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COMMITTEE ON THE PEACEFUL USES OF OUTER SPACE

VERBATIM RECORD OF THE ONE HUNDRED AND SEVENTY-FIFTH MEETING

Held in Vienna, Austria,
on Tuesday, 28 June 1977, at 3.30 p.m.

Chairman: Mr. JANKOWITSCH (Austria)

Report of the Legal Sub-Committee (continued)

Report of the Scientific and Technical Sub-Committee (continued)

77-70377

(45 p.)

The meeting was called to order at 3.35 p.m.

REPORT OF THE LEGAL SUB-COMMITTEE (A/AC.105/196) (continued)
REPORT OF THE SCIENTIFIC AND TECHNICAL SUB-COMMITTEE (A/AC.105/195) (continued)

The CHAIRMAN: I call on the Chairman of the Working Party on Direct Broadcast Satellites for a report on the work done by that Working Party during the past few days.

Mr. RADEL (Austria), Chairman of the Working Party on Direct Broadcast Satellites: I wish to report to the Committee the results that the Working Party achieved in discussing the draft preamble and the draft principle on consultation and agreements between States.

The Working Party held a total of four meetings, and it joined me in adopting a working procedure in which the elements of realism and optimism were mixed. I can report to the Committee that we made considerable progress, as a result of the efforts on the part of all delegations, in cleaning up the preamble and removing the square brackets contained in the text of the draft preamble.

We also discussed the separate paragraphs 1 (a), 1 (b), 1 (c) and 1 (d), which are taken from the appendix to the draft preamble, but we did not finish working on it and therefore those four paragraphs are still within brackets.

We then moved on to the very important principle on "Consultation and agreements between States", which is, as some delegations have correctly pointed out, the very heart of the matter; and there also, we made progress in removing the square brackets that appeared so far in the text of paragraphs 1 and 2 of that principle. The Working Party then held a long debate on the text of paragraph 3 of the principle, but no agreement could be reached, and it was decided to include within square brackets the text formulated for this paragraph by the Legal Sub-Committee, as well as five other alternative proposals submitted during the consideration of this principle. In view of the lack of agreement on paragraph 3, it was then decided that the text of paragraphs 1 and 2 should also remain within square brackets for the time being.

(Mr. Radel, Austria)

Some delegations felt that, owing to the wording of the principle on consultation and agreements between States, the principle on "Duty and right to consult" should be reconsidered in order to avoid inconsistencies and redundancies. The Working Party accordingly decided to include that view in a foot-note to the text of paragraph 2 of the principle on consultation and agreements between States. The text formulated by the Working Party on the draft preamble and the principle on consultation and agreements between States are set out in document A/AC.105/XX/WPDBS/1 and 3 respectively and are reproduced in an annex to this report.

I should add that so far as the draft preamble is concerned, I think that we have made progress. The draft preamble has been cleaned, and the remaining four points do not seem so difficult that a consensus could not be arrived at in the future work of the Sub-Committee.

As far as the more difficult paragraphs 1, 2 and 3 of the draft principle on consultation and agreements between States are concerned, we were able to clean paragraphs 1 and 2, removing the brackets within the brackets, as we had decided at the beginning of our work. Concerning paragraph 3, we now have six alternative proposals instead of one for this last paragraph. It seems to me -- and I am sure that members of the Working Party will join me in this opinion -- that this is progress, since it enables delegations to opt, in their future work, between the various possibilities of that paragraph, all of which reflect to a certain extent the opinions of one or another delegation supported by one or another delegation. It is always more difficult to decide whether we can agree on one formula alone or whether we have a genuine choice between six possibilities which, while distinct, are at the same time very similar.

At the end of my report I would again thank the members of the Working Party for their efforts. I think that the Viennese climate was favourable to our work.

The CHAIRMAN: I shall now call on any representatives who wish to comment on the report of the Chairman of the Working Party.

Mr. MAIORSKI (Union of Soviet Socialist Republics) (interpretation from Russian): At the end of the last meeting of our Working Party, the possibility was discussed, at least in theory, of the Working Party's holding one more meeting. The point is that although we fully agree with the assessment of the work we did as presented by the Chairman of the Working Party --- and we should like once again to express our admiration for the way in which the Chairman conducted the meetings of the Working Party --- we should like to propose that we make one last effort to try to improve somewhat the text before us. We do this because if any representative at the General Assembly first reads the report of the Legal Sub-Committee and notes that the proposed text will be a basis for consultations at the sessions of the Legal Sub-Committee and then reads the report of the Committee, he will see a text which is the result of our work here. The last part of this text might cause some confusion and might even disconcert the unprepared reader. Therefore the Soviet delegation proposes --- and we are not going to insist on this if it does not meet with general approval -- that the representatives inscribed on the list of speakers, which is a rather long one in view of the time left, agree to spend the remaining time in holding one more meeting of the Working Party to try to minimize the number of alternatives in paragraph 3 of our compromise text. Perhaps we could also exchange views on some other important questions. We feel that from the standpoint of the productivity of our work we could only gain from such a procedure. I stress that we shall not insist on our proposal. Reference has been made to the favourable climate of hospitality in Vienna. Let us therefore prove that the climate is really favourable and that we can produce good results in these favourable conditions.

Mr. KRAUSE (Federal Republic of Germany): Like the representative of the Soviet Union, we appreciate very much the ability, the serenity and the patience shown by the Chairman of the Working Party in presiding over this difficult debate. We believe that we all owe him our thanks and gratitude for everything that he did and for his skilful direction and intellectual ability throughout the difficult debate.

The CHAIRMAN: The Committee has heard the proposal of the representative of the Soviet Union, which places two alternatives before us. The Committee could make another attempt at drafting principles in document A/AC.105/XX/WPDBS, or, if the Committee thinks that it would be difficult to surpass the results already achieved, the Committee could proceed with the agenda. The representative of the Soviet Union has said that he does not insist on his proposal; he has made it in a spirit which would make it easy for us to make our choice.

Mr. REIS (United States of America): We would be in favour in principle of the suggestion of the representative of the Soviet Union, but at the same time we are concerned about our work. We have to produce a rather substantial report to the General Assembly. I am told -- I had not thought that this would be the case -- that there is perhaps one recommendation of the Scientific and Technical Sub-Committee which, although it had met with support throughout the meetings of the Sub-Committee, is now somewhat in doubt. That matter will require some discussion. It would be a pity to find ourselves suddenly on Friday evening with no possibility whatever of continuing and simply being unable to make a recommendation for lack of time. This is now Tuesday afternoon. While we would be prepared to continue, I believe that the Secretariat will require Thursday to prepare the report in the various languages. I wonder whether, if we only leave two meetings for tomorrow, it will prove possible to reach a consensus in the best tradition of the Committee, which is to forward to the General Assembly the maximum for action rather than the minimum. Therefore, Mr. Chairman, I should like your appraisal or that of the Committee Secretary, of whether the suggestion of the representative of the Soviet Union might adversely affect that work.

The CHAIRMAN: There is a long list of speakers on the items now before us. There are two items that we have not begun to discuss, item 7 concerning the second outer space conference, and "Other matters", under which we have to look at various questions of a procedural nature. Members of the Committee will certainly have to bear that in mind when they consider the possibility of continuing for a short while the work of the Working Party.

I call on the Rapporteur of the Committee.

Mr. LINDENBERG SETTE (Brazil), Rapporteur of the Committee: We shall certainly have the formal part of the report by tomorrow afternoon, the introduction and the statement of those present, the number of meetings held and so forth. But the substantive part of the report will have to await the conclusion of the debate on the items. We have not yet concluded consideration of items 5 and 6. I therefore doubt whether the Secretariat and I would be able to produce more than that by tomorrow afternoon.

The CHAIRMAN: Despite that fact, I think it might be useful, in view of the length of the report and the various subject matters that have to go into it this year, to start our consideration of at least the formal part tomorrow afternoon.

Mr. REIS (United States of America): Perhaps I could make a compromise proposal. In order to assist the Rapporteur, we should finish the discussion in plenary meeting of the reports of the two Sub-Committees as soon as possible because, as he has just pointed out, until we have finished that he cannot be expected to produce a draft report. So why do we not now at this meeting, as we have been planning, continue, for example, discussing the work of the Scientific and Technical Sub-Committee? When we have finished the discussion of the reports of our two subsidiary organs, if there is time left over, we should then certainly welcome the opportunity, depending upon the convenience of the Chairman of the Working Party, to resume for another sitting. We might, for example, be able to use the time in which the Rapporteur and the Secretariat will be very busy with their own tasks. That would leave us free and would leave them free as well.

The CHAIRMAN: I thank the representative of the United States for what seems to be a very reasonable proposal.

Mr. MAIORSKI (Union of Soviet Socialist Republics) (interpretation from Russian): We were pleased to see once again that the constructive proposals in our Committee always meet with constructive replies. On the basis of this the Soviet delegation withdraws its initial proposal. If we meet after we complete our debate on the reports of the two Sub-Committees and then we consider the report of the Working Party, that will no longer be on the proposal of the Soviet Union. Other delegations could then deem it fitting to submit that proposal.

The CHAIRMAN: I think we have reached a consensus -- namely, that the Committee should now continue consideration of agenda items 5 and 6 and that, if we find time between the conclusion of this item and the other items still on the agenda, we can perhaps try to look again at the work of our Working Party. Therefore I call on the representative of Argentina.

Mr. COCCA (Argentina) (interpretation from Spanish): In view of the fact that almost every part of the report of the Scientific and Technical Sub-Committee has been evaluated in the statement of the Argentine delegation in the general debate, we shall now refer to the report of the Legal Sub-Committee. However, before continuing, we must state that we have examined the report of the Chairman of the Scientific and Technical Sub-Committee, Mr. Carver of Australia and that we sincerely congratulate him on the work done by that Sub-Committee under his chairmanship and on his own work. We should like also to indicate our support for Mr. Murthy's work as Expert on Space Applications and we congratulate him and the group collaborating with him. To be complete, I could not fail to thank warmly the Chairman of the Working Party on Direct Broadcast Satellites. We share the views indicated in his report and also the opinion that at the meetings of the Working Party progress has been made in our work, especially if we take into account the fact that we had the opportunity to meet only three times.

With regard to the various statements this morning relating to the agenda items now before us -- that is, the reports of the two Sub-Committees -- we also have to say that we share the concern of the Swedish delegation concerning future co-ordination and collaboration in the international field in the field of remote sensing. We have said already in the general debate in plenary meeting that international co-operation is fundamental for space activities, and we are sure that this co-operation will increase, mainly through the organs of the United Nations.

My delegation has also noted with great interest the proposal made by the representative of the United Kingdom that we should now proceed to formulate a definition in a legal sense of the different concepts we have already agreed upon in the Scientific and Technical Sub-Committee with regard to data and analysed information.

Finally, we should like to express our approval of the proposed United Nations programme for 1978, and we hope that greater and greater support will be forthcoming from the United Nations concerning the Member States that have space programmes in progress as a part of international co-operation, especially among developing countries.

(Mr. Cocca, Argentina)

My delegation would like to refer now briefly to the main points considered in the report of the Legal Sub-Committee. We will start with the treaty relating to the moon. In this regard we should like to state for the record that Argentina was the nation that used for the first time the expression "the common heritage of mankind", explaining its nature and legal context in the United Nations, a few months before it appeared in a document of another Committee. As has been noted in other documents, including a study published in the well-known British magazine International Relations, Argentina was also the first country that applied this principle in a draft international convention. In this regard we are very glad that the Chairman of the Sub-Committee, Mr. Wyzner, who presided over the work of the Legal Sub-Committee when this matter was dealt with for the first time, in 1967, and who in 1970 dealt with the draft international convention introduced by Argentina, is a true expert on the common heritage of mankind as a result of his service as Vice-Chairman of the Committee on the Sea-bed, for in that Committee also, the problem is of capital importance for any future progress. We have made reference to this in order to reaffirm categorically that as far as my delegation is concerned, the treaty relating to the moon cannot be concluded if the principle of the common heritage of mankind is not recognized in it.

A question which is of great legal importance today for the achievement of progress is the one relating to direct television broadcasting by satellite. There are some problems to be solved. If a consensus can be reached concerning the principles on consultation and agreements between States and on the duty and right to consult we could certainly advance in our work and possibly obtain a text for a draft declaration.

(Mr. Cocca, Argentina)

The problems of spill-over across national boundaries, participation, programme content and objectionable broadcasts can be solved if we achieve an appropriate text on these basic principles which are the crux of the matter at this time. The Argentine delegation might even consider the possibility of dealing with both principles together, in an effort to combine them into a single one.

There is little we can add to what we have already stated at the Working Party meetings, except to say that, fortunately, we are overcoming such paradoxical situations as the fact that a general international instrument has been subordinated to a provisional technical regulation in the solution of substantive questions. As we indicated in New York at the session of the Legal Sub-Committee, and as the representative of France has so eloquently declared here in Vienna, to rely on technology for the protection of freedoms would be to confuse material factors with spiritual and cultural realities; the French delegation even went so far as to wonder whether we might not thereby be running the risk of precluding any future international television broadcasting by satellite.

In the course of the Working Party's meetings, some delegations wondered whether we could speak strictly of limits fixed by the ITU regulations concerning spill-overs. My delegation therefore wishes to inform those delegations of its position on this matter.

The expression "technically unavoidable" applies only to acts of nature, not to acts of man or, by extension, to acts of States, which can properly be regarded as behaviour or conduct.

Indeed, the World Administrative Radio Conference (WARC), held in Geneva this year, tried to simplify the text of ITU's Radio Regulation 428A, which provides that, in defining the characteristics of a space station for broadcasting by satellite, all technical means available should be utilized for the maximum reduction of spill-over to the territories of other countries, except in the case of their prior consent.

(Mr. Cocca, Argentina)

Obviously, that text establishes a norm of conduct. As it states, all technical means available should be utilized. But it in no way sets precise limits, because the technical means available to one State can be substantially different from those available to another State. That is why ITU, at its 1977 Conference, has tried to define those limits more precisely by developing a plan to allocate to broadcast satellites the 11.7-12.2 GHz frequency band in regions 2 and 3, and the 11.7-12.5 GHz frequency band in region 1. As we know, region 2 will be dealt with by a regional conference to be held in 1981.

Progress has been made this year on the general content of ITU's Radio Regulations, and the Final Acts of its 1977 Conference will be annexed to those regulations, in accordance with the request addressed to the 1979 World Administrative Radio Conference. Meanwhile, both the provisions and the Plan will retain their integrity as legal instruments.

Article 9 of the Final Acts and annex 8 represent an effort to give physical reality to the norm of conduct set by Radio Regulation 428A. Neither the Plan nor the other 1977 specifications are thereby divested of their nature as norms of conduct, since article 14 of those Acts provides that States members of the Union shall endeavour by common agreement to study measures necessary to reduce the number of objectionable interferences to which the implementation of these provisions and the associated Plan might give rise. Hence we are still faced with a legal rather than a technical situation. In all cases, ever since the elaboration of the Radio Regulations, States have been called upon to abide by a certain code of conduct.

That is why my delegation is one of those which consider it essential that States not abuse the possibilities offered by the present state of technological development. And to refrain from such abuse is in fact to adopt a course of conduct.

Having expressed that fundamental idea, I wish to note our satisfaction with the Working Party's progress -- progress which is in line with the views of the Argentine delegation -- on paragraphs 1 and 2 of the principle on consultation and agreements among States. As far as paragraph 3 is concerned, six alternatives have been introduced, which indicates that the draft text submitted in New York is far from being a final one.

(Mr. Cocca, Argentina)

Two of those alternatives are also in line with the thinking of my delegation, which, since 1969, has been participating in the efforts of the Working Party on Direct Broadcast Satellites, and which, in addition to its various proposals, monographs and working papers, introduced in 1974 a draft international convention on the subject.

We also wish to voice our satisfaction over the progress achieved in the field of remote sensing of the earth from outer space, a subject on which my country's position is well known.

As to the definition and/or delimitation of outer space and of outer space activities, after hearing the statements of various delegations and observers during the past session of the Legal Sub-Committee, and now, after hearing other delegations and guests, my delegation considers that this is a subject which must be accorded priority attention in the future work of our Committee.

(Mr. Cocca, Argentina)

For all those reasons, our delegation is very pleased to support the report of the Legal Sub-Committee.

We have also heard very interesting references to new proposals on future work, among which is the question of the utilization of outer-space energy sources, particularly solar and sun-derived energy, through space technology. My delegation will make its own comments on this when the Committee takes up item 8.

Ms. WIEWIOROWSKA (Poland): As this is the first time I am taking part in the proceedings of the Committee, it is a great honour and a special privilege for me to have the opportunity to make this brief statement at this anniversary session.

My delegation regards as positive the fact that all the most important instruments of outer space law have been elaborated by this Committee. We hope that it will also be possible to find satisfactory solutions to the problems which are now on the agenda and to work out the final drafts of new international legal documents. We think that it is very important for law to follow closely upon the development of technology. The connexion between law and technology seems to be especially desirable in matters related to outer space, since the pace of technological development in this area is particularly rapid.

There have recently been many interesting developments both in outer space activities and in the elaboration of legal principles. My delegation welcomes in particular the significant progress achieved during the sixteenth session of the Legal Sub-Committee in the elaboration of draft principles governing the use by States of artificial earth satellites. We also support the results of the World Administrative Radio Conference for the Planning of the Broadcasting Satellite Service (WARC), held this year in Geneva by the International Telecommunication Union (ITU). We consider the Agreement and Plan concluded at that Conference, as well as many other ITU instruments, to be very useful for resolving not only technical but also legal problems. It is our opinion that the results of the ITU Conference reflect the generally recognized principle that direct television broadcasting should be based on prior consultation and agreements between interested States. We fully support

(Ms. Wiewiorowska, Poland)

this most important principle. We are convinced that approval of the provisions drafted by the Legal Sub-Committee will guarantee respect for the generally recognized principles of State sovereignty and non-interference in internal affairs. Moreover, we feel that this guarantee will contribute to the fruitful uses of space technology for the benefit of all nations.

It is regrettable that, despite the many efforts made by those delegations which actually wish to complete the elaboration of principles governing direct broadcasting by satellite, it has not so far been possible to achieve a satisfactory compromise.

Another priority item is the draft treaty relating to the moon. In the course of the last session of the Legal Sub-Committee, no agreement could be reached on the three main outstanding issues, namely, the question of the scope of the treaty, the information to be furnished on missions to the moon and, what is generally recognized as the key issue, the natural resources of the moon. Although we are fully aware of the complexity of these problems, we are nevertheless convinced that it may be possible to make some progress in the very near future.

With respect to the draft principles on remote sensing, we are satisfied with the results so far obtained by the Legal Sub-Committee. It is our opinion that the full application of generally recognized international law and, in particular, the principle of State sovereignty, should be taken as a necessary starting-point in resolving the outstanding problems. We also hope that it will be possible for the Scientific and Technical Sub-Committee to submit a report containing the definitions necessary for legal considerations.

Despite the amount of work already accomplished, the tasks still facing the Committee are manifold and challenging. The three priority items are almost completed, but important decisions are still to be taken.

It is our hope that during the next session of the Legal Sub-Committee it will be possible to make significant progress.

Mr. BARRIOS (Venezuela) (interpretation from Spanish): Since in its statement in the general debate our delegation refrained from referring to specific items on the agenda, we should like to comment very briefly on some of the points in the reports of the Legal Sub-Committee and the Scientific and Technical Sub-Committee.

With respect to the draft treaty relating to the moon, we should like once more to observe that, despite the efforts made and the profusion of proposals, the necessary conditions have not been created for the achievement of an understanding on the legal status of the moon and its natural resources. However, what has clearly emerged from the relevant deliberations is the position held by an overwhelming majority that such resources should be declared the common heritage of mankind, in conformity with the principles of justice which should serve as a basis for genuine international co-operation in space matters.

The comparison of this matter with the regulation of the sea-bed and the ocean floor acquires particular relevance, which cannot be ignored. Thus far, only a few countries have at their disposal the necessary technology to exploit the resources of the sea-bed and the ocean floor. There are serious difficulties and differences in the negotiations now under way at the Conference on the Law of the Sea to reach agreement on a régime regulating the exploitation of such resources, but what is significant is that the efforts being made with a view to arriving at an agreement take as their point of departure the fundamental premise that the sea-bed and the ocean floor and their resources are the common heritage of mankind, as proclaimed in General Assembly resolution 2749 (XXV).

According to some delegations, the same logic is not applicable to the moon and its resources, and, as long as this is the case, third world countries will continue to insist that the moon and its resources should be proclaimed the common heritage of mankind as an essential prerequisite to the drafting of a treaty relating to the moon.

With respect to direct television broadcasting by satellite, the view has been repeatedly advanced that the principle of freedom of information and ideas should prevail over considerations stemming from the legitimately proclaimed concept of the sovereignty of States. In Venezuela, we believe in freedom of information; we encourage it and we practise it. However, we are aware that, failing

(Mr. Barrios, Venezuela)

specific regulations, that freedom could be abused or distorted through the use of such satellites. But, after all, only a few countries possess the necessary technology and resources to operate such satellites, and we have sound reasons for saying that information which some would broadcast without restrictions could serve specific political or other purposes running counter to the culture and the traditions of our peoples.

Consequently, we believe that agreements or conventions among States duly regulating these activities are essential. The principle on consultation and agreements prepared by the Sub-Committee at its last session constitutes a step in the right direction, and it is to be hoped that on that basis a definitive compromise will be reached.

With respect to remote sensing of the earth from space, it is encouraging that the Legal Sub-Committee has elaborated several tentative draft principles and pinpointed various common elements in a matter of such importance. Our delegation fully supports the proposal which would categorically establsih respect for the principle of the permanent sovereignty of all States over their wealth and natural resources, as well as their inalienable right freely to dispose of those resources and of information concerning them.

(Mr. Barrios, Venezuela)

Although carried out from space, remote sensing activities have as a specific objective territories lying within the jurisdiction of States. Consequently, it is essential to establish regulations that take account of respect for fundamental principles related to sovereignty, especially when such activities are aimed at detecting natural and strategic resources of their territories and obtaining information on them.

With respect to the report of the Scientific and Technical Sub-Committee, we should like to express our support for the idea of holding a second United Nations conference devoted to outer space matters. Certainly, the United Nations Conference on Science and Technology for Development, which is to be held in 1979, will deal with various matters related to outer space. However, in view of the variety and complexity of the items with which that Conference will have to deal, questions pertaining to outer space could not be given the same attention which they would receive were they considered at a separate conference.

Moreover, the frenzied progress of space technology and the growing importance that it has acquired amply justify the convening of a second United Nations conference devoted exclusively to space matters. We believe that, in order to profit from the results of the Conference on Science and Technology for Development, the conference on outer space matters could be held, perhaps, in 1980, and that one of the aims of that conference would then be to consolidate further the bases for genuine international co-operation in this domain so that the developing countries, in particular, might benefit from the various advantages offered by space technology.

Mr. TASSARA-JIMENEZ (Chile) (interpretation from Spanish): My delegation has already referred in the general debate to the items under discussion and at this stage we should like to underscore some opinions relating especially to the report of the Legal Sub-Committee.

That report reproduces the report of the Chairman of Working Group I (A/AC.105/196, annex I) from which we can see that there was a lack of consensus on the question of the natural resources of the moon.

(Mr. Tassara-Jimenez, Chile)

In this connexion, the Chilean delegation, further to what it has already said in the general debate, would like to insist on the precedent, set in resolution 2749 (XXV), which declares that the sea-bed and ocean floor, and the subsoil thereof, beyond the limits of national jurisdiction, are the common heritage of mankind, a concept of clear significance in the international law of our time which involves the establishment of a régime and international machinery designed to regulate the exploration and exploitation of the resources of outer space as well as the equitable sharing of the benefits derived from that exploration. Those resources should be declared to be the common heritage of mankind, "res communis humanitatis". Therefore, my delegation considers that the Committee should provide the General Assembly with a substantive solution on the future régime governing the natural resources of the moon in order to bring it into line with the treatment given to the sea-bed.

Also, on this aspect of natural resources, my delegation insists on the need for the Committee, in its report to the General Assembly, in addition to what has been stated, to indicate clearly the different positions of Member States concerning the problem of the natural resources of the moon and the different opinions expresed on the matter.

Concerning direct television broadcasting, which has already been discussed at meetings of the Working Group, my delegation would like to state that, even though Chile has considered the agreements obtained by the International Telecommunication Union (ITU) in this field to be satisfactory, they refer more to the technical aspect of the matter. Defence of the principle of non-intervention in the internal affairs of States and of the right of States to preserve and to increase their cultural heritage and their political, economic and other values leads my delegation to express the hope that States will show that they are prepared solemnly to undertake not to intervene through direct television broadcasts in the internal affairs of other States. Chile understands that the debates in the Committee and in its subsidiary organs represent a first step in this field towards the conclusion of a draft treaty, and it is quite clear that such a treaty should categorically reflect the aforementioned principle. Therefore, my delegation considers that a categorical means of accomplishing this would be official acceptance of the principle of consent on the part of the receiving State to direct radio broadcasts into its territory by another State.

(Mr. Tassara-Jimenez, Chile)

With regard to the part of the report on the legal implications of remote sensing of the earth from space, my delegation would like to reiterate in this debate its firm support for the draft treaty on remote sensing of natural resources by means of space technology (A/C.1/1047), which was submitted by Argentina and Brazil in 1974 and supported by my country and other Latin American countries. The reasons for such support are clearly expressed in the preamble to that document which places emphasis on the effectiveness of the global research of earth resources in order to determine the existence and location of these resources, as well as the possibilities of increasing them, with a view to eliminating the scarcity of food throughout the world. The draft treaty emphasizes the importance for all States of their human and natural resources, as well as the stimulus for economic and social development which the new techniques of remote sensing represent.

The draft treaty also contributes to the need to provide a solution, within the framework of a general treaty, to the legal problems arising at the international level from the effects of the utilization of remote sensing of natural resources, and, moreover, includes principles contained in the General Assembly resolution concerning the permanent sovereignty of peoples and nations over their own natural resources, as well as principles of international law, and principles set out in the Charter of the United Nations and the Treaty on outer space.

On this point, my delegation would like categorically to support the principle of consent on the part of the sensed State, as well as the right of that State to have access to the information resulting from remote sensing. Thus, my delegation also supports the principle of the non-dissemination to third countries, of information gained by remote sensing.

With regard to the question of the definition and/or delimitation of outer space and outer space activities, my delegation wishes to underline the importance of that subject, to express its hope that discussion will continue on the matter and that at future meetings the question will be examined in depth, and also to state that it would be useful to have a detailed study on the delimitation or definition of outer space that avoids controversies with implications for international relations which could create tensions.

Mr. BOYD (Canada) (interpretation from French): With respect to the comments of my delegation on the report of the Scientific and Technical Sub-Committee, I propose to confine my statement to the subject of remote sensing of the earth by satellite.

First, I should like to congratulate the Scientific and Technical Sub-Committee on holding a particularly fruitful fourteenth session. The excellent report which it has presented will undoubtedly provide a basis for even more effective work in the future. Obviously, a good deal of the credit should be attributed to the excellence of the work carried out by the Chairman of that Sub-Committee, Mr. Carver. I would be remiss if I did not mention the very valuable contribution of Mr. Perek of the Secretariat, as well as of Mr. Murthy. One of the most important elements that was discussed at the fourteenth session of the Scientific and Technical Sub-Committee concerns the definition of the terms "data" and "information", as recommended by this Committee. The efforts of the Sub-Committee have resulted in the formulation of two definitions, one concerning "primary data" and the other concerning "analysed information". We deem it appropriate now for those definitions to be formally adopted by the Legal Sub-Committee so that the draft principles already drawn up by the Legal Sub-Committee can be reviewed in the light of those new definitions.

The Scientific and Technical Sub-Committee also devoted a good deal of its time to the consideration of the question of the dissemination of "primary data" obtained by satellite and of "analysed information". In this connexion, the Sub-Committee also dealt with a proposal to classify data on the basis of spatial resolution, thus limiting the dissemination of certain categories of data. This proposal raises a number of questions to which we have not received completely satisfactory replies. Frankly, is it necessary to draw up such a classification? And, even if it were deemed necessary, should it be based on spatial resolution, or should it be subject to other factors? To what extent can we adopt the numerical values as a resolution limit for each category of data? In view of all these questions which have not been answered, the Scientific and Technical Sub-Committee requested the Secretariat to provide it with definitions of spatial resolution as well as of other terms. We are certain that those definitions will greatly assist us in future debates on this question.

(Mr. Boyd, Canada)

Continuing our comments on the question of the dissemination of primary data, we should like to stress once more that Canada continues to support the right of the sensed State to acquire the data obtained in its territory. To that end, we take note of the following sentence in the report of the Sub-Committee:

"The Sub-Committee agreed that there was no scientific or technical basis for a sensed State not having timely and non-discriminating access to data of its territory". (A/AC.105/195, para. 41).

(continued in English)

I should like to turn now to a point on which Canada expressed particular concern during the general debate, namely, the co-ordination, or more accurately, the present lack of co-ordination of global remote sensing efforts. Some progress was made during the last session of the Scientific and Technical Sub-Committee and that was due in part to the well-prepared Secretariat document on a possible co-ordinating function for the United Nations in future operational remote sensing systems. In its report the Sub-Committee also encouraged Member States to pay close attention to questions of compatibility and complementarity when establishing both experimental pre-operational and operational systems, and this we regard as a promising and useful development. My delegation is also encouraged that the Secretariat will be presenting to the Scientific and Technical Sub-Committee at its next session an assessment of the present situation in the light of the wide dissemination of LANDSAT data and of the proposal by the Soviet Union to make data available from its national remote sensing system.

However, in spite of all these positive developments, in our view the outlook for the co-ordination of remote sensing on a global scale is not a healthy one. In addition to the experimental satellite remote sensing programmes of the United States and of the Union of Soviet Socialist Republics, India, the European Space Agency, and other countries, either now or in the near future, plan to begin experimental remote sensing by satellite. This is not to mention the ever-increasing number of countries involved in the various aspects of the LANDSAT research programme -- details on these were given earlier in the general debate by the representative of the United States.

(Mr. Boyd, Canada)

The difficulty, in the view of my delegation, is that not enough is being done to co-ordinate these disparate efforts. Should systems be established which are not compatible with each other, or with existing systems, it would be most difficult in fact, if not in theory, for many nations to make full use of remote sensing data. Should such systems not be complementary, the extra costs involved would be excessive and would preclude the possibility of some countries making a relatively modest contribution to a larger effort.

In order to encourage further the progress made at the last session of the Scientific and Technical Sub-Committee and to supplement the past and present work of the Secretariat, my delegation is of the view that this Committee should instruct the Scientific and Technical Sub-Committee to include in its agenda, as a matter of high priority, questions related to the global co-ordination of remote sensing efforts.

(Mr. Boyd, Canada)

This could appear as an addition to the general agenda item on remote sensing, as contained in paragraph 118 of the report of the Scientific and Technical Sub-Committee. Thus the entire item could read, "Questions relating to remote sensing of the earth by satellites, and in particular those related to the global co-ordination of remote sensing efforts". This would, in our view, reflect the importance of the issues involved.

The Sub-Committee could then deal with the matter in a number of ways. One possibility that we think might be explored would be for a group of qualified experts to carry out under the aegis of the Sub-Committee an analysis of all the factors which would be involved in any attempt to co-ordinate national and multinational remote sensing efforts on a global basis. In the view of my delegation such a study could provide a fresh approach if those experts were drawn from such Organizations as COSPAR, the International Astronautical Federation (IAF) and similar non-governmental scientific bodies. The terms of reference for such a study could be formulated in consultation with the Outer Space Affairs Division of the Secretariat in order to ensure that the study would carry forward the present work of the Secretariat in this field.

Without wishing in any way to anticipate the direction such a study might take if the idea did find favour, or the recommendations for future action it might make, we would like to note that a recent article in a well-known aerospace periodical, Aviation Week and Space Technology, dealt with the question of the global co-ordination of remote-sensing efforts. In the view of my delegation not all the suggestions contained in the article are well considered. However, one that we think merits further consideration would involve setting up a system of nationally-owned satellites that would be co-ordinated by an international body perhaps similar to the World Weather Watch system of the World Meteorological Organization. This is not a new idea by any means, but perhaps the time has come to look at it more closely.

Having said that, I would hasten to add that Canada remains convinced that the United Nations should not establish either an operating or a regulatory agency in this field. We remain equally convinced that the United Nations does have an important co-ordinating role to play. Our point is simply that this is the time to build upon existing studies, to take advantage of existing expertise

(Mr. Boyd, Canada)

within and outside the United Nations system, and to expedite further consideration of the problems involved before they become intractable. For those reasons we think that this Committee should consider instructing the Scientific and Technical Sub-Committee to place a higher priority on these questions and that the Scientific and Technical Sub-Committee should consider commissioning a study such as the one we are suggesting. Such a study could be carried out without prejudice either to existing arrangements or to possible future developments.

The expressions of view on the part of a number of delegations in regard to the problems of co-ordination of remote sensing encourage us to hope that this proposal might find a degree of favour in this Committee.

Mr. MAIORSKI (Union of Soviet Socialist Republics) (interpretation from Russian): The Soviet delegation would like to make a few comments on the reports of the two Sub-Committees which are now before the Committee.

With the Committee's permission, we shall refer directly to specific questions considered by the Sub-Committee, since a general positive assessment of the work of both Sub-Committees and the outstanding work of their Chairmen has already been given by the Soviet delegation, in the course of the general debate.

I turn first to the draft treaty relating to the moon. The Soviet delegation has attached and continues to attach great importance to the drawing up of this important and interesting international document. We carefully listened to those preceding speakers who set forth their views regarding the conditions in which an agreement on a draft treaty relating to the moon could be completed.

We deeply respect the views expressed, but in this connexion we should like to ask the Committee to take account of the views of other delegations, including the Soviet delegation. The Soviet delegation has repeatedly stated and states again now that, concerning the application of the concept of the common heritage of mankind to celestial bodies and their natural resources, we are not clear, first of all, about the specific legal and practical implications of this application. We consider that the simple inclusion in a treaty of the term "common heritage of mankind" solves no problems. It simply creates a problem. And we have repeatedly asked delegations that have so eloquently

(Mr. Maiorski, USSR)

and so actively spoken in favour of the inclusion of that phrase to clarify for us in legal language which we can all very well understand what it would mean. What are the legal implications of declaring the moon, Mars and the other planets and their natural resources the common heritage of mankind?

Unfortunately, to my great regret, I must point out that thus far we have received no clarifications. We are simply told that in the treaty we are bound to use this term. I am afraid that it would be difficult for us to agree to its use so long as we are not completely clear about what it means. In this connexion I should like to remind you, Mr. Chairman, of the proposal discussed informally among delegations at the session of the Legal Sub-Committee -- that is, the proposal that, on the question of the status of the natural resources of the moon and possibly of other celestial bodies, there should be prepared a separate legal document, let us say in the form of an additional protocol to the draft treaty relating to the moon. Of course, this should be an optional protocol at first. In other words, it would not have binding force for all States; it would be binding only on those States which signed and ratified it.

(Mr. Maiorski, USSR)

The States which are convinced that the moon and its natural resources and other celestial bodies and their natural resources have to be declared the common heritage of mankind could in this protocol set forth clearly and specifically, in detail, their views on what this declaration precisely means, how it is to be interpreted in practice. The application of that protocol by the States which believe in this concept would confirm the correctness of their views -- or perhaps the incorrectness of those views. The entry into force of such a treaty and its practical implementation for a certain period would possibly enable the States which are not clear as to what the common heritage of mankind means in its application to celestial bodies to see in practice what it really means. Then nothing would hinder us from making this protocol an inextricable part of the entire draft treaty relating to the moon. A provision could be included in the draft treaty relating to the moon to the effect that five or ten years after its entry into force there would be a meeting of States parties to consider the possibility of making the optional protocol appended to the draft treaty relating to the moon an inextricable part of it. Other possibilities could be discussed as well, but in any event an approach that holds -- in effect -- that we take either this specific expression without any further clarification or nothing seems to us not sufficiently warranted and not sufficiently fair. We hope that at the next session of the Legal Sub-Committee we shall have a chance to continue our mutual efforts to clarify our respective positions, to bring them closer, possibly on the basis just set forth by the Soviet delegation, or on some other basis.

In regard to direct television broadcasting, the Soviet delegation believes that at the last session of the Legal Sub-Committee a large step forward was taken in the direction of carrying out the task entrusted to the Sub-Committee by the General Assembly of the United Nations five years ago. Unfortunately, this step is not as great as we hoped it would be, but in any event the Soviet delegation hopes that the work carried out by us here in Vienna will not be in vain and that it will serve as a good basis for us to attempt to complete an agreement on outstanding unsolved questions at the next session of the Legal Sub-Committee. However, it seems to us that

(Mr. Maiorski, USSR)

in the approach to direct television broadcasting we should take into account the fact that the positions of various delegations include elements which can change, which can be subject to compromise, but there are other elements without which those positions cannot exist -- at least there is one such element.

We would be very happy if it were to be recognized that the basis of the work to be done in New York is the essential need for an agreement before direct television broadcasting is transmitted to a foreign State. Call it what you will: there are States which do not like the term "prior consent"; there are States which do not like the term "consent"; there are States which prefer the term "agreement"; there are States which prefer the term "accord". However, if we want to complete this work successfully, we have to bear in mind clearly that in principle we are talking about one and the same thing, namely, that the State at which the broadcasting is directed should be informed that there is a broadcast that is going to be transmitted to it, and it should have the right to express its approach to this, either negative or positive.

As for the machinery concerning how this agreement or consent is to be expressed, how agreement is to be arrived at among States on this delicate question, that is a special matter; but the principle of the necessity for mutual agreement remains valid. If we all understand this specifically, we hope that only one more small effort will be necessary to enable us to complete our work at the next session of the Legal Sub-Committee.

In regard to remote sensing of the earth by satellites, the Soviet delegation would like to express its satisfaction at the work done in New York, but we believe that in this matter of remote sensing the most difficult part is still to be discussed. We now have 11 principles which, if we may so put it, constitute the periphery of the problem -- as it were, the furniture has been placed in a vast apartment, but there are no living beings there yet. We hope that these living beings will appear at the next session of the Legal Sub-Committee, when we tackle the discussion of the problem of regulating the dissemination of data and information through remote sensing methods. We cannot bypass this, and we were very pleased to hear at this session of the Committee the views expressed by various delegations that recognize the need to have specific regulations in this area.

(Mr. Maiorski, USSR)

We are grateful to those delegations that spoke along those lines for the understanding they have shown. I shall not take up the time of the Committee to remind it of the proposal made by the Soviet Union in this connexion. The proposal is contained in official documents. However, we still have to discuss the questions of which data can be disseminated freely and with respect to which data the consent of the affected State should be required.

In this connexion I would make an additional comment. We agree that the Scientific and Technical Sub-Committee has rendered great service to the Legal Sub-Committee and to our Committee in defining the concepts of data and information applicable to remote sensing and activities in that domain. Nevertheless, we believe that if we want to apply these definitions to the work done in the Legal Sub-Committee, we can hardly transplant mechanically what was done by the Scientific and Technical Sub-Committee into a document which has been drawn up by the Legal Sub-Committee. What was done by the Scientific and Technical Sub-Committee will still require legal interpretation and polishing up, and possibly one additional agreement. For our part we are ready to do this work.

(Mr. Maiorski, USSR)

The Soviet delegation has distributed at this session of our Committee a document entitled "Considerations on the legal status of geostationary orbits". As some delegations have inquired about the status of this document, I wish to clarify that we are not submitting it as a proposal for immediate discussion in our Committee. We merely wished to put in writing, for the benefit of other delegations in this Committee, our views on the current legal status of geostationary orbits, particularly in the light of certain States' recent insistence on a sui generis definition of the status of geostationary orbits. Our document shows that there are other views and approaches in this area, and later -- depending upon the pace of the work of our Committee -- we hope to go into this question in greater detail and even draft a specific proposal. For the time being, however, our document is a written illustration of our position for the information of Committee members.

Finally, with respect to the proposal in the report of the Scientific and Technical Sub-Committee to set up a task force to consider the question of preparations for a United Nations conference on outer space, most of the speakers in the general debate supported the creation of such a task force. The Soviet delegation, for its part, is willing not to raise any objections. However, we shall insist that the activities of that task force be conducted strictly and rationally, that its status be clearly defined, and that it should know specifically for what and for whom it is working. In our view, that task force should be set up not as a separate body but as a subsidiary body of the Scientific and Technical Sub-Committee for the purpose of the better rationalization of our work. In order to avoid additional difficulties for States, it could meet concurrently with the session of the Scientific and Technical Sub-Committee, or immediately before; it could submit its considerations to the Scientific and Technical Sub-Committee, and if, as a result of the task force's work, certain legal considerations arose, they could be transmitted to the Legal Sub-Committee, which would be holding its session a little later; then both Sub-Committees could deal with this, or else the Scientific and Technical Sub-Committee itself could submit its views to our Committee at its next session. We consider that to be the best arrangement, and will not object to such an approach.

The CHAIRMAN: I now call on the representative of the Food and Agriculture Organization.

Mr. HOWARD (Food and Agriculture Organization (FAO) : I am most grateful to the Chairman for this opportunity to express, on behalf of the Director-General of the Food and Agriculture Organization, his appreciation of the interest shown by this Committee and its Scientific and Technical Sub-Committee in FAO's activities in remote sensing, and of the way in which close co-operation has developed between FAO and the United Nations Outer Space Affairs Division in providing action-oriented training programmes in remote sensing applications -- some of which, I must add, are in co-operation with the Government of Italy and UNESCO. I would also like to point out that FAO, unlike the Centre for Natural Resources, Energy and Transport (CNRET), is a specialized agency of the United Nations and, therefore, any recommendations made by this Committee must be conveyed to our Director-General for his consideration and necessary action by FAO's governing body.

As you will recall from the FAO statement to this Committee last year, FAO's activities in the application of remote sensing to the development of agriculture and other renewable resources are at the country level and aimed at grass-root problems related mostly to agriculture, forestry, fisheries, land-use, soils, wild life, hydrology, surface geology, oceanography and thematic mapping. These user-oriented activities fall into two main categories: namely, technical assistance and the training of personnel of the developing countries. Both are services provided by FAO's Remote Sensing Unit in Rome, which acts as the centre of FAO's activities in space applications and which also provides the liaison and necessary co-ordination of FAO's activities with other national and international organizations concerned in space applications. On several occasions, at the request of member countries, advice has also been provided on the development of national user-oriented programmes in remote sensing.

(Mr. Howard, FAO)

In accordance with the Director-General's policy of placing emphasis on development at the country level, a number of field workshops and seminars have been successfully completed in the period between the last Committee session and this one. These have included, in Nepal, the field application of remote sensing to land inventory; in Colombia, the field application of SKYLAB and LANDSAT imagery to agricultural development; in Iraq, the use of LANDSAT imagery to assess soil degradation and processes of desertification; in Guatemala, the application of satellite imagery to land-use mapping; in Nigeria, the user application of satellite sensing; in Ethiopia and Somalia, the application of remote sensing to rural development; in Venezuela, the application of satellite sensing to agricultural development; and last, but not least, in north-west Africa, the application of weather satellite and LANDSAT data to improving desert locust survey and control. I am sure this will give the Committee some idea of the very wide range of activities we are concerned in.

Further, this wide range of country-based training activities would not have been feasible without the support of the remote-sensing facilities being developed at FAO headquarters in Rome. In accordance with the recommendations of the Committee on the Peaceful Uses of Outer Space and its Scientific and Technical Sub-Committee, as members know, the first United Nations/FAO international training course on the applications of remote sensing to agriculture was held at FAO in Rome late last year, and a second action-oriented international course at country level was completed in April-May this year.

(Mr. Howard, FAO)

It is judged that the need for these types of courses at FAO headquarters is well demonstrated by the fact that at the second course there were 82 nominations from 49 countries and that several countries geographically as far apart as Argentina and Iraq have already expressed interest in developing programmes in crop forecasting based on the area frame approach, which was the major theme with case histories provided in the last training course.

Also, courses are planned next year in co-operation with the European Space Agency (ESA) and the Office of the United Nations Disaster Relief Co-ordinator (UNDRO).

As reported at the United Nations Scientific and Technical Sub-Committee session in February, FAO, in providing technical assistance to the developing countries, covers a wide spectrum of remote sensing activities. Indicative of the wide range of activities in which FAO is involved is the unique national coverage in about two weeks of Sierra Leone -- a very cloud-prone country -- using high-flight infrared colour photography, and now the subsequent follow-up by using this photography for the national land-use and land-capability survey. As the Committee is aware, this was mentioned last week by the representative of Sierra Leone. A second example is provided by the successful quasi-operational pilot study using NOAA imagery through the French station at Lannion and the United States LANDSAT imagery through the Italian station at Fucino for monitoring factors related to the development of the migratory desert locust -- a study in which the Deutsche Forschungs- und Versuchsanstalt für Luft- und Raumfahrt (DFLVR) at Munich in the Federal Republic of Germany assisted in the computer analysis of the data.

Finally, I should like to mention that the side-looking airborne radar (SLAR) project commissioned by the Nigerian Federal Government has been provided with technical assistance from FAO. The livestock census by light aircraft in South Kordafan Province in the Sudan was also provided with technical assistance from FAO. The development of multistage remote sensing in Togo, Benin and Cameroon forms part of the FAO-UNEP pilot project on monitoring forest cover.

In conclusion, it can be added that FAO now uses LANDSAT imagery for nearly all projects with a "land resources survey" component and is increasingly using LANDSAT imagery in pre-project missions -- for example, recently in Somalia -- and

(Mr. Howard, FAO)

national planning -- for example, recently in Nepal. Further, field activities are increasingly supported at headquarters by FAO's Browse System of LANDSAT imagery, which, as the Committee knows, was developed in 1976 and 1977 and which we are now expanding by including other types of imagery as this imagery becomes available.

Mr. BERG (Sweden): I should like to follow up the statement which I made this morning by commenting on some of the proposals which have been made here today.

Earlier in this meeting the representative of Canada made what in our view was a very interesting proposal, which was in two parts. The first was that this Committee should instruct the Scientific and Technical Sub-Committee to include in its agenda under the item on remote sensing, which it will be studying and discussing, the global co-ordination of remote sensing efforts. The Canadian representative also said in that context that the Scientific and Technical Sub-Committee could discuss at its coming session the prospect of launching a study on the global co-ordination of remote sensing efforts.

The Swedish delegation strongly supports those two parts of the Canadian proposal.

I should like now to comment further on the subject of the co-ordination of activities between the Legal Sub-Committee and the Scientific and Technical Sub-Committee. In this Committee so far we have all -- including my delegation -- talked about co-ordination between the two Sub-Committees in a rather theoretical and abstract way, simply urging more co-ordination. We all remember the trouble we had last year when we had proposals that the two Sub-Committees should meet at the same time or one immediately after the other. None of these proposals could be accepted.

This morning, the United Kingdom delegation made a proposal that in our view was very interesting, to the effect that instead of talking about the problem in abstract terms we should single out an area where there obviously is a great lack of co-ordination, namely, the area of definition. That proposal, as we understood it, concentrated upon the definitions agreed upon by the Scientific and Technical Sub-Committee regarding "data" and "information" and suggested

(Mr. Berg, Sweden)

that the Legal Sub-Committee should be requested by this Committee to draft in legal terms the definitions already accepted by the Scientific and Technical Sub-Committee in order that they might be included in the principle on remote sensing. The Legal Sub-Committee should determine whether these definitions are correct and, if necessary, change them.

Our delegation wishes strongly to support the United Kingdom proposal. We believe that this is the path which could be followed in future too in order to find the areas where the possibility existed of bringing an end to the lack of co-ordination and where there could be a fruitful exchange between the two Sub-Committees.

For that reason we should like to propose that in future the respective agenda of the two Sub-Committees include at the beginning -- perhaps in connexion with the general debates -- an item reading something like "Review of the last report of the (Legal or Scientific and Technical) Sub-Committee". Thus, for example, when the Legal Sub-Committee meets it will be reminded of the fact that there is another Sub-Committee, because on its agenda there will be an item reading "Review of the last report of the Scientific and Technical Sub-Committee". One would hope that the members of the Legal Sub-Committee would thus study the report of the other Sub-Committee and comment on it.

Mr. YASH PAL (India): My delegation would like to express its appreciation to, and compliment, the two Sub-Committees, the Secretariat, Mr. Perek and the United Nations Expert on Outer Space for the work they have done, and to comment on a few issues.

In regard to the very valuable work done by the Scientific and Technical Sub-Committee, in better defining the terms "data" and "information", many delegations have appropriately suggested that these definitions ought now to be taken into account in discussing the legal aspects of remote sensing. My delegation would, however, like to point out that in the report of the Scientific and Technical Sub-Committee there are several paragraphs -- paragraphs 30, 31 and 32 -- which relate to this. Specifically, I should like to point out that there is a statement in paragraph 32 to the effect that these definitions are valid for "the present state of the art". In other words, the primary data at this time may be the stream coming from a satellite, the data obtained by primary sensors, but when the time comes -- as it is likely to come, and soon -- when there is a lot of on-board processing of this data, then these primary data, the stream coming from the satellite, would have the character of information. This was recognized by the Sub-Committee, which said that there may be a need at a later stage for a redefinition. I wanted to draw the attention of the Committee to this particular aspect.

A very useful suggestion has been made that more work be done on the co-ordination aspects of remote sensing -- on complementarity and compatability of various systems. There is no doubt that as we progress there will have to be co-ordination in all these areas, not just in remote sensing but in broadcasting, as was mentioned earlier, or telecommunications. In the first place, there is just not that much room in space for broadcasting or telecommunications, for all the systems that are being planned, and furthermore, as was correctly pointed out, if we are to make proper use of remote sensing for all countries and not waste resources, we will need these co-ordination and compatibility studies.

I would, however, voice a concern of particularly those countries that are just getting into remote sensing, the developing countries. I think that

(Mr. Yash Pal, India)

it ought to be clear that co-ordination and the need for complementarity and compatability must not become a way of ensuring that everyone must start with a very expensive ground system, must work with a large number of channels, must use some computer programmes and must buy some type of equipment. All too often, this happens and really prevents many developing countries from getting into a new field in a small way. Therefore, I should like to voice these fears at the moment, and I hope that any studies that may be conducted will bear them in mind.

We have already had the experience in broadcasting where we have had to resist the requirement of so-called standardized equipment for much of our work, and I hope that this will not happen also in the area of remote sensing. It is not a finished science. All the systems are not developed. There may be systems that are easier to service manually and more practical for use in developing countries. On the other hand, there may be systems that are easier or cheaper to use in industrialized countries. So these aspects would have to be considered as integral parts of this study.

In regard to direct broadcasting, we have been dealing with this question in the Working Group and my delegation would like to bring out the slightly different emphasis that direct broadcasting will have for the developed countries as compared to the developing countries. The view of what it is supposed to do for us must influence what we decide with regard to agreements and our consideration of a set of direct broadcasting systems in the world. Those who live in Europe, in Japan or in North America think in terms of having individual direct reception sets to increase the number of channels that they receive or to increase the range of their television sets. When we in the developing countries think in terms of direct broadcasting, our primary concern is not to increase the number of channels available to our people in the cities, but to reach those populations that have not been reached so far and to use direct broadcasting for education and development.

Once one looks at it from that particular perspective, the fears are seen to be not necessarily that people will be exposed to different ideas or be indoctrinated by others and so forth. The fears are connected much more with

(Mr. Yash Pal, India)

questions of education. I should like to share an experience. During the SITE experiment, no one from outside was broadcasting. We were broadcasting to many different areas of our country, and specifications were given as to what varieties of seeds to use for a certain crop, when to water the crop and how to deal with infestation. We found that we made mistakes, because some programmes that were meant for one particular region of the country were received by another region since the people there spoke the same language, and there were instances where they used wrong prescriptions, and we ran into trouble. So if we are thinking of direct broadcasting into developing countries for educational development, where we are going to have instructional programmes, then interference from outside sources with information relevant to those programmes would really be like interfering in a big school, and this is a danger about which one worries quite a lot and is one of the reasons why we think that the principles and agreements are important and that one should not have direct broadcasting into another country without that country's agreement.

Mr. IHEMADU (Nigeria): My delegation, in an earlier statement, made a strong appeal for the convening of a second United Nations conference on outer space. Now I should like to speak on the aspects raised by the representative of the Food and Agriculture Organization (FAO).

As he mentioned in his report, my country was privileged to act as host to one of the seminars on remote sensing sponsored by FAO; and from our experience during that seminar -- at least, judging by the level of interest that it generated -- we feel obliged to ask this Committee to encourage agencies like the Food and Agriculture Organization to organize more such seminars

We wish also to take this opportunity to place on record our appreciation to FAO for the technical advice it provided to Nigeria with regard to the side-looking airborne radar project in Nigeria.

The CHAIRMAN: I now call on the representative of the Office of the United Nations Disaster Relief Co-ordinator.

Mr. KORZHENKO (Office of the United Nations Disaster Relief Co-ordinator (UNDRO) (interpretation from Russian): I very much appreciate the opportunity to address this important session of the Committee on the Peaceful Uses of Outer Space. I should like to convey the best wishes of the Disaster Relief Co-ordinator, Mr. Berkol, for a successful meeting and to assure the Committee of his interest in its deliberations.

I also thank the Secretariat of the United Nations Outer Space Affairs Division for its contributions to the study of the applications of satellite technology to natural disasters, particularly in developing countries.

I should like to take a few moments today to describe briefly the basic philosophy of UNDRO and review some current and future applications of remote sensing technology to disasters. Finally, I should like to make a number of proposals and suggest ways in which UNDRO, in co-operation with United Nations bodies and other international organizations, can help in promoting the application of remote sensing to natural disasters.

Although until recently the attention of the international community has been primarily focused on relief activity, it is now realized that the actual and potential consequences of violent natural phenomena are becoming so serious and increasingly global in scale that much greater emphasis will henceforth have to be given to disaster preparedness and prevention. The economic impact of disasters is being increasingly recognized as a formidable obstacle to development; in many cases one disaster or a series of disasters, in terms of gross national product, can cancel out any economic growth. Bearing this in mind, the twenty-ninth session of the General Assembly, in a resolution, recommended that disaster prevention and pre-disaster planning should be an integral part of national development policy.

The effects of violent natural phenomena must be viewed not only in humanitarian and broad social terms but also in economic terms. UNDRO has based its programmes in preparedness and disaster prevention on three significant findings: first, that natural disasters constitute a formidable obstacle to economic development; second, that most disasters can be prevented; third, that

(Mr. Korzhenko, UNDRO)

the most basic preventive measures are the least expensive. The identification of disasters as a development problem of great magnitude led UNDRO to suggest at an early stage that this should be dealt with in a systematic way, like any other development problem. UNDRO therefore proposed the formulation of an International Strategy for Disaster Prevention, which has been endorsed by the General Assembly. This strategy, which is being formulated, will provide the conceptual framework for national and international action in the prevention and mitigation of natural disasters. The present and future application of this outer space technology is therefore of particular interest to UNDRO and it may have far-reaching effects in the efforts of mankind to reduce the impact of natural disasters.

Many possibilities exist for the use of remote-sensing data in the field of natural disasters. Remote-sensing data and information collected by experimental and operational satellites can be used in the three areas in which UNDRO has responsibilities: disaster preparedness and prevention and relief co-ordination after the disaster has occurred. Floods, snow melt, glacier movements, volcanic eruptions, forest fires, crop failures, droughts and sand drifts are the forms of potentially disastrous phenomena most amenable to remote-sensing monitoring and analysis. Other potentially disastrous natural phenomena for which satellite remote-sensing applications are promising but not yet completely feasible include seismotectonic processes, landslides, avalanches and mudflows.

In the field of disaster relief, remote-sensing satellites can be of help by providing information on the area affected and the damage caused by the disaster. Such an assessment would often require days or weeks of difficult field surveys. Satellite data not only may help to determine more quickly the relief requirements of a particular disaster situation but could also provide vital information on further risks in the immediate future, as, for instance, those resulting from artificial lake formation behind landslides.

The practical application of remote sensing to natural disasters requires the continued and reliable operation of satellites and data collection centres and the rapid distribution of data to the teams responsible for their interpretation and to the affected countries, as well as the rapid analysis and dissemination of maps and other results in regard to dangerous natural phenomena.

During the past year, in co-operation with other units of the United Nations

(Mr. Korzhenko, UNDRO)

system, in particular the Outer Space Affairs Division of the United Nations, UNDRO has been exploring possibilities for the application of satellite remote-sensing data to natural disasters.

A paper on the potential applications of satellite remote sensing technology to natural disasters (A/AC.105/C.1/L.92) was submitted by UNDRO to the fourteenth session of the Scientific and Technical Sub-Committee of the Committee on the Peaceful Uses of Outer Space. This paper describes some of the present and potential applications of remote sensing in disaster prevention and preparedness and damage assessment, as well as several UNDRO proposals for increasing international co-operation in this area.

The main objective of UNDRO in this area is to meet the needs of disaster-prone developing countries with regard to the application of remote sensing to natural disasters. In particular two types of activities are suggested. The first is the development and organization of a series of training seminars for experts and administrators in disaster-prone developing countries, with the following objectives: to identify the basic requirements for training personnel at all levels; to provide technical assistance for training experts and administrators in the practical implementation of remote sensing and imagery data; to formulate recommendations on building national or regional disaster-related data collection centres; and to provide guidelines with respect to the governmental machinery and communication infrastructure necessary to allow disaster-prone developing countries to utilize satellite technology for natural disasters.

(Mr. Korzhenko, UNDRO)

The second purpose of the UNDRO proposals is the preparation of practical recommendations for the application of remote sensing and satellite technology to natural disaster matters. This would involve the preparation of a state-of-the-art study of the potential of the earth's resources and meteorological and other satellites for the collection of disaster-related data; a similar study of the potential of telecommunication satellites for transmitting advance warning or for conveying reports on relief requirements following disasters; the reviewing of possibilities for predicting natural disasters and data requirements for prediction models; the potential of communications or multipurpose satellites to relay disaster-related data collected by ground platforms to central data processing and evaluation facilities. Finally, it is essential to have recommendations for the use of an integrated data sampling and evaluation system for disaster applications combining satellite and aerial remote-sensing data with data received from ground-based monitoring networks.

The following areas of application of remote sensing are now envisaged: the identification and mapping of geological features relevant to earthquake prediction and risk assessment; the prediction and monitoring of volcanic eruptions; the identification and monitoring of transient hazardous geological and environmental phenomena such as landslides, surging glaciers and sand drift, as well as changing river courses; snow cover estimates and snow-melt run-off predictions; flood-plain mapping and flood damage assessment; crop failures; the monitoring of forest fires and forest-fire damage assessment.

In addition to those programmes, UNDRO is now consulting with relevant United Nations bodies and non-governmental organizations on possible co-operation in the following areas.

The UNEP-GEMS programmes activity centre will, in co-operation with UNDRO and other organizations concerned, be looking into the possibility of using satellite imagery to monitor phenomena that may make it possible to predict some of the larger landslides. UNDRA and ITU are now discussing possible collaboration for the future use of the ITU air-transportable earth station for post-disaster relief operations. UNDRO, together with interested governmental and international bodies, especially FAO, is endeavouring to promote establishment of a long-term

(Mr. Korzhenko, UNDRO)

programme on the applications of remote sensing to natural disasters, particularly in the training field for technicians, policy makers and management personnel concerned with disasters in developing countries.

UNDRO is planning to consult with interested Governments on the possibility of standardizing technological and satellite data and information within the framework of the expected observational requirements of natural disasters.

In conclusion, we should like to stress that satellite technology is, of course, not a means of solving all the problems of disaster prediction, prevention, assessment and relief. On the other hand, it may be a very economical method and a practical tool for the provision of important additional data and the monitoring of large areas.

UNDRO is resolved to do whatever it can to encourage this work, and hopes for the support of the Outer-Space Committee.

I apologize for the length of this statement, but I felt bound to outline the activities of my organization.

The CHAIRMAN: I now call on the representative of the European Space Agency.

Mr. KALTENECKER (European Space Agency (ESA)): I have been asked by some delegations in the Committee to give a brief summary of the latest events and developments within Europe and the European Space Agency in particular which have a bearing on the topics and activities discussed in this Committee and its Sub-Committees. I am delighted to do so, particularly since I am address this Committee on the occasion of its twentieth anniversary, which it is now celebrating and which automatically brings to mind a similar time of co-operation in the international field executed by the European Launcher and Development Organization and the European Space Research Organization, the predecessor international organizations of the European Space Agency.

I will concentrate on six topics, the first relating to the communications field.

I can inform this Committee that the date of the launch of the orbital test satellite, a communications satellite to demonstrate performance and reliability

(Mr. Kaltenecker, ESA)

of space and communications components, has now been scheduled as 8 September 1977. This satellite constitutes the first phase of a telecommunications programme which will in its second phase lead to the development and operation of a European communications satellite system which will meet the requirements of the European Conference of Postal Telecommunications Administrations and the European Broadcasting Union.

The third element in this telecommunications programme constitutes the MARCTS satellite, the type A, to be launched this year, and the type B, to be developed in the next two or three years, with a possible launch in 1981 or 1982. This maritime satellite system has a particular feature which may lead to a proposal to INMARSAT with regard to the establishment of a global world-wide system for maritime telecommunications purposes. We are actually discussing with the MARISAT consortium, under the leadership of COMSAT, possibilities for co-operation in this field and the establishment of common specifications. But nothing could better emphasize the neutrality of our agency than the fact that some days ago we received -- and this may be of interest to the Committee -- an invitation from the USSR authorities to discuss common specifications in that field and perhaps even launching possibilities for the maritime satellite of ESA.

The next item in the field of telecommunications is the preparation of a heavy satellite platform to execute direct broadcast activities. This will probably be one of the most ambitious projects in that field in the next few years. We are in particular discussing the inclusion in that satellite of a 20-30 GHz payload for a direct-television-broadcast experiment.

(Mr. Kaltenecker, ESA)

That brings me to the next item, which relates to the placement into orbit of this heavy platform aboard the European Ariane launcher. We are now preparing for the production phase, and plan to run a test series on this launcher in 1979 and 1980. We are now arranging for a first production batch of six launchers. It may also be of interest in this context to note that a few days ago we concluded with the Brazilian Government an agreement on the use of the Brazilian Natal station for the injection into orbit of the telemetry operations for the Ariane launcher.

The next topic is the highly interesting one of remote sensing activities. In this regard, I should like to refer in particular to the statement made by the United States representative on the need for co-ordination of the reception and dissemination of earth resource data. We are in fact now working out arrangements for such regional co-ordination in Europe in respect to data reception and preprocessing through the use in the "earth network" of two stations: the Fucino Station of Telespazio and a station to be established by the Swedish Space Corporation in Kiruna. We hope that this will be a first step towards obtaining proper results in co-ordinating the reception and dissemination of data. In fact, with the aid of that station, we shall be co-ordinating the reception of what we call under the new definition "primary data", whereas the analytical work will be done by the national points of contact, which are in touch with the users of these data.

But that is not the only feature of earth resources data in Europe. We are also discussing a European earth resource satellite programme in respect to which we now have two proposals before us -- one from the French Government, the other from the European Space Agency Working Group -- and we hope that we will very soon be able to develop a geosynchronous multi-purpose satellite for earth observations.

The fourth topic refers to meteorology. As the Committee knows, we have developed a first satellite system which forms part of the GARP network, and which is being readied for launching this year. There may be some delays in launching because of the postponement of the launching of the OTS satellite, which I mentioned at the beginning of my statement. But we are now also preparing the "pre-operational" phase of the meteorological satellite programme; thus a few days ago a protocol

(Mr. Kaltenecker, ESA)

to this effect entered into force covering the operational activities of this satellite and probably of a second meteorological satellite, which our Council has decided to place on the next available Ariane launcher test flight -- most likely L-03 in 1980.

I cannot, of course, overlook the activities in the Spacelab field. Spacelab, as the Committee knows forms part of the United States shuttle system, and will provide facilities to enable experimenters to conduct orbital experiments in situ.

We have created a special establishment called SPICE, in DFVLR in Germany, for the preparation of the first payload, and we are now actually pursuing, together with NASA and with our national bodies, the preparation of the over-all utilization programme of Spacelab and its successors.

Turning to the last, and more general, item, we are pursuing, on the basis of a Council decision, our activities in the field of training and technical assistance. I am very grateful to the representatives of UNDRO and FAO for having mentioned their fields of activities, to which in pursuance of the Council's decision, I promise to give particular attention. We will certainly be able to associate ESA with those activities.

We hope to strengthen and enhance our external relations and co-operation, particularly with those countries with which we have now entered into discussions in this regard, such as Australia, Brazil, Canada, India, Indonesia, Iran and Japan. Of course, as I have already said, the United States and the USSR, though non-members, are very much involved in our activities. Ireland has now become the eleventh member of the European Space Agency, and Norway and Austria are already linked with our activities as active participants in both the Maritime Satellite Programme and the Spacelab Programme.

The meeting rose at 6 p.m.