implications of earth resources surveys was now on the agenda of the Legal Subcommittee of the COPUOS, which was to convene in March 1973, the Working Group requested the views of the Legal Subcommittee on the general topic of remote sensing, but did not reach any conclusions on specific questions to be put to the Legal Subcommittee.

Role of the Legal Subcommittee, 1973-1980

The Soviet draft principles were also submitted to the Legal Subcommittee at its 1973 meeting, and reprinted as an annex to its report,[17] but because of lack of time the Subcommittee was unable to consider the agenda item on "Matters relating to the activities carried out through remote sensing satellite surveys of earth resources."[18] In response to the report of the Legal Subcommittee the full COPUOS at its 1973 session specifically "requested the Legal Subcommittee thereafter to devote part of its next session to responding to the request of the Working Group . . . for its views on the legal implications of remote sensing satellites."[19]

In a parallel effort, the COPUOS Secretariat had undertaken, in response to the 1971 General Assembly resolution[20] and a request of the COPUOS, to conduct a detailed survey of potential users of remote sensing from space based on a questionnaire prepared by the S & T Subcommittee at its 1973 session. Responses were received from 28 member states, and the report of the Secretariat documented the deep and wide ranging interest in the new capability of remote sensing.[21] The Canadian response, in addition to addressing in detail the technical, organizational and legal aspects of remote sensing, submitted "possible options" illustrating rights and obligations during the three separate phases of remote sensing. The Canadian "options," which effectively anticipated the range of issues that were to become central to subsequent considerations of remote sensing principles, are set forth in Appendix III.

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[17]U.N. Doc. A/AC. 105/115 (27 April 1973), Annex III, p. 7. See also U.N. Doc. A/AC. 105/111 (14 February 1973), para. 48. Minor differences in phraseology are assumed to be the result of differences in translations.

[18]*Id.*, p. 14.

[19]U.N. Doc. A/9020 (1973), p. 5.

[20]*Id.*, at 11.

[21]U.N. Doc. A/AC. 105/C. 1/WG. 4/L. 6 and Add. 1-10 (28 November 1975). The results of an earlier survey conducted by the Secretariat are set forth in U.N. Doc. A/AC. 105/C.1/Wg. 4/CRP. 2 and Add. 1-6. A synopsis of the replies prepared by the COPUOS Secretariat appears in U.N. Doc. A/AC. 105/C. 1/WG. 4/L. 11 (21 February 1974).

The responses from several states gave impetus to the efforts then underway to address in detail the legal implications of remote sensing. As summarized by the Secretariat in its synopsis of the responses:

> Eight States *(Argentina, Belgium, Brazil, Canada, France, Mexico, Norway* and *Sweden)* felt that there is no specific international legal regime to govern remote sensing of the earth by satellites. In their view, existing principles were of a general character as well as being inadequate. The majority of them felt that the principles presently applicable could be derived from the Outer Space Treaty or the general principles of International Law. One of them *(Canada)* felt that there is no automaticity in the application of international law to this new activity while six of them *(Argentina, Brazil, Canada, France, Mexico* and *Sweden)* stated that the search for new laws was necessary because though remote sensing takes place in outer space, its effects are terrestrial and affect sovereign interests of States.
>
> With specific reference to the Outer Space Treaty, one State *(United States)* stated that it considered the principles embodied therein applicable to remote sensing; another State *(Sweden)* stated that it believed that the Treaty is not intended to cover an activity which has as its object the earth and its resources.
>
> Among the reasons given for the need for the elaboration of principles in this field were: lack of an international regime to govern the activity or the inadequacy of existing international law to cover the area, the limited application of the Outer Space Treaty to matters directed from earth to space *(Argentina* and *Sweden);* the contradiction between the absolute freedom of observation of the earth from space and the spirit of the Outer Space Treaty and international law *(Mexico);* the application of the principle of scientific freedom for research activities and space exploration is limited to the activities directed from earth to space or between different celestial bodies *(Argentina);* concern of States that they might be commercially exploited, their privacy invaded, sovereignty compromised or security weakened (*Canada* and *Sweden);* information received from space crossed the boundaries of various States *(Greece);* need to give adequate protection to sensed States *(Norway* and *Singapore).*
>
> Four States *(Belgium, Canada, Japan* and *Sweden)* felt that the need or the desirability of elaborating new principles in this field will depend on the arrangements reached in the organizational field for operating systems. Two of them *(Belgium* and *Sweden)* considered that organizational arrangements should be devised to take care of the concerns of States and such arrangements are generally more efficient than legal regulations of such activity.[22]

In its final report of 13 March 1974,[23] the original Working Group on Remote Sensing analyzed the capabilities and potential of remote sensing from technical, operational and economic viewpoints, but concluded that its report could not be exhaustive because remote sensing was "still in a dynamic state of development."[24] With regard to the legal implications of remote sensing, the Working Group noted that

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[22]Synopsis of replies, *id.*, pp. 7 and 8.

[23]U.N. Doc. A/AC. 105/125 (13 March 1974).

[24]*Id.*, p. 26.

the Legal Subcommittee had that question on its agenda, and that five delegations—USSR, Canada, Argentina, Brazil and France—had submitted documented proposals or options on the legal aspects of remote sensing. The USSR and Canadian proposals have already been mentioned.[25] The proposals of Argentina,[26] Brazil,[27] and France[28] are reproduced in Appendices IV, V and VI, respectively. A joint proposal of France and USSR,[29] also submitted to the Legal Subcommittee, is set forth in Appendix VII.

From this point forward, successive General Assembly resolutions have reinforced the predominate role of the Legal Subcommittee in the drafting of and exchange of views on remote sensing principles.[30] Since 1975, the Legal Subcommittee has included "Legal implications of remote sensing of the earth from space" as a priority item on its agenda; and since 1976, the formulation of draft principles has been a specific goal of the Subcommittee's work.

At its 1975 session, the Legal Subcommittee allocated one week to the agenda item on remote sensing, and established a new Working Group of the Subcommittee (hereinafter referred to as "WG"), open to all members of the Subcommittee. A joint proposal of Argentina and Brazil,[31] co-sponsored by Chile, Mexico and Venezuela, on basic draft articles for a treaty on remote sensing, replaced the earlier separate proposals of Argentina (Appendix IV) and Brazil (Appendix V). The draft treaty proposed jointly by Argentina and Brazil is reproduced in Appendix VIII. A working paper by the United States on the development of additional guidelines on remote sensing of the natural environment of the earth from outer space[32] was submitted to the Subcommittee and considered by the WG. The U.S. working paper appears in Appendix IX.

Pending the actual drafting of legal principles on remote sensing, the WG focused on what had become the three major proposals: those submitted by (1) France/USSR, (2) Argentina/Brazil and (3) United States. The WG noted that "there were certain

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[25]See text accompanying footnotes 17 and 21.

[26]U.N. Doc. A/AC. 105/133 (6 June 1974), Annex IV, pp. 1-3.

[27]*Id.*, at 3-5.

[28]*Id.*, at 5 and 6.

[29]*Id.*, at 9 and 10.

[30]U.N. G.A. Res. 3182 (XXVIII) (8 December 1973); U.N. G.A. Res. 3234 (XXIX) (12 November 1974); U.N. G.A. Res. 3388 (XXX) (18 November 1975); U.N. G.A. Res. 31/8 (8 November 1976); U.N. G.A. Res. 32/196 (20 December 1977); U.N. G.A. Res. 33/16 (17 November 1978); and U.N. G.A. Res. 34/66 (5 December 1979).

[31]U.N. Doc. A/C. 1/1047 (October 1974).

[32]U.N. Doc. A/AC. 105/C. 2/L. 103 (February 1975); Press Release USUN 10 (75) (19 February 1975).

common elements to be found in the three drafts and the views expressed by many members in several areas," which it identified as follows:

> (a) that remote sensing activities by means of space technology should be conducted for the benefit and in the interest of all mankind; this new technology would be of particular significance to developing countries in their plans and programmes for national development;
>
> (b) that remote sensing activities by means of space technology should be conducted in accordance with international law including the United Nations Charter and the 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies;
>
> (c) that the maximum benefits to all countries could be obtained by international co-operation at all levels, particularly on a regional basis;
>
> (d) that States undertaking programmes for remote sensing activities by means of space technology should encourage international participation
>
> (e) that in remote sensing activities by means of space technology measures should be taken to promote efforts for the protection of the natural environment of the earth.[33]

In addition to these areas of agreement, the WG identified the following as being "among the main questions raised and considered" by the WG:

> whether a future international instrument on remote sensing should deal with remote sensing of the natural resources of the earth or with the whole natural environment of the earth; whether sovereign rights of States over their natural resources apply also to information on those resources; whether consent of the sensed State should be required and, if so, whether the consent should be applied to all or only certain remote sensing activities; whether the question of consent should not be considered within the broader context of international co-operation and participation; whether a distinction should be made between the question of access to information on resources within national jurisdiction and on resources outside national jurisdiction; whether the access by the sensed States, the sensing State and third parties respectively to information or data should be unlimited or subject to certain conditions and, in the event of the latter, whether it might be possible to draw on analogies with the existing domestic practice of some States whereby they protect the confidentiality of certain kinds of information concerning their natural resources, and formulate similar guidelines in regard to data collected by means of remote sensing on an international level; whether there should be parallel consideration of the legal and organizational aspects of remote sensing; whether certain organizational and technical solutions might not help resolve some legal problems.[34]

During the 1976 meeting of the Legal Subcommittee, the WG formulated five draft principles based primarily on the five common elements it had identified the previous year, together with a sixth common element that:

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[33] U.N. Doc. A/AC. 105/147 (11 March 1975), Annex III, p. 2.

[34] *Id.*, at 2 and 3.

> States participating in remote sensing programs should make available technical assistance in that area to other interested States on mutually agreed terms.[35]

The five draft principles formulated by the WG in 1976 are reproduced in Appendix X. In addition to the draft principles, the WG identified the following three new common elements:

> (a) The United Nations and other relevant international organizations could play a useful role in the area of remote sensing, especially as far as co-ordination of activities and co-operation between States, including technical assistance, are concerned.
>
> (b) States participating in remote sensing which obtained information indicating an impending natural disaster should make this available as soon as possible to all States likely to be affected and to concerned international organizations.
>
> (c) Remote sensing data or information derived therefrom should not intentionally be used by States to the detriment of other States.[36]

Also at its 1976 session, the WG addressed for the first time the terms which would be key to an understanding and application of whatever principles might ultimately be agreed to, including "data," "information," "the natural resources of the Earth," and "the natural environment of the Earth."[37] In turn this led the S & T Subcommittee, at its 1977 session, to adopt "for the purposes of discussion and analysis the following structure for describing in an orderly manner the system elements and data flow involved in remote sensing from satellites currently being operated:

1. Data acquisition (satellites and command stations)
2. Data reception (antennae and receivers)
3. Data pre-processing (formatting and recording)
4. Data storage and dissemination (archiving and reproduction)
5. Data analysis (interpretation or user processing)
6. Information utilization (practical application by users)."[38]

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[35]U.N. Doc. A/AC. 105/171 (28 May 1976), Annex III, p. 2. The WG also received a working paper from Mongolia, U.N. Doc. A/AC. 105/C.2/L. 107, reading as follows:

> States participating in remote sensing should respect the principle of full and permanent sovereignty of all States and peoples over their wealth and natural resources as well as their inalienable right to dispose of their natural resources.

[36]U.N. Doc. A/AC. 105/171 (28 May 1976), Annex III, p. 3.

[37]*Id.*, at 4.

[38]U.N. Doc. A/AC. 105/195 (1 March 1977), pp. 8 and 9.

The S & T Subcommittee then went on to rewrite the definitions of "data" and "information" that had been used by the WG, replacing the term "data" with "primary data," and the term "information" with "analyzed information" as follows:

> (1) The term 'primary data' means those data which are acquired by satellite-borne remote sensors and transmitted from a satellite either by telemetry in the form of electro-magnetic signals or physically in any form such as photographic film or magnetic tape, as well as the pre-processed products derived from those data which may be used for later analysis;
>
> (2) The term 'analysed information' means the end-product resulting from the analytical process performed on the primary data combined with data and knowledge obtained from sources other than remote sensing satellites.[39]

The S & T Subcommittee noted that "with the present state-of-the-art systems, the term 'primary data' referred to the products generated in system elements 1 through 4 listed above and transformed into 'analyzed information' in element 5."[40] The definitions, as thus rewritten by the S & T Subcommittee, were presented by Sweden to the Legal Subcommittee at its 1977 session,[41] but time did not permit their detailed consideration by the WG.

Also at the 1977 session of the S & T Subcommittee, the USSR submitted a working paper which introduced the concept of classifying remote sensing data on the basis of spatial resolution as follows:

> —'Global' information, with spatial resolution ranging from several hundred metres to several kilometres, and covering distances ranging from several hundred kilometres to 2,000-3,000 kilometres;
>
> —'Regional' information, with spatial resolution ranging from 50-100 to 300-500 metres, and covering distances ranging from 180-200 to 600-800 kilometres;
>
> —'Local' information, with spatial resolution ranging from several metres to 30-50 metres, and covering distances of less than 150-180 kilometres.

The Soviet paper is reproduced in Appendix XI.[42] As noted in the Report of the S & T Subcommittee:

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[39]*Id.*, p. 9. The definitions formulated by the S & T Subcommittee were based on a working paper submitted by Sweden, U.N. Doc. A/AC. 105/C. 1/L. 95.

[40]*Id.*, p. 10.

[41]U.N. Doc. A/AC. 105/196 (11 April 1977), Annex III, p. 7.

[42]U.N. Doc. A/AC. 105/C. 1/L. 94 (15 February 1977).