their own resources.

The investment that is necessary to convert primary remote sensing data into analysed information -- by other nations, international organizations, regional groups, universities, foundations and various private parties -- adds enormously to the practical use of primary data. Because of the vast quantity of LANDSAT data that has been disseminated over the years world-wide, one can only speculate on the scope of the analytical efforts which have been expended by various nations and users in putting the primary data to practical use. But by any standard that effort is impressive and is resulting in great benefits.

We share the concern that has been expressed at this meeting about the lack of progress in moving towards agreements on principles in this area. In a desire to reach agreement, however, delegations on the Legal Sub-Committee should exercise great care to avoid drafting legal principles which would serve to inhibit international co-operation or which would erect legal, practical or institutional barriers to open, widespread and effective use of our abilities to view earth from the vantage-point of space.

Turning to another item in this area, my delegation believes that new rules and procedures are needed to govern the use of nuclear power sources in

(Mr. Pedersen, United States)

space. In our view those rules and procedures should include the publication of appropriate safety analyses by States which launch such vehicles, the establishment of requirements for notification prior to the re-entry of a malfunctioning spacecraft that includes a nuclear-power source, and the provision of assistance in locating debris from a spacecraft containing a nuclear-power source and assisting in any subsequent clean-up activities.

The recent study by the Legal Sub-Committee has left no doubt that existing international law does not adequately cover the use of nuclear power sources in outer space. That being the case, we believe the Scientific and Technical Sub-Committee's working group should continue to study technical and safety measures relating to the use of nuclear power sources in outer space. We also believe that the Legal Sub-Committee should establish a working group to begin drafting principles governing the use of nuclear power sources in outer space using, as appropriate, the good material being developed by the Scientific and Technical Sub-Committee's working group regarding the technical and safety factors involved in the use of such devices.

The use of nuclear power in outer space, as elsewhere, offers great promise as well as certain dangers, and it is in the interests of all members of the international community to assure its careful regulation. We are committed to working in this Committee and elsewhere, as appropriate, to make progress on this important issue.

My delegation may have other remarks to make regarding other aspects of this agenda item at a later stage.

Mr. van KESTEREN (Netherlands): I should like to speak on agenda item 4 (c), "Definition and/or delimitation of outer space and outer space activities, bearing in mind, inter alia, questions relating to the geostationary orbit".

One of the ways to solve the problem of the definition and/or delimitation of outer space is the establishment of a boundary at the southern altitude. That approach is embodied in a proposal put forward by the delegation of the Soviet Union, which aims at fixing a lower limit to outer space, leaving it to

(Mr. van Kesteren, Netherlands)

a treaty, to be concluded later on, to establish the precise boundary between airspace and outer space.

The existing outer space conventions contain references to outer space as such, and therefore it seems logical to make sure what is meant by that expression. As was once asked in this Committee, how can we speak about something - outer space - when nobody knows what it is?

At first glance these questions seem pertinent, but, if given more careful consideration, they are in our view less obvious than they look. What should be the purpose of a definition of the delimitation of outer space or of the establishment of a boundary? In our opinion it should aim at providing a solution to existing problems. As as I have just stated, it can be argued that there is a theoretical problem. But in our view we should look at these problems not only from a theoretical point of view but first of all from a practical standpoint.

That being so, my delegation cannot but have doubt about the approach embodied in the Soviet proposal. By solving a strictly theoretical problem, it tends, as we see it, to create a number of new problems. I should like to mention only some of them - for example, the risk of what might be called the phenomenon of so-called creeping jurisdiction.

(Mr. van Kesteren, Netherlands)

As the law of the sea has shown, the fixing of boundaries rarely offers definite solutions, so that there will be an ever-present temptation to expand the zone subject to sovereignty, with all the controversies connected with that.

Another problem that might be created is the question of the right to let a space object fly through the air space of other States. If that were to be a right of innocent passage, how could the unaligned State make sure that the passage was indeed innocent or in conformity with international law?

A third question is: what would happen with activities which are regarded now as space activities but which take place at an altitude below the proposed boundary? For example, suppose the space object is launched, malfunctions and reaches an altitude of 99 kilometres and falls down on earth causing damage in another State. Would the liability treaty then be applicable or not?

I could continue mentioning problems that could arise after the establishment of a fixed boundary. On the other hand, it is clear that the exploration and use of outer space has been able to develop increasingly until now without such a boundary. No practical problems have intervened, as far as we know. The core of the matter, in our view, is that a definition could be needed only for the purpose of regulating activities, for example, for permitting some activities and for prohibiting others. However, that purpose can be achieved by regulating those activities themselves.

The best way to protect the interests of States is perhaps not by fixing a boundary below which their sovereignty is applicable, but by the establishment of international rules aimed at protecting those very interests. As we see it, that is exactly the course that we have followed until now by drafting and adopting the five outer space conventions which now exist. We feel that we should continue on this course and we are therefore now convinced that drawing a boundary between air space and outer space at a certain altitude is necessary or useful.

Ms. WIEWIOROWSKA (Poland): My delegation has listened very carefully to the general exchange of views. The scientific achievements which result from national space programmes as well as from international co-operation are impressive. We highly appreciate the widening participation in space ventures of so many States and the further development of space technology. However, in the peaceful exploration and exploitation of outer space many complex legal and political problems arise. These problems have been successfully resolved for over 20 years, most of them in our Committee and its Sub-Committees. Issues that we face now are of no less complexity. It is the view of my delegation that we can achieve our goal only if we work in the spirit of mutual understanding and good will. This is a key condition if we want to complete the draft principles governing direct broadcasting satellites (DBS) and remote sensing of the earth. With regard to DBS, we regret that despite the efforts of those delegations that really wish to resolve the outstanding problems further progress was not possible during the last session of the Legal Sub-Committee. Time passes quickly. We are fully aware that the implementation of DBS on a world-wide scale, which is only a "foreseeable future", will soon become an every-day reality. We are deeply convinced that DBS, like other mass media, could play a positive role in the process of détente and the preparation of nations to live in peace. But we need an international instrument providing adequate legal principles for activities in the field of this space technique. We can agree that, even if we lack such principles, there are several international legally binding documents concerning the use of mass media applicable to DBS. But it is our view that owing to the special characteristics of DBS, we need specific international instruments. We shall work on the draft principles of DBS in the spirit of compromise, and shall be ready to accept every proposal which duly takes into account the sovereign rights of States.

As explained in the statement of the Chairman of my delegation, Poland takes an active part in the application of remote sensing data. My country is a party to the Convention on the Transfer and Use of the Remote Sensing of the Earth from Outer Space, signed by INTERCOSMOS countries in 1978. We are developing co-operation in this field also with many other countries.

(Ms. Wiewiorowska, Poland)

Thus, we attach great importance to the solution of all pending problems of remote sensing of the earth from space. We are fully aware that these issues are complex from a scientific as well as from a legal and political point of view.

We welcome the progress towards this end achieved during the last session of the Legal Sub-Committee. We hope that the current session of the Committee will bring us closer to the final formulation of draft principles. As DBS and remote sensing are of the greatest importance in the application of space technology, the resolving of legal problems in both cases has an enormous significance.

We also believe that it is possible to find a compromise solution concerning the delimitation of air and outer space. The delimitation of international space, as proved, for example, by the Third United Nations Conference on the Law of the Sea, cannot be regarded as easy to achieve. But the most important role in the delimitation of space under State jurisdiction and international space belongs to international customary law. There is no doubt whatsoever that during the more than 20 years of the space era we have been witnessing the international practice of recognizing space over the lowest perigee of the satellite as international space. Thus, the proposal to reaffirm in an international instrument the customary delimitation of outer space at the height of 100-110 km is fully justified. Controversies on the legal status of the geostationary orbit should in no way impede the final agreement on this matter. The geostationary orbit is a complex issue, which should be the subject of our careful consideration. Several important provisions concerning the use of the geostationary orbit have been agreed upon in the forum of the International Telecommunication Union (ITU). Consequently, we deem the solution of outstanding legal issues to be a subject of further scientific studies. The use of geostationary orbital slots is of vital importance to States, which may be more or less developed or of a different geographical location, and thus have different interests in the use of the geostationary orbit. The harmonizing of these different interests is not easy. But the legal status of this part of outer space cannot be based on unilateral claims contrary to international law. The partition of outer space would undermine the fundamental principle of space law: free access to all parts of outer space.

(Ms. Wiewiorowska, Poland)

Our point of view concerning the supplementing of existing international law with provisions relating to the uses of nuclear power sources (NPS) in outer space has already been expressed on several occasions. We are of the opinion that the existing international instruments are adequate for the use of NPS in space We believe that those instruments should be fully taken into account in further discussion in the Working Group established by the Scientific and Technical Sub-Committee. The Working Group might evaluate legal aspects of emergency assistance for State on whose territory the parts of damaged space objects with NPS might fall.

In the opinion of my delegation, it is necessary to conclude the work on problems which have been on the agenda for several years. It would be valuable to undertake the solution of new but realistic problems which are created by technology and thus improve international co-operation. Among others, a space transportation system fully deserves to be discussed.

Mr. Chairman, in conclusion I should like to assure you that the Polish delegation will spare no efforts to achieve further progress in our work.

Mr. KOLOSSOV (Union of Soviet Socialist Republics) (interpretation from Russian): My country is very interested in the continuation and conclusion of our work on such items as those appearing on the agendas of our two Sub-Committees, such as the elaboration of principles on direct television broadcasting and remote sensing of the earth by satellite, as well as principles for the delimitation of outer space.

We proceed from the premise that in trying to resolve the issues of remote sensing and direct broadcasting by satellite it is important to take into account two important factors: first, the need for regulation of such activities by means of general, over-all principles of international law, including such important ones as respect for State sovereignty, the sovereign equality of States and non-interference in the domestic affairs of other States; secondly, the specific nature of such outer space activities. Therefore, the application of general, over-all rules of international law to such activities must take into account the implementation of specific, special principles which, however, must also be based on over-all, general principles of international law and should not depart from them, in view of the fact that they are principles of jus cogens.

We have listened carefully to the arguments in favour of the freedom of organizing direct television broadcasting by satellite, including arguments based on the report of the UNESCO group headed by Mr. Sean McBride at that time. Among the 16 experts who worked on that report there was also a Soviet representative. We have also studied that report very carefully, and we do not share the view that it contains a confirmation of the existence of the principle of the free flow of information in international relations. On the contrary, the conclusions of the report confirm the need to respect State sovereignty in carrying out information activities at the international level and to assist developing countries in organizing national communications infrastructures and a balanced flow of information on the basis of co-operation and agreement.

(Mr. Kolossov, USSR)

As regards the question of the delimitation of outer space, our basic concept is that such delimitation is indispensable, because there are two types of space activities: aviation activities and outer space activities. These are two distinct types of activities, both with respect to their technology and with respect to their possible results and their impact on mankind. These two types of activities are being regulated by different norms of law.

Today we are witnesses to the fact that there are two separate branches of space law: international air space law and international outer space law. To avoid a conflict between the norms and principles of these two branches of law and to avoid disputes among States in connexion with these two types of activities, we see only one correct way out: precise delimitation of spheres of activity, of the norms and principles of these two branches of law.

We have already heard, in several statements, expressions of support for our proposal to include on the agenda of the Scientific and Technical Sub-Committee a new item which we would entitle "Ensuring health and human life under conditions of lengthy outer space flights", and we hope the Committee will be able to approve a recommendation on this subject at this session.

As far as the use of nuclear power sources is concerned, my delegation believes it possible to continue its participation, jointly with other interested parties, in the work of the working group which was set up by the Scientific and Technical Sub-Committee. That work has already yielded some results, and its continuation can be beneficial. With regard to the proposal to set up a similar working group under the Legal Sub-Committee, we believe it would be premature to discuss that organizational subject at this time. Our experts and jurists will be able to take part in a further review of existing international law, with the aim of determining whether or not it is necessary to expand the existing group which is already working on norms for the possible use of nuclear power sources aboard spacecraft.

(Mr. Kolossov, USSR)

We think also that this subject should not have priority on the agenda of the Legal Sub-Committee, and any proposals to reformulate the title of the item so as to assign priority to the discussion of these matters and, even more so, the proposal to set up a special working group would, in our view, be unjustified. Existing international law appropriately regulates this activity, and special principles or norms of outer space law have already sufficiently taken into account the specific requirements of this particular activity. To come to any other conclusion, if we could do so, would be something that would require the continuation of the work in the Legal Sub-Committee along the lines already followed at the last session of that Sub-Committee.

In conclusion, we should like to make the following point. We believe that the effort to formulate the agenda of the Outer Space Committee certainly cannot be regarded as very successful, and our delegation would like to see the agenda of our Committee's next session formulated in a manner similar to the one used at the many sessions that preceded this experiment.

Mr. ECONOMIDES (Italy) (interpretation from French): The views and position of my delegation on the question of remote sensing of the earth by satellites are well known and were indeed expressed on many occasions during the sessions of the two Sub-Committees. So without going into the substance of the matter, I should like to stress the importance of remote sensing in the development of all countries.

Technology does make possible a thorough knowledge of the resources of the countries concerned and hence offers the possibility of effective planning for the development of those resources. It is therefore necessary actively to pursue the work we are doing in the two Sub-Committees in order, where necessary, to spell out the technical and legal requirements for an international agreement in this sphere.

My delegation is aware of the fact that the developing countries today do not have all the personnel necessary for analysing and interpreting data provided by remote sensing technology. This is why, during the last session of the Legal Sub-Committee, Italy proposed the outlines of a plan which could be developed, within the United Nations, to offer third world countries assistance in this field. On the one hand, it would be a question of strengthening the present capacity to analyse and process data by developing countries and, on the other hand, of creating and expanding the remote sensing capacity of those same countries.

In view of the generally favourable reception of our proposal, we will submit a detailed project on this whole matter at the next session of the Legal Sub-Committee.

Also in the spirit of co-operation with developing countries, Italy is continuing to make contributions in the courses on remote sensing organized by the Food and Agriculture Organization of the United Nations (FAO), whose Fifth International Training Course was recently held in Rome. Those taking part in these courses have strengthened our conviction that the courses are useful and that help to strengthen the FAO structure should be strengthened in this area.

This morning we listened very carefully to what was said by Mr. Padang, and my delegation is quite willing to discuss with him and with officials in the United Nations all the possibilities for development that might be found in this area.

(Mr. Economides, Italy)

In conclusion, I should like to deal with the question of the use of nuclear power sources in outer space.

We listened very carefully to the statement of the representative of Canada. My delegation fully concurs with it and shares the conclusions of the Canadian delegation.

We reserve the right to return to certain items that are on our agenda.

Mr. MESHARRAFA (Egypt): Under item 5 (a), (b) and (c), my delegation would like to state that since the inception of the Space Applications Programme in 1970 Member States have contributed significantly to the implementation of this programme. We voted for the expansion of this programme more especially since it has assisted member States in gaining a better understanding of this technology through its training courses, seminars and workshops to develop expertise within these countries. Because of the many opportunities that are available in the area of space applications today, many members of this Committee have endorsed for the past few years the expansion of this programme and have from time to time requested that the space applications programme provide expert advisory services to Member States in several areas of space application.

It is high time that member States give substance to their endorsement of the expansion of this programme and envisaged the enlargement of the scope of its activities and that it be substantially assisted so as to enhance its effectiveness.

My delegation noted with satisfaction that the Space Applications Programme is involved in the preparatory aspects of the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space, especially in the conduct of preparatory seminars at the level of the regional economic commissions. My delegation fully supports this role of the Space Applications Programme and we are prepared to offer whatever assistance may be requested in the field of communications and remote sensing, bearing in mind that the remote sensing centre in Cairo is one of the five institutions recommended by the Economic Commission for Africa (ECA) as a regional training and user assistance centre serving Africa.

(Mr. Mesharrafa, Egypt)

At previous sessions my delegation has called for the establishment of regional remote sensing centres in various parts of the world. This step could be complemented by organizing an international body under the auspices of the United Nations to direct and operate remote sensing programmes to provide data under conditions ensuring optimum benefits to Member States, especially developing countries. We hope that the space Powers will extend assistance for the speedy realization of such projects.

In this regard the Egyptian Government has informed the Secretariat that the centre in Cairo is prepared to offer its services and facilities within the framework of African co-operation for training African experts in the applications of remote sensing techniques for surveying their natural resources, environmental studies and engineering. The centre in Cairo could also contribute and conduct studies and projects in some African countries giving consideration or attention to their use of remote sensing techniques in national development projects.

The CHAIRMAN: I call on the representative of the International Telecommunication Union.

Mr. POULIQUEN (International Telecommunication Union) (interpretation from French): Mr. Chairman, first of all I should like, through you, to thank the Committee for this opportunity to report on some of the most recent activities of the International Telecommunication Union (ITU) in the field of outer space. Representatives of the ITU have at meetings of the two Sub-Committees already had the opportunity to provide all useful information relating to the items on their agendas, and I shall therefore not go into that in detail in my statement today.

More than 21 years ago - in 1959 - a World Administrative Conference on Radiocommunications of the ITU drew up the first measures governing space telecommunications. At the same time, its International Advisory Committee on Radiocommunications began a series of technical and standardization studies, a task which has continued to date and is continually expanding. Other conferences in 1963 and 1971 dealt with amending radiocommunication regulations, in the light of the development of technology and the expansion of space systems.

(Mr. Pouliquen, ITU)

The latest was the World Administrative Conference on Radiocommunications held in 1979, which ended its work a few months ago. It undoubtedly marked a turning-point in the history of international regulation of space radiocommunications. It must be pointed out that the agenda of that Conference, where 142 out of 154 members of the ITU were represented, covered the whole range of radiocommunications; but that was an essential precondition to be able to deal with problems peculiar to space in the broadest possible context.

Even a brief analysis of the results of that Conference in the area of space radiocommunications would be out of context here; besides, it is contained in the nineteenth report of the ITU on telecommunications and the peaceful uses of outer space - a report which the ITU prepares each year for the Committee. Some of the decisions deserve special attention because they concern the convening of conferences dealing with particularly important subjects. The first subject is the establishment of a detailed plan for satellite radio broadcasting in the 12 GHz band as well as for associated link ups in Region 2, that is the Americas. Once this plan has been developped, we shall have complete world planning of radio broadcasting by satellite based on equal rights of all countries.

The second subject is the use of the geostationary orbit and the planning of space services using this orbit; it is aimed essentially at specifically ensuring for all countries equitable access to the geostationary orbit as well as to the frequency wave bands for space services.
The work of that Conference will be spread out over two sessions. I should like to add that provisions have been made on an interim basis, with regard to the duration of the allocation of frequencies to geostationary satellites.

The Administrative Council of the ITU has been seized of all the requests of the 1979 Conference to set a date for conferences and for the agendas of those taking place closest together, in accordance with the provisions of the International Telecommunication Convention. The members of the Union have now received proposals from the Administrative Council, and the time table for the administrative conferences of the ITU directly concerning space is as follows: first, planning of radio broadcasting by satellite for Region 2 - that is, the Americas - for five weeks starting on 13 June 1983; further, the first session of

(Mr. Pouliquen, ITU)

the World Administrative Conference on Radiocommunications on the use of the geostationary orbit and the planning of space services using that orbit, for a period of six weeks starting on 12 March 1984; lastly, the second session of that same Conference on the use of the geostationary orbit and the planning of space services using that orbit, for a period of six weeks starting in November 1985.

In other words, the Administrative Council of the ITU has met the requests of countries represented in the 1979 Conference and approved a series of appropriate measures which have already fixed the schedule in the conferences which up to 1986, will define the development of the regulatory framework for space radiocommunications.

The development of a governmental conference programme for such a period of time is already an event in itself, but it must be added that these conferences - which do not cover merely space radiocommunications but also other radioelectric services - depend on appropriate technical preparations which are in fact difficult and lengthy. Such preparatory work will involve specialized technical seminars particularly for developing countries organized by the general secretariat of the ITU. It also implies considerable work by the International Radio Frequency Registration Board (IFRB), which, as everyone knows, is responsible for the methodical recording of the allocation of frequencies and orbital slots for various countries, in accordance with the provisions of the radiocommunication regulations. In this connexion I should like to mention that that Board has prepared, for the nineteenth report of the ITU, which has already been mentioned, a complete table of geostationary satellites with their main characteristics.

The preparation of technical bases and standardization studies which will be necessary for those conferences is mainly the task of the International Radio Consultative Committee (CCIR), whose work on space radiocommunications began in 1959. That body's activities have just been planned for several years ahead so that the conclusions it will have reached on relevant subjects will be available before each of the conferences takes place. It is currently holding meetings of its various study committees, and an important part of their deliberations is concerned with space.

(Mr. Pouliquen, ITU)

Thus Committee II, which deals with space research and radioastronomy, has just developed new texts relating to subjects such as observation of the earth, including the location of ground stations and data gathering, meteorological satellites, radioastronomy, energy production in space, the search for extraterrestrial civilizations, and so on. Other committees are currently considering the most recent data on dissemination or on subjects such as the diffusion of standard frequencies and satellite-generated time signals.

In a few weeks the committees of the International Radio Consultative Committee (CCIR) charged with the study of satellite broadcasting and space telecommunications will be meeting. A working group of the committee responsible for the latter subject is dealing with the problem of the optimal use of the geostationary satellite orbit. It met in May 1980 and the scope of its work will naturally increase as part of the preparations for the 1984 conference on the planning of the geostationary orbit.

Where remote sensing is concerned, which comes within the framework of our activities under the heading of exploration of the earth by satellite, the ITU deals with certain aspects of remote sensing which fall within its purview. The regulations for radio broadcasting, revised in 1979, contain provisions to ensure its correct radioelectric functioning and in particular new allocations of frequencies. The advisory committees of the ITU are concerned with questions relating to the standardization of certain aspects of remote sensing which have an impact on telecommunications such as, for example, formats, transmission of data, use of passive captors, conditions for the exploitation and use of the spectrum. As in many systems, it is the optimal use of orbital parameters and the radioelectric spectrum which affect certain important characteristics of the system, such as the powerfulness of image resolution.

The CCIR is also concerned, inter alia, with technical problems posed by the satellite solar generating stations. In fact, it is a radioelectric question since the transmission of energy is effected by radioelectric waves. This problem is not merely related to outer space, since this manner of transmitting energy is also envisaged for the earth.

(Mr. Pouliquen, ITU)

The International Telegraph and Telephone Consultative Committee (CCITT), one of the permanent organs of ITU, is continuing to study the use of telecommunications satellites for the transmission of telegraph messages, facsimiles, telephone calls, data and so on. Many study groups have already made contributions to this work and their conclusions will make it possible to assess progress in the area of space telecommunications, and in particular in the field of the integration by satellite of circuits in world telephone networks.

To sum up, one could say that in the fields of international regulation, technical studies and the standardization of radio broadcasting in outer space, since the World Administrative Radio Conference (WARC) in 1979, ITU has undertaken work in its area of concern that will permit continuing as in the past to deal with the problems posed by the harmonious functioning and the expansion of space services. In 1982 will be held the next Plenipotentiary Conference of ITU, which will be charged, inter alia, with reviewing the International Telecommunication Convention. The proceedings of that conference will doubtless be of great importance for the development of the work of ITU, and hence on space telecommunications.

Taking into account the final proceedings of the 1979 Conference, ITU does not have regulations for the delimitation of outer space for its own purposes. Rather, the ITU texts all refer to the nature of activities in outer space, so that space is treated by ITU in a manner that can be described as functional, to use the term sometimes used by the Sub-Committees of this Committee.

Concerning the participation of ITU in the development of space applications, it might be useful to recall that an important part of its work takes the form of regulation and standardization. ITU has no programmes in the strict sense but it nevertheless does carry out a large number of programmes in the development of telecommunications, in its capacity as executive agent of the United Nations Development Programme. Thus in the nineteenth report of ITU one will find a short description of its main activities in the area of space applications. Those include assistance in the establishment of ground stations, participation in the organization of seminars and so on. One might also add that the process of regulation, planning and standardization carried

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out by ITU, as well as the development of technical standards for its international consultative committees, offers the best framework for the development of as large a number as possible of systems of space telecommunications. That applies, for instance, to the plan for satellite radio broadcasting, which has become an integral part of the regulations for radio broadcasting as revised in 1979. That plan may be considered as an aid to the development of space applications since, thanks to it, all countries will be able to have an appropriate number of radioelectric channels to ensure clear broadcasting on their national territory; they already have the essential parameters of the satellites.

One might add that the general technical co-operation programme of ITU applies to all categories of telecommunications, including space telecommunications study cycles, expert services, grants, and certain programmes such as the development of rural telecommunications or assistance in the case of natural disasters.

Our Union attaches great importance to problems of co-ordination. In that connexion one might mention our participation in the work of many international organizations concerned with outer space, first among which is the United Nations Committee on the Peaceful Uses of Outer Space and its Sub-Committees. In particular ITU is naturally ready to offer all possible assistance, in areas within its competence, in the preparations for the Second United Nations Conference on Outer Space, in which the last Administrative Council of ITU expressed great interest.

ITU has also continued to take an active part in the work of the specialized agencies which deal with outer space radio broadcasting, such as the International Civil Aviation Organization (ICAO), the Intergovernmental Maritime Consultative Organization (IMCO), the World Meteorological Organization (WMO), the United Nations Educational, Scientific and Cultural Organization (UNESCO), regional intergovernmental organizations, regional broadcasting organizations and scientific bodies such as the International Astronautical Federation (IAF), the Committee on Space Research (COSPAR) and the Inter-Union Commission on Frequency Allocations for Radio Astronomy and Space Science (IUCAF). Special mention must be made here of the particularly

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fruitful co-operation which has been established between ITU and ICAO, and especially IMCO, in the study of problems relating to the establishment of specialized systems of telecommunication for mobile services, which are to be integrated in the world telecommunications network.

During its last session the Administrative Council of ITU expressed interest in the possible impact of the reports which it submits to this Committee every year, in accordance with the relevant resolutions of the General Assembly. It expressed the desire to be informed of the comments of the two Sub-Committees on those reports. It goes without saying that any opinion which the plenary Committee itself expressed on the subject would be valuable to ITU.

I have just given an outline of the present and future activities of ITU in the field of space radio broadcasting. Twenty-one years ago our Union began its work to ensure the adequate regulation of space radio broadcasting and it has, when necessary, developed technical recommendations for this Committee and expanded its technical co-operation activities. We believe that ITU has thus helped to develop and, where possible, to make operational a large number of activities within the purview of this Committee.

I can assure you of my full co-operation in furnishing any additional information which the Committee might request at this session, in the course of the discussion of the different agenda items.

Mr. YASH PAL (India): I should like to begin by making a few remarks about the United Nations programme on outer space.

As far as this Committee is concerned, the programme has for many years been one of our most successful efforts. As Mr. Padang has pointed out, the programme remains very active; a great number of seminars are being organized; many States are contributing to the programme - and not only through contributions to the budget that we make available to the progrmme but also through their own individual contributions. The small amount of resources provided by the United Nations for this purpose essentially acts as a catalyst that attracts a lot of other resources enables the programme to move ahead.

For a number of years, in this Committee and in its Scientific and Technical Sub-Committee, many of us have voiced our anguish that such an important programme should languish at the rate of funding we gave it many, many years ago, in spite of the present inflation and other factors. We all appreciate the programme, and we always have nice words to say about it. It is exceedingly successful, but somehow it has never been possible to make even a token increase in the amount that we spend on it.

I suggest that instead of just making statements we really should do something about this. I say so because I also believe that the programme needs to get into some other things. Take, for example, our primary work in this programme, which is related to remote sensing. Many years ago, when we started, remote sensing was considered to be an entirely new discipline in which one had to set up centres of remote sensing and to train a group of scientists and engineers brought in from various disciplines in this particular area. It remains that way to some extent, but now remote sensing is getting into all activities, just as computers have. We don't need separate centres where computing is done. Computing is part of every activity, be it business, physics, agriculture, geology, or whatever. The time has come to move remote sensing into actual disciplines where other things are done. We cannot just call agriculturists, geologists and water people and say, "Come for a while to a remote sensing seminar and remote sensing will automatically become part of your activity", because it will not.

This problem is not specific to the developing countries alone. I should like to emphasize that this is a world-wide problem which applies to the developed countries also. Remote sensing is not making as great an incursion into the real business of doing things as it should. What should the United Nations

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do about this? Should we, for example, try to see how we can get remote sensing into our whole educational network? After all, it is not new. We have been using it in science and physics and astronomy and in all other areas. It is just a new way, a new technology, a new tool that has been given to us. How do we make sure that this tool becomes an essential part of the learning of our children in colleges and schools everywhere while avoiding introducing it as an added thing in itself, perhaps with a lot of glamour and beautiful photographs that go from conference to conference? This is an area in which we must not only institute studies but probably do some active work to ensure that it does not remain a separate entity all by itself. In fact, to the extent that remote sensing remains a separate entity the programme will not be successful.

I believe that this Committee and our programme must address themselves to this problem. Perhaps we should have studies conducted on it. Perhaps, with the help of Member States we should really do some hard thinking in this area with a view almost to abolishing special centres of remote sensing and making remote sensing an integral part of many other activities. I am not saying that we will not need satellites, that we will not need earth stations, that we will not need data-receiving stations. But that is only a small part of it if remote sensing is to be really useful. So I would urge that we put a great deal of effort into this.

For example, there are a lot of efforts under way in various Member States. Many courses are being given in many places. We ourselves offer several courses, and several other States offer courses, but it is very difficult for a Member State to afford the travel since travel grants are very small. In fact we could use the money very effectively not in organizing large programmes ourselves but in ensuring that people who need to go to the many different programmes that are conducted in various countries do have the opportunity to attend them. So the catalytic nature of this can still be used, but we need to increase the effort. I very strongly suggest that the Committee recommend an increase in the funding of this programme, which at the moment is more or less at the same level as 10 years ago, though in real terms it is decreasing at the rate of 10 per cent every year because of inflation.

(Mr. Yash Pal, India)

I should now like to say a few words regarding agenda item 4 (a). At the last meeting, and also a little earlier at this meeting, we said that we feel that the Committee has a problem drafting legal principles on remote sensing because it is not looking at the issue realistically. It is my personal conviction that if the Committee continues to proceed in the same way this item will remain on our agenda and we will not find much of a solution. The reason is that we are not looking at the total issue.

When astronauts going to the moon take a picture of the earth they are engaged in remote sensing of the earth. And of course there is implicit agreement among all States that they do not need to get permission from anybody either to take such pictures or to disseminate the information obtained from them. Now that we are using synchronous and other meteorological satellites that are operating very successfully, more States are members of the World Meteorological Organization. They use the data regularly, and, although they may not have signed a paper in order to do so, nobody says that they must obtain permission before taking pictures with meteorological satellites or disseminating the meteorological data. So some of the rhetoric applies to specific parts of remote sensing if not remote sensing in toto. Times have changed. To some extent data from satellites such as LANDSAT are also becoming fairly widspread and to a degree one may say that some similar approach is visible, though not really in terms of actual statements made in that regard. But the worry we have here is not even with those satellites but with the total expanding continuum they lay down. We seem somehow to distinguish between earth observation and remote sensing. I do not believe that we or anyone else openly stated that all data obtained by earth observation satellites at this point should or should not be completely freely disseminated. We have a problem similar to that of the delimitation of outer space. We all know that in that case there is a class of data that is freely disseminated. Whether it should be freely disseminated or not is also a question that should be discussed. We do know that that class of data exists; we do know that some of it is very useful for peace-keeping. But the point is that there exist data from space of a different category but obtained by the same type of instrument, perhaps with finer resolution, which are available to be used as one likes for good

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purposes - and sometimes, maybe, for not-so-good purposes, though there is no indication of that - but the total problem is not considered, and it is at the back of everybody's mind.

Somehow this Committee has to find a way for us to consider the total problem. Only then will a solution emerge. Without that, I think we will be caught up in this rhetoric. And I have a feeling that unless we begin to redefine this we will spend a lot of time discussing a problem the solution to which is not likely to be found because we have not defined the problem in its totality. We have taken just a segment of it, and the principles have to apply to the totality.

(Mr. Yash Pal, India)

I should like to make a brief remark with regard to direct broadcasting satellites (DBS). We believe that it is absolutely essential to have principles related to direct broadcasting satellites. From the work which has been going on at the World Administrative Radio Conferences and in other ITU conferences where allocations of different frequency bands have been made, we can see that it will be very difficult to have international direct broadcasting unless we have some kind of consultation and agreement. The situation is reversed in a way. It would have been easier earlier without regulations and agreements to have had international direct television broadcasting. However, that is not so now, and it will be less and less so as we go into the future and as we begin to allocate slots and frequencies, for example, as in the case of the 12-metre broadcast band already in regions 1 and 3. It is not possible for a State to broadcast to my country on that frequency without our permission, without violating ITU regulations. Therefore, it is just as well that we have some agreement and evolve a method. There is an urgency in this regard and I think we ought to look at it from that point of view. It would be a tragedy if mankind did not use the universal capability of communication which became available because of the space age. But it would require consultations and agreements. It is also necessary to keep in mind the other work that has been going on in the sister organization UNESCO, and other organizations with respect to the exchange of information. Although the principle of the free flow of information has been emphasized, there are a great many other matters in both declarations which deal with the balanced flow of information, the right to communicate and various other things. A great deal of work has been done. We can just take it over. Most Member States are parties to this and we can take over those principles, and then see what we have to do in regard to space. Here again I believe we need to adopt a fresh approach, and we need to hurry with this problem.

(Mr. Yash Pal, India)

With regard to the question of nuclear power sources (NPS), in spite of the fact that statements have been made to the effect that we have not proceeded very fast, I believe that on a ticklish issue like this, the Committee has done very well so far. We have a very active Working Group in the Scientific and Technical Sub-Committee. It spent a good deal of time at its last session on this particular item, which is a difficult one. There was a great deal of discussion and a fair amount of progress was made.

My delegation believes that we need to continue working in the Scientific and Technical Sub-Committee and reach a point where it becomes clear to everybody on earth that the type of potential hazard that man is exposed to not only today or tomorrow, but one that he will be exposed to in 50 or 100 years when those objects accumulate in space and when the people who are following those objects in space have forgotten that they put them there and that they may come down. We may no longer have tracking any more and we may not know what kind of inventory may build up. Therefore, from that point of view, it is necessary to have fairly detailed information of what is accumulating there, the rate at which it will come down, how the material will be dispersed, how to take precautions and how to mount clean-up expeditions. All those things need to be done. It is a new area in which scientific and technical discussions must take place. We have to see which regulations of the International Committee on Radiological Protection (ICRP) are applicable, what things have led to particular dispersal conditions and so forth.

I have no doubt that this Working Group composed of experts in the field of nuclear power sources and space could continue working on this and could make steady progress in the area.

With regard to the discussions in the Legal Sub-Committee, I realize that the Legal Sub-Committee has asked the Committee to give it instructions as to what to do now. Some proposals have been made by representatives who have spoken earlier. A mandate has been given to the Legal Sub-Committee, namely, to review the existing international law relevant to outer space activities with a view to determining the appropriateness of supplementing such law with provisions relating to the use of nuclear power sources in

(Mr. Yash Pal, India)

outer space. A very interesting discussion took place in the Legal Sub-Committee this year and many points of view were expressed but clearly the determination of appropriateness or otherwise has not yet emerged. So far it is uncompleted work. Therefore, there are two alternatives. One could say: go ahead straight away and draft legal principles or, look at what the Scientific and Technical Sub-Committee and the Working Group have done and this is your mandate: devote more time to this and try to find out whether or not it is appropriate to supplement the law with special provisions with regard to nuclear power sources. We would suggest that the members of the Sub-Committee should certainly go on working; they need to spend more time on it. However, at the present time our view is that this item should remain on our agenda and continue to be discussed. Things then would be somewhat clearer in the Working Group of the Scientific and Technical Sub-Committee and the Legal Sub-Committee would have better guidelines later to decide whether it should be given this task of trying to draft legal principles. First, it must find out whether or not it is appropriate to do so.

The CHAIRMAN: Before adjourning the meeting, the representative of Egypt has asked to speak again in order to complement his previous statement.

Mr. MESHARRAFA (Egypt): I should like to emphasize two items which are related to the use of nuclear power sources and also to the geostationary orbit.

My delegation has noted with satisfaction the progress made in relation to the use of nuclear power sources in outer space, especially in two areas, namely, notification prior to launching or possible re-entry of spacecraft and emergency assistance. In this regard, we should like to emphasize the importance of evaluating the existing methods of predicting the lifetime and re-entry phases of satellites. It is the responsibility of those States which launch space vehicles utilizing nuclear power sources to conduct safety tests, which should be derived principally from the existing and internationally recognized basic standards

(Mr. Mesharrafa, Egypt)

recommended by ICRP. The launching States should provide the Secretary-General with information relating to the re-entry vehicle for transmission to Member States to enable them to make their own assessment and the necessary preparations for search and recovery. Such information should include all relevant details, such as the nuclear power sources used, the type of nuclear power sources, radioisotopic inventory, the time of re-entry and the information required for prediction of the trajectory, lifetime and impact region. It is very important to consider the establishment of an adequate global tracking system for use in emergency in order to ensure better information and the earlier prediction of the time and the location of re-entry and subsequent debris impact.

We should like to underline the necessity of starting the programme to train specialized teams from various countries for such emergencies, especially in developing countries which could not cope with such accidents.

My delegation has noted with satisfaction that the question of the use of nuclear power sources was discussed in the Legal Sub-Committee during its last session. We hope that during its next session the Legal Sub-Committee will consider the legal norms that will govern the use of nuclear power sources.

With respect to agenda item 4 (c) relating to the question of the geostationary orbit, my delegation considers the geostationary orbit to be a part of outer space and a part of the common heritage of mankind. It is important to establish criteria to distinguish between territorial space which is part of a State's sovereign territory and outer space which is international domain and does not fall under the jurisdiction of any State.

My delegation would like to state in the meantime that since the geostationary satellite orbit and the radio frequency spectrum are limited natural resources and there are growing requirements all over the world for orbital positions and frequency assignments for space service, it is high time to establish guidelines for regulatory procedures to guarantee for all countries equitable access to the geostationary satellite orbit and the frequency band allocated to space service. The use of the geostationary orbit by any country or the registration of frequency assignments for space radio communication service and their use should not confer any permanent priority on any country or group of countries and should not create an obstacle to the establishment of a system to regulate its use, including measures to realize the possibility of the use of the new space system.

The meeting rose at 1.15 p.m.