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# JOURNAL OF SPACE LAW

A journal devoted to the legal problems arising  
out of man's activities in outer space

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#### ERRATA

On the first page of the Table of Contents of vol. 1, the title of the article by Stephen Gorove should be *Earth Resources Survey Satellites and the Outer Space Treaty*.

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## ANNOUNCEMENT

The Journal of Space Law is pleased to announce the addition of Dr. Edward R. Finch, Jr. to the Editorial Advisory Board. Dr. Finch is a lawyer and partner in the law firm of Finch & Schaefer, New York City. He is a former United States Special Ambassador to Panama, a former Commissioner of the City of New York, and was appointed U.S. Delegate to the Fourth and Fifth United Nations Congresses. He is a graduate of Princeton University and received his Juris Doctor degree from New York University. Among his numerous distinctions and associations, he is Chairman of the Aerospace Law Committee, International Law Section of the American Bar Association, and has published a number of articles relating to space law. The Journal cordially welcomes this outstanding lawyer, diplomat, and public servant to membership on the Editorial Advisory Board.

Eilene Galloway\*

## I. INTRODUCTION

In counseling some students in 1886, Mr. Justice Holmes said:

All that life offers any man from which to start his thinking or his striving is a fact. . . . For every fact leads to every other by the path of the air. Only men do not yet see how, always. And your business as thinkers is to make plainer the way from *some* thing to the *whole* of things; to show the rational connection between your fact and the frame of the universe. . . . To be master of any branch of knowledge, you must master those which lie next to it; and thus to know anything you must know all.<sup>1</sup> [Emphasis added]

This observation is particularly relevant to direct broadcast satellites whose technology, when developed, will set the factual parameters within which the pattern of law must be shaped to bring about orderly social progress. Both science and law must start with an evaluation of existing facts and with assumptions concerning the foreseeable future. The revolution in science and technology imposes an obligation on the scientific community to keep the legal profession informed of the latest developments. National and international lawyers have the matching responsibility of absorbing new facts into the framework of social order.

Direct broadcast satellites represent a special development of space communications which is one of the uses of the space environment. From the beginning of the space age, there was recognition that space science and technology produced two reasons for space activities: exploration *and* use, both of which were to be undertaken for the benefit of all mankind. This recognition was embodied in the 1967 Treaty on Outer Space<sup>2</sup> whose provisions evolved over a nine-year period when space technology brought about simultaneously an increase in man's knowledge of the Universe and numerous practical uses for activities on Earth. Data from orbiting spacecraft provided a new technological tool to be used in improving and expanding services required on Earth: swifter communications, more accurate weather prediction, safer navigation, new approaches in medical research,

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<sup>1</sup>O. W. Holmes, *The Profession of the Law*, in *Collected Legal Papers* 30 (1937).

<sup>2</sup>Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, January 27, 1967, [1967, pt. 3] 18 U.S.T. 2410, T.I.A.S. No. 6347, 610 U.N.T.S. 205 (effective Oct. 10, 1967) [hereinafter cited as *Outer Space Treaty*].

increased accuracy of mapping, and many other pursuits. The actuality of using space technology in practical ways led to outstanding international cooperation, particularly on global activities such as communications.

It is evident from the documentary record of the United Nations, particularly its Committee on the Peaceful Uses of Outer Space, that there has been a prevailing and realistic appreciation of the interdependence of technology, institutional requirements, and the legal implications of space programs.<sup>3</sup> Decisions were made on the basis of an amalgamation of these relevant factors, and it was possible to move forward toward a consensus, often expressed in resolutions and draft international agreements.

Among the commonly held basic assumptions was that the 1967 Treaty on Outer Space consisted of general guidelines which could be implemented in a more detailed manner by subsequent international agreements. Building upon, but not contravening the Treaty's provisions, new instruments could be drawn as required by developments in space science and technology. This is the philosophy which underlies the formulation of the three treaty texts worked out since 1967. The 1968 Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space<sup>4</sup> is the "child" of the "mother" provision in the Outer Space Treaty's article V which prescribes that States shall regard astronauts as envoys of mankind and render them all possible assistance. This Agreement adds necessary details concerning the return of astronauts and space objects and is in harmony with other basic guidelines of the Treaty.

The 1972 Convention on International Liability for Damage Caused by Space Objects<sup>5</sup> is also an harmonious outgrowth of Treaty provisions concerning the responsibility of launching States for space activities. Similarly, the approved 1974 text of the Draft Convention on Registration of Objects Launched into Outer Space stems from concepts of registration and notification to the UN Secretary General that first appeared in the 1967 Treaty.

The line of development of these international space agreements has been consistent in recognizing the Treaty as giving direction through general principles which have been extended into more specific measures as deemed necessary in particular circumstances. Up to the present point in the development of space treaties, it would be possible to codify all provisions into a coherent document whose principles would not be conflicting or internally inconsistent.

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<sup>3</sup>See generally U.N. Doc. A/AC.105/66 (1969).

<sup>4</sup>Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched into Outer Space, April 22, 1968, [1968, pt. 6] 19 U.S.T. 7570, T.I.A.S. No. 6599, 672 U.N.T.S. 119 (effective Dec. 3, 1969).

<sup>5</sup>Convention on International Liability for Damage Caused by Space Objects, March 29, 1972, [1973, pt. 2] 24 U.S.T. 2389, T.I.A.S. No. 7762 (effective Oct. 9, 1973).

From the time the space age started until the advent of experimental earth resources satellites and the potential of direct broadcast satellites, the development of space science and technology was not hampered by restrictive views of sovereignty. When space programs began, no State objected to the overflight of satellites over its territory.<sup>6</sup> Acceptance was unanimous in producing a consensus that led to article II of the Space Treaty providing that "Outer space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means."<sup>7</sup> Sovereign airspace and non-sovereign outer space, undefined in their relations, could have become an insuperable obstacle to international agreement, but instead, this issue was set aside and a practicable basis for agreement was substituted, namely, the functional approach that States are responsible for space activities whether their spacecraft are located on the ground, in airspace or in outer space.

In spite of this history of international space development, characterized by a blending of technological, political, economic and legal factors, the advent of the experimental earth resources satellite and the possibility of direct broadcast satellites raised issues of sovereignty which led to proposals for various forms of national control over international space activities.<sup>8</sup> In the case of earth resources satellites, there was fear that pictures taken from outer space would be used by the launching nation to exploit the national resources of other States; in the case of direct broadcast satellites, there was fear that free flow of information would result in receiving nations being subjected to undesirable broadcasts. In both cases, the argument was advanced that the 1967 Treaty on Outer Space did not cover earth resources and direct broadcast satellites because these particular space applications were not known at the time the Treaty was being drafted. Additionally, the claim was made that the Treaty applies only to outer space and not to activities on earth. In analyzing these points of view, this paper will deal only with direct broadcast satellites and will trace the technological developments occurring during the same period of time when the Treaty's provisions were being formulated.

## II. THE UNITED NATIONS, OUTER SPACE TREATY AND SPACE COMMUNICATIONS

The text of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies was adopted unanimously by the UN General Assembly in passing Resolution 2222 (XXI) on December 19, 1966. The concepts incorporated in this treaty text, which was recommended to nations for adoption, began to develop in 1958. On December 13, 1958, General Assembly Resolution 1348 (XIII) emphasized the common interest of mankind

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<sup>6</sup>S. Lay & H. Taubenfeld, *The Law Relating to Activities of Man in Space* 37-62 (1970) [hereinafter cited as S. Lay & H. Taubenfeld]. See also E. Galloway, *International Cooperation and Organization for Outer Space*, S. Doc. No. 56, 89th Cong., 1st Sess. (1965) [hereinafter cited as E. Galloway].

<sup>7</sup>Outer Space Treaty, *supra* note 2, 18 U.S.T. at 2413.

<sup>8</sup>U.N. Doc. A/AC.105/127 (1974) and Annexes I-VI.

in outer space which should be used only for peaceful purposes for the benefit of mankind. There was recognition that outer space activities could increase knowledge and improve life, and vigorous pursuit of programs of international and scientific cooperation was favored.<sup>9</sup>

When General Assembly Resolution 1472 (XIV) created the UN Committee on the Peaceful Uses of Outer Space on December 12, 1959, it was clear that space was not meant merely for exploration but was also to be used for "the betterment of mankind", "the development of science and the improvement of the well-being of peoples."<sup>10</sup>

On September 22, 1960, President Eisenhower addressed the General Assembly, identifying the peaceful uses of outer space as "[b]etter weather forecasting, improved worldwide communications, and more effective exploration not only of outer space but of our own Earth—these are but a few of the benefits of such cooperation."<sup>11</sup>

On December 20, 1961, General Assembly Resolution 1721 (XVI) passed unanimously, providing that outer space should be used only for mankind's betterment and for the benefit of States regardless of the level of their economic or scientific development. The resolution indicated UN awareness of worldwide benefits to be derived from weather research and analysis and recommended the study of measures to "develop existing weather forecasting capabilities and to help Member States make effective use of such capabilities through regional meteorological centres." Furthermore, five years before the Treaty draft was concluded, there was specific recognition that outer space be used for activities conducted on the Earth and not solely for activities confined to outer space itself.

#### The General Assembly

Invites the Special Fund and the Expanded Programme of Technical Assistance, in consultation with the International Telecommunication Union, to give sympathetic consideration to requests from Member States for technical and other assistance for the survey of their communication needs and for the development of their domestic communication facilities so that they may make effective use of space communication . . . .<sup>12</sup>

In that same year, on September 25, 1961, President Kennedy addressed the General Assembly and called for extending the rule of law to outer space, saying that "We shall propose, finally, a global system of communications satellites linking the whole world in telegraph and telephone and radio and television."<sup>13</sup>

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<sup>9</sup>12 Y.B. of the U.N. 22-23 (1958).

<sup>10</sup>13 Y.B. of the U.N. 28-29 (1959).

<sup>11</sup>43 Dep't State Bull. 554-55 (1960).

<sup>12</sup>15 Y.B. of the U.N. 36 (1961).

<sup>13</sup>45 Dep't. State Bull. 622 (1961).

The following year, on December 19, 1962, the General Assembly adopted unanimously its Resolution 1802 (XVII), again emphasizing the use of outer space as a means for improving earthly conditions. UN agencies were invited "to give sympathetic consideration to requests from Member States for technical and financial assistance to supplement their own resources for these activities, including the improvement of meteorological networks." The General Assembly

Believes that communication by satellite offers great benefits to mankind as it will permit the expansion of radio, telephone and television transmissions, including the broadcast of United Nations activities, thus facilitating contact among the peoples of the world.<sup>14</sup>

The role of the International Telecommunication Union in the allocation of radio frequencies was dealt with in specific terms.

On December 13, 1963, the General Assembly passed unanimously two basic documents which were direct forerunners of the Treaty on Outer Space which was to be concluded three years later: Resolution 1962 (XVIII) on Legal Principles and Resolution 1963 (XVIII) on International Cooperation. In the latter resolution, the use of outer space for functions to be performed on the Earth was implicit in the paragraph noting "that the United States and the Soviet Union have reached an agreement looking toward cooperation in the fields of satellite meteorology, communications and magnetic field mapping." The General Assembly also welcomed decisions of the International Telecommunication Union on "the allocation of frequency bands for space communication and procedures for their use as a step in the development of space radio communications." A progress report was requested and the connection between outer space and the Earth was apparent in the resolution which

Recognizes the potential contribution of communications satellites in the expansion of global telecommunications facilities and the possibilities this offers for increasing the flow of information and for furthering the objectives of the United Nations and its agencies.<sup>15</sup>

In 1964, the UN Committee on the Peaceful Uses of Outer Space reported that it had "decided to consider questions relating to the use of satellites for transmitting radio and television programmes intended for direct reception by the general public after the report of the International Radio Consultative Committee (CCIR) on this subject had been received by ITU." Also noted was the traffic control for sea and air, a development which might lead to a global civil navigation satellite system.<sup>16</sup>

On December 21, 1964, the General Assembly adopted unanimously Resolution 2130 (II and III) (XX) welcoming the progress reports of the International Telecommunication Union (ITU).

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<sup>14</sup>16 Y.B. of the U.N. 54 (1962).

<sup>15</sup>17 Y.B. of the U.N. 109 (1963).

<sup>16</sup>18 Y.B. of the U.N. 83 (1964).

In 1965, the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space considered the fourth progress report of the ITU:

These studies dealt with radio communications for satellites and research space probes, such as signal relay, *direct broadcasting*, meteorology, and navigational aids. Questions relating to radio astronomy, sharing of radio-frequency bands, multiple access to communication satellite systems and the problems of telegraph and telephone techniques had also been examined during the period under review by various ITU bodies.<sup>17</sup> [Emphasis added]

It is evident from the above 1965 report, which refers to earlier studies, that direct broadcast satellites had been identified and analyzed within the United Nations some years before the draft text of the Treaty on Outer Space was adopted by the General Assembly on December 19, 1966. This is not surprising when it is considered that 21 years earlier, and 12 years before an artificial earth satellite was orbited, Arthur C. Clarke published an article describing communications from outer space to the Earth and commented that "[a] true broadcast service, giving constant field strength at all times over the whole globe would be invaluable, not to say indispensable, in a world society."<sup>18</sup> Using outer space for activities on Earth was highlighted again in 1966 by UN Resolution 2221, (XXI), also adopted on December 19. This resolution called for a United Nations Conference on the Exploration and Peaceful Uses of Outer Space, the objectives being "to examine the practical benefits of space programmes on the basis of scientific and technical achievements, and the opportunities available to non-space powers for international cooperation in space activities, with special reference to the needs of the developing countries . . . ."<sup>19</sup>

The conference on Space Exploration and Applications was held in Vienna from August 14-27, 1968, and the Proceedings indicate not only a wide variety of uses for space data on Earth, but a definite interest in direct broadcast satellites.<sup>20</sup> By that time the joint project between the United States and India for direct television broadcasting to community receivers was being worked out. There was an explanation of the difference between this type of broadcasting, which does not arouse much controversy, and that potentially attainable by means of augmented and unaugmented broadcasts into home receivers. Television broadcasting directly from a satellite into homes is considered to have more impact on people and it is this particular aspect of space communications which leads to demands for national controls and consequent restrictions on broadcasting states and non-governmental organizations. The technological facts and legal implications were well known, particularly during the final stages when a consensus was forming for adoption of the Treaty on Outer Space.

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<sup>17</sup>Y.B. of the U.N. 33 (1965).

<sup>18</sup>Clarke, *Extraterrestrial Relays*, in *Wireless World* (1945), reprinted in A. Clarke, *Voices From the Sky: Previews of the Coming Space Age* 233-41 (1965).

<sup>19</sup>Y.B. of the U.N. 47-48 (1966).

<sup>20</sup>Proceedings of the United Nations Conference on the Exploration and Peaceful Uses of Outer Space 93-275 (1968).

The continuous interest of the General Assembly was shown when, recalling its 1961 resolution favoring space communications, there was unanimous adoption of Resolution 2453 (XXIII) on December 20, 1968 approving the creation of the Working Group on Direct Broadcast Satellites:

Approves the establishment by the Committee on the Peaceful Uses of Outer Space of a working group to study and report on the technical feasibility of communication by direct broadcast from satellites and the current and foreseeable developments in this field, including comparative user costs and other economic considerations, as well as the implications of such developments in the social, cultural, legal and other areas, and expresses the hope that interested States Members of the United Nations and members of the specialized agencies will contribute comments and working papers to the working group for its information and guidance to the performance of its task . . . .<sup>21</sup>

### III. DEVELOPMENTS IN SPACE COMMUNICATIONS TECHNOLOGY AND ORGANIZATION

I. Technology. All satellites involve communication with the Earth and in this general sense there was awareness of space communications from the time the first satellite was orbited in 1957. The application of space technology to existing communications systems developed so rapidly, however, that it became one of the major ways in which outer space was used on Earth for the benefit of mankind. By 1962 the U.S. Telstar I was broadcasting the first intercontinental television demonstration between Europe and the United States. Among the programs was a tribute to Dag Hammarskjold, Astronaut Schirra's launch from Cape Canaveral, and President Kennedy's address to the nation.<sup>22</sup>

In 1963, Relay I broadcast the death of Pope John XXIII, the coronation of Pope Paul VI, the opening of the UN General Assembly, and the Inaugural television transmission to Japan.

In 1964, Telstar II televised the winter Olympic games from Austria and a press program with the French foreign minister. Relay I televised N. Khrushchev's visit to Hungary, and Relay II broadcast the visit of President de Gaulle to Mexico and later broadcast coverage of the British elections. Telstar II brought TV coverage of President Johnson's inauguration and Churchill's funeral in 1965.<sup>23</sup> During 1966 when the United Nations was completing work on the text of the Treaty on Outer Space, the Applications Technology Satellite (ATS) was launched by NASA on December 6 for experiments in communications.

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<sup>21</sup>22 Y.B. of the U.N. 62 (1968).

<sup>22</sup>E. Galloway, *supra* note 6, at 58.

<sup>23</sup>*Id.* at 56-59.

2. **Organization.** The rapid development of space communications led the United States to enact the Communications Satellite Act of 1962<sup>24</sup> providing for "a commercial communications satellite system, as part of an improved global communications networks . . . [to] serve the communication needs of the United States and other countries, and which will contribute to world peace and understanding."<sup>25</sup> Global coverage was to be made available as promptly as possible while "care and attention will be directed toward providing such services to economically less developed countries and areas as well as those more highly developed . . ."<sup>26</sup> Upon the basis of this policy, the Communications Satellite Corporation (COMSAT) was created.

By August 1964, the International Telecommunications Satellite Consortium (INTELSAT) was established in accordance with two interim agreements providing for a global commercial communications satellite system.<sup>27</sup>

Such national and international arrangements were not concerned with direct broadcast satellites which have been the subject of special study and analysis by the United Nations, but it is important to understand the total situation—technological, institutional, economic, and legal—which was developing at almost unprecedented speed in relating space technology to beneficial uses on Earth. Recognition of this development motivated the formulation of guiding legal principles designed to cover all space activities, including communications. There was no assumption that treaty provisions were inapplicable to human activities on Earth just because data was being received from outer space.

#### IV. THE UNITED STATES POSITION

When the UN Working Group on Direct Broadcast Satellites met in Geneva from March 11-22, 1974, the U.S. Representative, Lee T. Stull, explained that although the United States has "serious reservations about the advisability of adopting binding principles governing such broadcasting,"<sup>28</sup> it recognized that many members favored guidelines. U.S. reservations stem from questions concerning national and international lack of experience with this still undeveloped aspect of space communications, concern lest future technological development be inhibited, and possible adverse effects on the free exchange of ideas and information.<sup>29</sup> Even though the UN estimated that direct televi-

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<sup>24</sup>Act of Aug. 31, 1962, Pub. L. No. 87-624, 76 Stat. 419.

<sup>25</sup>*Id.*

<sup>26</sup>*Id.*

<sup>27</sup>E. Galloway, *supra* note 6, at 50-54, 542-53. *See also* S. Lay & H. Taubenfeld, *supra* note 6, at 119-35.

<sup>28</sup>*See* Hearings on S. 2955 Before the Senate Comm. on Aeronautical and Space Sciences, 93rd Cong., 2nd Sess., pt. 2 at 772 (1974).

<sup>29</sup>*See Id.*

sion satellite broadcasts into individual home receivers is unlikely before 1985, and there are at present no U.S. plans for development, nevertheless, the United States decided that a valuable contribution could be made by drafting voluntary principles based upon ideas on which there appeared to be general agreement at past meetings. To assist in identifying common interests which might constitute a basis for international agreement, the U.S. Working Paper of Draft Principles on Direct Broadcast Satellites was presented on March 11, 1974.<sup>30</sup>

The *first* of the eleven U.S. draft principles provided that international direct television broadcasting by satellites should be conducted in accordance with international law, the United Nations Charter, the Treaty on Outer Space, the Universal Declaration of Human Rights and the Declaration on Principles of International Law Concerning Friendly Relations and Cooperation Among States.

*Second*, there should be compliance with the technical parameters and procedures of the ITU Convention and Radio Regulations.

*Third*, international peace and security, cooperation and friendly relations should be maintained.

*Fourth*, free and open exchange of ideas and information should be encouraged and expanded, differences among cultures should be considered, and there should be maximum use of benefits.

*Fifth*, every State is entitled to send and receive broadcasts and to share in benefits.

*Sixth*, States and international organizations should cooperate to assist other nations, particularly developing countries. This can be accomplished by training in technology, program production, program and personnel exchanges, and by considering the creation of regional centers.

*Seventh*, States with similar interests should consider regional and international methods.

*Eighth*, international professional contributions should be encouraged.

*Ninth*, international cooperation among broadcasters and regional broadcast associations should be recognized as desirable and be promoted.

*Tenth*, disagreements should be settled through consultation and established procedures.

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<sup>30</sup>U.N. Doc. A/AC.105/WG.3(V) CRP. 2 (1974). See also Statement by U.S. Representative at the Fifth Session of the U.N. Working Group on Direct Broadcast Satellites, Press Release at Geneva, Switzerland, March 13, 1974. Statement reprinted in Hearings on S. 2955 Before the Senate Comm. on Aeronautical and Space Sciences, 93rd Cong., 2nd Sess., pt. 2 at 776-78 (1974).

*Eleventh*, as practical experience warrants, questions concerning international direct television broadcasting should be reviewed by the United Nations and member States.

The U.S. draft principles do not include a provision that consent must be obtained by a broadcasting state from receiving states prior to international direct television broadcasting by satellites. Prior consent, the major issue in official discussions, is decisively rejected by the United States, major reasons being opposition to government censorship of program content and interference with the free flow of information and ideas. The proposal of the Soviet Union, for example, specifies that "States may carry out direct television broadcasting by means of artificial earth satellites to foreign States only with the express consent of the latter," and such broadcasts "may be carried out only by organizations which are under the control of governments of the States concerned."<sup>31</sup> Furthermore, advertising and commercial broadcasts would require specific agreement.<sup>31</sup> Views similar to those of the USSR have been expressed by other delegations.<sup>32</sup>

The U.S. Representative to the Working Group therefore asked Members to discuss questions pertinent to prior consent: (1) How can the absolute veto by a State over TV broadcasts be reconciled with article 19 of the Universal Declaration of Human Rights which contains the right to "receive and impart information and ideas through any media and regardless of frontiers?" (2) What effect would selective censorship have on expanding the use of satellite broadcasting? (3) What would be the effects of arbitrary withdrawal of consent, particularly on regional areas? (4) What are the implications for domestic systems of programs that spill over the boundaries of other nations? How can practical distinctions be made between intentional spillover designed to affect public opinion and unintentional spillover which unavoidably results from the configuration of this technology? (5) What effect would the prior consent principle have on other communications media? Would it be a precedent resulting in inhibiting the free flow of information and ideas? Finally, the U.S. Representative explained that objections to prior consent did not mean that the activity would be abused if the technology were ever developed.<sup>33</sup>

It was clear from the discussions of various delegations to the Working Group that there was no agreement on a definition of "prior consent." To some nations it meant prior consent to launching an operational system; to others it meant a general overview of broadcasting; and to still others, prior consent meant government censorship of the content of each individual program. The principal element underlying the United States position is a desire to stress the potential benefits and to facilitate realization of the benefits flowing from direct broadcast satellite technology.

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<sup>31</sup>U.N. Doc. A/AC.105/127 (1974), Annex II at 1-4.

<sup>32</sup>*Id.*, Annex III at 1-4 (Canada and Sweden); Annex V at 1-7 (Argentina).

<sup>33</sup>Statement by U.S. Representative, *supra* note 30. Also printed in Hearings, *supra* note 30, at 775-76.

V. STATUS OF UNITED NATIONS CONSIDERATION OF DIRECT TELEVISION  
BROADCASTING FROM SATELLITES

In May 1976 the Legal Subcommittee of the UN Committee on the Peaceful Uses of Outer Space is scheduled to meet in Geneva and continue its consideration of direct television broadcasting from satellites. At that time it will have before it not only the 1974 report of the Working Group on Direct Broadcast Satellites<sup>34</sup> but also the report of the Legal Subcommittee resulting from its meetings at UN Headquarters in New York from February 10 to March 7, 1975.<sup>35</sup> The subject was handled by the Legal Subcommittee as a matter of high priority, fourteen component parts or issues were identified, and areas of agreement and disagreement were delineated. The 1976 meeting will discuss the following subjects to determine whether or not a consensus can emerge.

1. **Purposes and Objectives.** Two alternatives were advanced, each including as purposes of direct television broadcasting by satellite the maintenance of international peace and security, enhancing the educational level worldwide and assisting developing countries. Alternative A, however, would require States to carry out such activities "exclusively" in a manner compatible with all stated objectives and with due regard to a principle on which a consensus has not yet been reached: the applicability of international law. Alternative B is not expressed in mandatory terms, preferring that activities should facilitate, promote and encourage beneficial applications. The United States position is that direct television broadcasting from satellites concern "international" activities.

2. **Applicability of International Law.** Although there is a consensus on including the United Nations Charter, the 1967 Outer Space Treaty, the International Telecommunication Union Convention and its Radio Regulations in the international law applicable to this subject, no consensus has been reached on inclusion of the generally recognized rules of international law, the Declaration on Principles of International Law concerning Friendly Relations and Cooperation among States, the Universal Declaration of Human Rights, and the International Covenant on Civil and Political Rights. Agreement is also lacking on whether or not the entire principle would be mandatory.

3. **Rights and Benefits [of States].** This is one of the most thorny issues because it evokes basic disagreement on whether States or individuals have a right to enjoy the benefits of direct television broadcasting from satellites and whether States should supervise such activities.

4. **International Cooperation.** Although there is agreement on international cooperation with States or their authorized entities making appropriate arrangements, positions differ on whether activities "shall" or "should" be undertaken.

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<sup>34</sup>U.N. Doc. A/AC.105/127 (1974) and Annexes I-VI. See also earlier reports: U.N. Doc. A/AC.105/51 (1969); A/AC.105/66 (1969); A/AC.105/83 (1970); A/AC.105/117 (1973).

<sup>35</sup>U.N. Doc. A/AC.105/147 (1975) and Annex II. See also U.N. Doc. A/AC.105/133 (1974) and Annexes I-V.

5. **State Responsibility.** A consensus has been reached on this principle which is carried over from the 1967 Outer Space Treaty to provide for compliance by States and international organizations specifically with reference to direct television broadcasting by satellites.

6. **Consent and Participation.** Differences of opinion on this basic issue created two incompatible alternatives. Alternative A requires the consent of a State toward which direct television broadcasts from satellites are beamed, and the consenting State would also have the right to participate in such activities. Consent and participation would not be required, however, if the broadcasts were technically unavoidable under regulations of the International Telecommunication Union. Alternative B does not require prior consent but provides that the broadcasting State should consult with a receiving State concerning any restrictions that might be imposed. Compatibility with international law is stressed, particularly as related to freedom of expression "which includes freedom to seek, receive and impart information and ideas of all kinds, regardless of frontiers." This alternative would recognize technical restrictions imposed by international law.

7. **Spill-Over.** The entire concept of spillover is in square brackets, thus indicating disagreement on its provisions. Alternative A would require the maximum use of technical means by the broadcasting State to reduce radiation over other countries unless prior agreement with them had been reached. The Alternative B proposal, without prejudice to regulations of the International Telecommunication Union, provides that all reasonable means would be used to reduce unintended radiation to a minimum.

8. **Program Content.** Wide disagreement is expressed by the three bracketed paragraphs on the content of programs. Some nations call for cooperation on program content, production and interchange of programs; others want agreements on broadcasting commercial advertising; others wish to exclude programs which undermine "the foundations of the local civilization, culture, way of life, traditions or language." Some nations, preferring the free flow of information and ideas, would be against restrictive provisions.

9. **Unlawful/Inadmissible Broadcasts.** The concept of unlawful broadcasts which certain States regard as inadmissible because of undesired program content is antithetical to the free flow of information and ideas favored by other States, and consequently there is sharp disagreement on this point.

10. **Duty and Right to Consult.** Two alternatives reflect different viewpoints on reasons for consultation between States. Alternative A requires a State to consult without delay if another considers it will be adversely affected by direct television broadcasts from satellites. Alternative B provides that any matter of mutual concern can be the occasion for consultations held without delay.

11. **Peaceful Settlement of Disputes.** A consensus was reached on the desirability of settling disputes by consultations or other established procedures.

12. **Copyright, Neighboring Rights and Protection of Television Signals.** Agreement was reached on bilateral and multilateral protection of such rights and giving special attention to developing countries, but differences remained on the general statement of rights not being affected by such broadcasts as well as on the idea that the Brussels 1974 Convention relating to program distribution should not be affected.

13. **Notification to the United Nations System.** Agreement on informing the UN Secretary General and his distribution of information followed the guideline in article XI of the 1967 Outer Space Treaty, and the only disagreement was on "including information on the contents of programs."

14. **Disruption.** Agreement was reached on preventing disruption to communications concerned with the safety of life.

## VI. CONCLUDING OBSERVATIONS

Direct broadcast satellites constitute a complicated problem because so many interrelated factors are involved: technological, political, economic, cultural, and legal. Although numerous points of view have been expressed concerning the mitigation or solution of perceived problems, some progress has resulted from indepth studies made by the United Nations and its relevant specialized agencies, individual nations, and other governmental and nongovernmental organizations. This progress consists of identification of different parts of the total problems, presentation of issues, and some realization of first steps toward probable areas of agreement. Sufficient momentum in official discussions of the subject has been attained to accomplish inclusion of Direct Broadcast Satellites on the agenda of the Committee on the Peaceful Uses of Outer Space as a "priority item."

The technological features of Direct Broadcast Satellites have been fully set forth at UN meetings, but they are not understood by all discussants, particularly regarding the interrelationship between technical and legal matters. In brief, the technology is divided into two main parts: direct broadcasting into community receivers and into individual home receivers. Individual reception is further divided into two parts: broadcasting into augmented home receivers and later into unaugmented home receivers. There is little controversy over such broadcasting to community receivers, a technology which is already being tested in the U.S. ATS-6 satellite. There is an agreement between the United States and India for direct satellite broadcasting of Indian programs into their community receivers.

The controversial aspects of the question concern the possibility of direct television satellite broadcasting into home receivers, whether augmented or unaugmented. The fact that this aspect of the technology is not yet developed does not lessen concern by some nations who fear receiving unwanted broadcasts and desire to formulate guidelines for control of the activity prior to its development.

The main issue is whether or not prior consent would have to be obtained from States before programs could be broadcast. Most discussion has been in general terms about the principle of prior consent and its conflict or accommodation with sovereign rights and the free flow of information and ideas. The term has not been defined and there are underlying assumptions concerning its meaning, ranging all the way from consent to launching an operational system to censorship of each individual program.

Sovereignty did not become a controversial issue at the beginning of the space age when it was discussed in somewhat geographical terms of where airspace ends and outer space begins. Technological and legal difficulties in this approach were set aside and a decision incorporated in the Treaty on Outer Space that outer space is free and not subject to sovereign claims. Agreement was reached on the basis of guiding principles for functions to be performed in outer space. General provisions in the Treaty on Outer Space were then extended when specific circumstances arose which required more detailed arrangements, as in the Agreement on Assistance to Astronauts and the Liability Convention. Relevant UN bodies have accepted the applicability of the 1967 Treaty to this subject.

At the present time, study is at the stage where agreement could be sought on (1) those provisions in the Treaty on Outer Space which apply to direct television broadcast satellites, and (2) those included in other existing international law. It would then be possible to arrive at the third stage: decisions, reached by consensus, on any additional matters which might not be covered.

# DIRECT/COMMUNITY BROADCAST PROJECTS USING SPACE SATELLITES

*Arnold W. Frutkin\**

The extended discussions of direct broadcasting by means of space satellites, which have for some time preoccupied international forums such as the United Nations and UNESCO, can be placed in useful perspective through a review of those direct/community broadcast projects which are currently in preparation in India, Canada, and Japan. The international debates are beset by abstractions such as "sovereignty" on the one side and "freedom of information" on the other, whose degree of relevancy is in fact set by technical production, distribution, and control realities. These realities constrain prospective broadcasters as well as prospective receivers. Indeed, the legalisms which are argued in political forums may, in good part, never be reached in the real world of broadcast operations. Furthermore, the technical prospects presented by space broadcasting suggest that problems of intrusion and interference may be substantially less difficult to handle than these same problems have been in the past half century of radio broadcasting, an entirely analogous activity.

A word should be said regarding the special concern which has been attached in international debate to the problems of TV broadcasting as distinguished from radio broadcasting. Since the two differ in principle only in that TV broadcasting adds a visual image to the audio element, it may be presumed that the fear of intrusive broadcasting (by one country direct to receivers in another) is greater in the case of TV than in the case of radio because of the greater audience impact which TV is presumed to have. We will assume for purposes of this discussion that this presumption is correct, as indeed it may be.

In the light of these few introductory observations, a brief review of the Indian, Canadian and Japanese experimental space broadcasting projects follows. During the review, some light will be shed on the broader issues of direct/community broadcasting by satellite.

## I.

At the outset, it will be seen in all three projects that the governments concerned are initiating broadcast experiments for practical domestic reasons. In India, there is no nationwide diffusion system capable of reaching a majority of the population, which is substantially illiterate, thus placing a great premium on the visual values of TV. There are at this writing only two television broadcast stations in all India, although others are

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under construction. The population is relatively evenly distributed in over half a million villages throughout the country so that it would be extremely difficult to cover a large proportion of the population through conventional television broadcast facilities located in a few urban centers.

Moreover, the great social problems confronting the government of India, including population control and agricultural productivity, can be attacked only through education and communication directed to education. Thus, the advanced technology of direct broadcast satellites which, at a stroke, brings the entire subcontinent within reach of a single broadcasting point, becomes extraordinarily attractive to India. A direct satellite broadcasting service offers the prospect of a national diffusion system, not only for TV but also for telephone and other services, within a very short period of time and at a fraction of the cost required for conventional ground-based distribution systems.<sup>1</sup>

In Canada a very different problem confronts the government. More than 95 percent of Canada's population is located in roughly 10 percent of Canada's territory, that area south of a line of latitude crossing slightly north of Ottawa. In the remaining 90 percent of Canada's territory some 2 percent of the population is very thinly distributed. In terms of strict cost-benefit considerations, one might conclude that special communications provisions for the remote population group could not be justified. Nevertheless, the Canadian government places high value on extending to that population the benefits of educational, news, and entertainment programs. In addition, effective links into this region would serve important government and commercial purposes. Space broadcasting techniques offer an attractive means to reach thinly distributed populations, not only in Canada, but also in the hinterland of Brazil, Alaska, and other such areas. Such techniques make it possible to reach remote receivers with no surface link to them or between them at relatively low cost.<sup>2</sup>

In Japan the problems are again different. From a communications viewpoint, Japan presents special difficulties of fragmentation and shadow. Fragmentation of communications systems is occasioned by the multi-island character of the nation. In addition, the mountainous character of the country and the presence of tall urban structures present shadow problems interfering with reception of TV signals from ground-based diffusion points. Here again, the space satellite affords direct contact to receivers on the ground without regard to insular location or urban shadow.<sup>3</sup>

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<sup>1</sup>Indian Space Research Organization, *Satellite Instructional Television Experiment: Television to Remote Areas Through Satellite* (1974); Address by Yash Pal, *Indian Experiment in Satellite Broadcasting—Some Experiments*, United Nations Panel Meeting on Satellite Broadcasting Systems for Education, Feb. 26-Mar. 7, 1974. See also Hearings on S. 2955 Before the Senate Comm. on Aeronautical and Space Sciences, 93rd Cong., 2nd Sess., pt. 2 at 768 (1974).

<sup>2</sup>B. Blevis & N. Davies, *Investigation of the Advanced Communications Satellites* (report prepared for the Department of Communications, Communications Research Center, Ottawa, Canada); Communications Canada, Oct. 17-19, 1974 (text submitted to a workshop discussion at the Interdisciplinary Conference on the Development of the Mid-North, Chicoutimi, Quebec, Canada). See also Hearings, *supra* note 1, at 668.

<sup>3</sup>H. Chiba, *Talking Paper on Communications Satellite and Broadcasting Satellite*, January 17, 1974 (Mr. Chiba is Director General of the Research Coordination Bureau of the Japanese Science and Technology Agency, Tokyo).

A first point of some significance for international discussion may be made at this juncture. The three pioneering projects under review all reflect very real *domestic* needs and concerns. There has been no sign of planning for non-domestic, unilateral programming by the major powers or by smaller countries engaged in international conflicts, the countries most often in the minds of those who fear the advent of intrusive broadcasting programs offensive in terms of program value or propaganda character. Even if a country's interests were to extend beyond domestic purposes, it will be shown that such a country could hope for very little beyond *mutually-desired* broadcast contact with the populations of other countries.

## II.

Let us now examine in more detail each of the projects planned by the three countries under consideration, beginning first with India. The Indian project stems from concepts of NASA's Office of International Affairs, pursued in parallel within the U.S. government and by Indian space interests. Preliminary exploration began in the mid-sixties and progressed to the point where a one-year study was undertaken in 1967 jointly by NASA and the Indian Space Research Organization (ISRO) to determine whether an experiment would have practical follow-on value for India. The conclusion was that India could anticipate that such an experiment would lead directly to a multi-purpose domestic space communications system with substantial cost and time savings over conventional diffusion systems. At the same time, India undertook a test of the real effectiveness of TV for instructional programs for villages. In this test, conventional TV receivers were placed in some 80 villages surrounding New Delhi and a conventional broadcast station beamed programs, principally of an agricultural content, to the receiving villages. The impact on farm productivity in the receiver-equipped villages was compared with productivity in control villages not so equipped, and the results were considered favorable.<sup>4</sup>

In 1969, an agreement was reached between the Indian Space Research Organization and NASA by which the ATS-F satellite, the first satellite capable of broadcasting directly into small receivers, would be contributed for one year to a large-scale experiment in community broadcasting to some 5,000 Indian villages. That experiment, named Satellite Instructional Television Experiment (SITE), has been under intensive preparation since 1969 and is scheduled now to begin in August 1975. Some 2,000 villages will receive Indian programs relayed through the U.S. satellite to essentially conventional TV receivers *augmented* by means of a parabolic antenna of 7 to 10 feet in diameter, a modulation converter, and a pre-amplifier. The remaining villages will utilize conventional receivers that obtain their broadcast signals from small, ground relay stations that receive signals from the satellite. (Economies can be realized where the density of receivers is such that sufficient conventional, *i.e.*, non-augmented, receivers can be installed to offset the added cost of a ground relay station.<sup>5</sup>)

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<sup>4</sup>Indian Space Research Organization, *supra* note 1; Pal, *supra* note 1.

<sup>5</sup>*Id.*

The satellite to be used was developed by NASA for domestic programs and radio propagation experiments of wide-ranging character. It broadcasts with 80 watts of transmission power through a high-gain antenna. The satellite points its beam with an accuracy of 0.1 degree. For the India experiment it will broadcast at 860 MHz, a frequency acceptable for experimental purposes only and not to be used for operational space communications purposes. (The ITU has already designated other frequency bands for operational direct broadcasting.<sup>6</sup>) There will be one video channel available to India and two voice channels, permitting use of several languages through time-sharing. India's objectives are to conduct instructional programs, especially in the population control and agricultural productivity fields, and programs contributing to national coherence. The audience will consist largely of illiterate adult villagers who have generally not been reachable in any other way. *All of the programming will be developed in India by Indian agencies*; thus, no U.S. software will be involved. Local village participation in the programming and in feedback systems for criticizing and modifying the programming will be sought by Indian authorities.<sup>7</sup>

The respective contributions of the U.S. and India to the project are essentially these: While there are some incremental costs for the United States in supporting SITE, these represent very small fractions of the cost of the total U.S. domestic program planned with the ATS-F satellite. The real contribution of the United States is one year of the satellite's life to India for the SITE program. India, on the other hand, is responsible for providing a ground transmitter, for the design, manufacture, distribution, installation, and maintenance of the 5,000 receivers required, for preparation of the instructional programs to be broadcast, and for social evaluation of the program. India, of course, will also have to meet other logistics requirements, such as making available to villagers those agricultural productivity items (*e.g.*, fertilizers) and population control devices whose presence is implied by the programs. It is estimated that India's total program cost will be approximately \$20 million.

The India experiment is, of course, of prime significance for developing countries—those which have not been able to reach large segments of their population, those which have overriding social problems which might be ameliorated through communication and education, and particularly those where visual techniques could help to by-pass prevalent illiteracy.

No serious question of intrusive broadcasting is presented by the Indian project. The programs will be receivable only through instruments designed and built in India especially for the purpose. Neighboring countries could receive the programs only if, *wishing to do so*, they procure receivers from India or deliberately construct receivers for that purpose. However, since the down-link SITE frequency of 860 MHz could interfere

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<sup>6</sup>For designated frequency bands for operational direct broadcasting, see Partial Revision of the Radio Regulations, Geneva, 1971 and Final Protocol: Space Telecommunications, July 17, 1971, [1972] 23 U.S.T. 1527, T.I.A.S. No. 7435 (effective Jan. 1, 1973).

<sup>7</sup>NASA, The ATS-F Data Handbook (rev. May 1974).

with terrestrial services in Europe, the satellite will be positioned for the India experiment over the east coast of Africa; its antenna will be pointed eastward toward India and away from Europe, thus avoiding interference with European surface broadcasts.

### III.

Canada will be the first nation to utilize radio frequencies in the 12-14 GHz bands designated by the ITU for space broadcasting purposes. There are very great advantages in these frequency ranges. Terrestrial use of these frequencies is relatively limited and so no major interference problems are anticipated. Consequently, there are no power flux problems, *i.e.*, no limits on the power which can be used in the satellite to transmit to ground receivers. This situation makes it possible to concentrate the power requirements of the system in the satellite and to use small and relatively inexpensive receivers on the ground. At these broadcast frequencies, such receivers can be used anywhere, even in urban centers to get around the problem of urban shadow.<sup>8</sup>

The Canadian project will be performed as a cooperative U.S./Canadian space program. Canada initiated the proposal and will build the required satellite at a cost of roughly \$40 million. The United States (NASA) will contribute the principal power source for the experiment in the satellite, a 200-watt traveling wave tube, and, as a further contribution, will launch the satellite in late 1975. (The European Space Research Organization will also participate and will contribute a 20-watt traveling wave tube plus other subsystems.) The satellite will maintain its station above the equator with an accuracy of plus or minus 0.2 degree and with comparable pointing accuracy. The satellite will receive (uplink frequency) in the 14 GHz band and will transmit in the 12 GHz band.<sup>9</sup>

The United States and Canada will share time for direct broadcast experiments. Canada's main control station will be in Ottawa, using a 9-meter antenna. Some 20 terminals of three different types have been ordered for loan to experimenters in Canada:

(a) Two 10-foot terminals, costing approximately 0.5 million dollars each for development and production, will send and receive TV with two-way voice capability. Being transportable, these terminals can originate programs on location and will provide data/computer links testing the utility of such service, *e.g.*, for government offices.

(b) Seven or eight 7-foot terminals costing somewhat less than \$200,000 each will be provided. These terminals will have a TV receive-only capability but will provide two-way voice, data, and sound services.

(c) Seven to ten 3-foot terminals costing about \$70,000 each will also be provided. These terminals will be essentially two-way voice terminals with data capability and with

<sup>8</sup>B. Blevis & N. Davies, *supra* note 2; Communications Canada, *supra* note 2.

<sup>9</sup>Hearings, *supra* note 1, at 676-78.

the capacity to provide interconnections through the main or remote terminals. They will also be able to receive TV under ideal conditions, but in somewhat degraded form. The two-way voice capability is considered especially important because telephone service is absent through very large areas of northern Canada where microwave links are prevented by the terrain.

Additional receivers can also be brought into the program. Receivers equipped to receive only video will cost \$5,000 to \$6,000. Those equipped to receive video and to permit a voice response will cost \$12,000 to \$14,000. Receivers which are fully interactive (two-way TV and voice) will cost an estimated \$50,000 after development costs have been met.<sup>10</sup>

The fundamental objectives of the Canadian program are to test various broadcast modes and services to remote areas, both in technical and programmatic terms. Approximately 40 experiments, twenty in the social field and twenty in the technical field are to be conducted. Both one-way and interactive modes will be tested. The experiments are in such fields as telemedicine, teleeducation (as for Eskimo and Indian groups), curriculum exchange, community development (including the interconnection of communities), and provincial government management and technology, including local access to data communication and teletype.<sup>11</sup> The particular experiments will be selected by a three-person committee which will forward its recommendations to the Minister of Communications. The committee will include a physicist, a sociologist, and an economist.

The Canadian case is particularly interesting. Here, for the first time, two nations—the United States and Canada—will collaborate in sharing the use of a direct broadcast facility. Either will in principle have the ability to broadcast programs into the other's receivers, but it may safely be assumed that this will not be done except by pre-arrangement; both nations have primarily domestic objectives.

#### IV.

The Japanese project is again a domestic broadcast experiment. The satellite is being procured by Japan through a U.S. manufacturer and will be launched by NASA in 1977 on a reimbursable basis. Japan plans to broadcast with a 100-watt power level, providing two color TV channels plus voice channels. The satellite will be located on the equator, approximately over Borneo. It will keep station with an accuracy of plus or minus 0.1 degree and a pointing capability of plus or minus 0.2 degree. The uplink will be in the 14 GHz band and the downlink will be in the 12 GHz band, again essentially avoiding interference with terrestrial services. The antenna beam will be focused as narrowly as possible on the Japanese Islands to minimize radiation impinging on mainland China, Korea, and Siberia, even though there is no basis for believing that radiation

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<sup>10</sup>B. Blevis & N. Davies, *supra* note 2; Communications Canada, *supra* note 2.

<sup>11</sup>*Id.*

spillover could cause any difficulty or interference with terrestrial users because of the frequencies involved. Those regions could receive Japanese programs only if they wished to do so and consequently procured or duplicated Japanese receivers.<sup>12</sup>

The objectives of the Japanese program are to test standards, controls, techniques, and the effectiveness of direct broadcast modes, particularly in order to reach remote areas and to circumvent urban shadow.<sup>13</sup> Four types of terminals will be tested. The largest will be transportable stations having a 4.5-meter antenna and two-way TV and voice capability. Next will be a mobile station with a 2.5-meter antenna, also having two-way TV and voice capability. The other two terminals will be 2.5- to 4.5-meter-antenna receive-only stations and 1- to 1.6-meter-antenna high-quality community receivers with receive-only capability. The latter will cost \$1,000-\$3,000, and will require rigid antenna construction and very careful orientation for high-quality reception purposes.<sup>14</sup>

In summary, the broadcast activities in all three projects will not reach other countries' TV receivers unless those countries take deliberate steps to enable themselves to receive such broadcasts. In all three projects, entirely domestic purposes are intended.

What else do such projects suggest with regard to the issue of intrusive broadcasting? Imagine a time when several countries will be conducting operational direct/community broadcasting programs in the appropriate and duly assigned 12 and 14 GHz bands. Those bands afford adequate space for foreseeable national broadcasting programs to operate on the basis of assigned frequencies peculiar to each program within those bands. Each such use of those bands is permitted under ITU regulations on a noninterference basis only.<sup>15</sup> As additional countries enter the direct broadcast fraternity, they will be required to select broadcast and receive frequencies within those bands that will not interfere with countries already operating within those bands. Suppose a broadcasting nation wishes deliberately to transmit programs into another country's direct broadcast system. Broadcasting into channels already in use within the target country would be totally ineffective as the result would be interference rather than the clear reception of any program. Broadcasting into unoccupied channels is, of course, quite possible in theory, but it is reasonable to conclude that no nation will long make available unoccupied channels for unwelcome foreign broadcasts. Thus, in either situation the issue of intrusive broadcasting shrinks to inconsiderable proportions when viewed within the scope of realities of operational practice and technology.

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<sup>12</sup>National Space Development Agency (of Japan), Technical Specification of Japanese Broadcast Satellite (1974).

<sup>13</sup>*Id.*; Chiba, *supra* note 3.

<sup>14</sup>National Space Development Agency, *supra* note 12.

<sup>15</sup>See Partial Revision of the Radio Regulations, Geneva, 1971 and Final Protocol: Space Telecommunications, July 17, 1971, [1972] 23 U.S.T. 1527, T.I.A.S. No. 7435 (effective Jan. 1, 1973).

Given the objectives of the Indian, Canadian and Japanese direct/community broadcast experiments, and the impressive technical and programmatic competence available to these states, one can only conclude that the prospective benefits of direct broadcasting far outweigh the fears which have developed out of abstract discussion.

*James J. Gehrig\**

## I. INTRODUCTION

Recently the following paragraph appeared in a well-thought-of newspaper in the United States:

Technology is now available that will permit the United States to broadcast television programs directly from satellites into any home anywhere in the world that has a receiver. This fact has shaken the Soviet Union and much of the Third World which fears its fragile cultures cannot withstand the onslaught of the hard-sell from highly developed commercial societies.<sup>1</sup>

These fears, if they exist, are mistaken. The quoted paragraph overrates the current state of the technology, greatly underestimates the attendant system problems and associated costs, and ignores existing international agreements. Nevertheless, this concern has provided cause for the study and discussion of an international agreement on broadcasting satellites. However, legal questions should not be resolved independently of technology. The rational resolution of a legal question involving technology must be based on an understanding of the current technology and a realistic estimate of its future. In the case of broadcasting satellites, this involves both the technology of the satellite and of the ground terminals, especially the receiving ground stations (receivers).

"Broadcasting satellites" are essentially of two kinds: those that can broadcast into an augmented community receiver for service to that community, and those that can broadcast directly into home receivers.

More precisely, a broadcasting satellite service, as defined by the Radio Regulations of the International Telecommunication Union (ITU), is "[a] radiocommunication service in which signals transmitted or retransmitted by space stations are intended for direct reception by the general public."<sup>2</sup> A footnote to this definition provides that "[i]n the broadcasting-satellite service, the 'direct reception' shall encompass both individual reception and community reception."<sup>3</sup>

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\*Member of the Professional Staff, Committee on Aeronautical and Space Sciences, U.S. Senate. The views in this paper are those of the author and are not necessarily related to those of any organization of which he is a member.

<sup>1</sup>Christian Science Monitor, Apr. 26, 1974, at 20, col. 1.

<sup>2</sup>Partial Revision of the Radio Regulations, Geneva, 1971 and Final Protocol: Space Telecommunications, July 17, 1971, [1972] 23 U.S.T. 1527, 1573, T.I.A.S. No. 7435, at 47 (effective Jan. 1, 1973).

<sup>3</sup>23 U.S.T. at 1573, n.1.

"Community reception" is

[t]he reception of emissions from a space station in the broadcasting satellite service by receiving equipment, which in some cases may be complex and have antennae larger than those used for individual reception, and intended for use:

—by a group of the general public at one location; or

—through a distribution system covering a limited area.<sup>4</sup>

"Individual reception" is

[t]he reception of emissions from a space station in the broadcasting satellite service by simple domestic installations and in particular those possessing small antennae.<sup>5</sup>

These definitions and the regulations apply to both radio and television (TV) satellite broadcasting.<sup>6</sup> However, this paper will be concerned primarily with TV satellite broadcasting because this is where the discussion generally centers, particularly in the United Nations and its kindred groups.

## II. THE CURRENT TECHNOLOGY

TV broadcasting by satellite into community receivers has been demonstrated. Currently the United States is demonstrating this kind of broadcasting with Applications Technology Satellite No. 6 (ATS-6) which was launched May 30, 1974, from Cape Canaveral, Florida.<sup>7</sup> ATS-6 is the most complex, versatile and powerful communications spacecraft launched to date and carries more than 20 scientific and technical experiments, most of them dealing with communications and satellite technology.<sup>8</sup> The ATS-6 has a capability of broadcasting a TV signal in the 2500 to 2690 MHz band<sup>9</sup> over a substantial area (the one-half signal strength contour includes nearly one million square kilometers) to ground stations consisting of a 10-foot (about 3 meters) parabolic antenna, a special electronic preamplifier and signal converter, and a television receiving set. Each station costs between \$3,000 and \$4,000, not including the TV receiver—very inexpensive

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<sup>4</sup>23 U.S.T. at 1574.

<sup>5</sup>*Id.*

<sup>6</sup>In this article, "broadcasting satellites," "broadcast satellites," "TV broadcasting by satellite," "satellite broadcasting," and similar terms are used in the context of the definition of the "broadcasting satellite service."

<sup>7</sup>Hearings on S. 3542 Before the Senate Comm. on Aeronautical and Space Sciences, 93rd Cong., 2nd Sess., at 2 (1974).

<sup>8</sup>*Id.* at 3.

<sup>9</sup>Hearings on H.R. 4567 Before the Subcomm. on Space Science and Applications of the House Comm. on Science and Astronautics, 93rd Cong., 1st Sess., pt. 3, at 131 (1973). ATS-6 can also broadcast on other frequencies.

compared to an INTELSAT station, but expensive compared to the average home TV receiver.<sup>10</sup>

During its first year in orbit the ATS-6 will be in a geostationary orbit at 94° West longitude overlooking the United States. An experiment of special interest to be performed in this location is the Health, Education, Telecommunications (HET) experiment (which is really a group of about six experiments) that will use the satellite to broadcast educational programs of various kinds for educational levels varying from the elementary grades through university post-graduate courses and for health-care activities located in remote and highly developed areas in the United States.<sup>11</sup>

In 1975, ATS-6 will be moved to a location over East Africa (35° East longitude) where it will be visible to the Indian subcontinent to permit its use by the Indian Government for about 4 hours per day during a period of one year to conduct the Satellite Instructional Television Experiment (SITE). In this experiment, television programs, the contents of which are entirely the responsibility of the Government of India, will be broadcast daily on a frequency of 860 MHz to approximately 5000 villages and cities throughout India.<sup>12</sup> Some 2400 of the villages will be equipped with TV sets augmented by converters and 3-meter parabolic antennae to receive the signals directly from the spacecraft. It is reported these ground receiver terminals will be manufactured in India at a cost of about \$600 each.<sup>13</sup> Another estimated 2600 villages will use unaugmented television sets to receive the signal rebroadcast from a ground station in the area. These programs will stress improved agricultural techniques, family planning, hygiene, school instruction, and teacher education and occupational skills.<sup>14</sup> The audio portion of the program will be supplied in different languages.

In 1975 NASA will launch another communications satellite called the Cooperative Application Satellite-C (also referred to as the Communications Technology Satellite). This is an international experimental project being undertaken jointly by the Governments of Canada and the United States.<sup>15</sup> Under this program, Canada is building the satellite and the U.S. will supply the 200-watt traveling wave tube, the launch vehicle, and the launch operations. Among other experiments, this satellite will broadcast at a frequency of 12 GHz into community-type ground stations having an 8-foot (about 2.4 meters) parabolic antenna, some front-end electronics to reduce the frequency and

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<sup>10</sup>*Id.* at 104.

<sup>11</sup>Hearings on S. 2955 Before the Senate Comm. on Aeronautical and Space Sciences, 93rd Cong., 2nd Sess., pt. 2, at 12-13 (1974).

<sup>12</sup>*Id.* at 670-71; Hearings on H.R. 4567, *supra* note 9, at 104-05.

<sup>13</sup>NASA Press Release No. 74-111 (May 21, 1974); Rao, Educational Television in India, 30 *Advances in the Astronautical Sciences* (AAS 1974).

<sup>14</sup>Hearings on S. 2955, *supra* note 11, at 671.

<sup>15</sup>Communications Technology Satellite Agreement with Canada, April 21 and 27, 1971, [1971] 22 U.S.T. 713, T.I.A.S. No. 7131 (effective Apr. 27, 1971).

change the modulation, and a standard TV set.<sup>16</sup> The reported estimated cost of these ground stations is about \$7,000.

Germany and Japan are studying the application of satellite broadcasting systems to meet the domestic needs of their respective countries. Japan has under development an experimental broadcasting satellite having the capability of broadcasting two color TV channels at 12 GHz.<sup>17</sup>

To supplement the existing terrestrial TV transmission system capabilities in the Federal Republic of Germany, one study proposes a 4-channel broadcasting satellite system capable of broadcasting in the band between 11.7-12.5 GHz. The study estimates that it would cost approximately \$200 million and take 7 years to develop the operational satellite system.<sup>18</sup>

In conclusion, the technical aspects of television broadcasting from satellites into community-type receivers are being demonstrated. This does not mean that any satellite capable of broadcasting into community receivers can broadcast into any community receiver any place in the world. The satellite and the ground receiver must be designed to be compatible.

On the other hand, television broadcasting into current home-type television receivers has not been demonstrated. The technology is not available to permit the United States or any other country to broadcast television programs directly from satellites into today's home receivers anywhere in the world. It is fair to say that the United States and a number of other countries could develop a broadcasting satellite system with the capability of broadcasting television programs directly from a satellite into *augmented* home receivers for an expenditure of not less than several hundred million dollars. However, such satellite systems could not broadcast into existing unaugmented home receivers without violating present ITU Radio Regulations.<sup>19</sup> Under the ITU Radio Regulations, the only band of the frequency spectrum in which there are provisions for both the broadcasting service and the broadcasting satellite service is the 620-790 MHz band; but frequency modulation must be used in the broadcasting satellite service while a form of amplitude-modulated signal is widely used in surface TV broadcast systems.<sup>20</sup>

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<sup>16</sup>Hearings on S. 2955, *supra* note 11, at 676-78; Hearings on H.R. 4567, *supra* note 9, at 106-08.

<sup>17</sup>A High-Powered Experimental Broadcast Satellite Using Tried and Proved Technology, General Electric Co. brochure (current).

<sup>18</sup>Lassak, The German Direct Television Broadcast Satellite, AIAA Paper No. 74-494 (1974).

<sup>19</sup>Partial Revision of the Radio Regulations, Geneva, 1971 and Final Protocol: Space Telecommunications, July 17, 1971, art. 9A, [1972] 23 U.S.T. 1527, 1684, T.I.A.S. No. 7435, at 158 (effective Jan. 1, 1973).

<sup>20</sup>*Id.* An exception permits India to use the band 845-935 MHz for experimental TV satellite broadcasting under certain restrictions.

Furthermore, Recommendation No. Spa 2-10<sup>21</sup> of the regulations sets the maximum signal strength (power flux density) produced at the surface of the earth within the area of a terrestrial broadcasting station too low ( $-129\text{dB W/m}^2$ ) for reception by home TV receivers. Although the recommendations attached to the Radio Regulations are not a part of the protocol and so might be considered to have a different legal character, they are in fact regarded as binding and in the U.S. are adhered to.<sup>22</sup>

### III. TELEVISION RECEIVER STANDARDS

Of more importance to international law, it should be noted that it is not now technically possible to develop a broadcasting satellite system having the capability to broadcast television programs directly into any home anywhere in the world that has a receiver. The most important reason for this is the great variety of standards existing throughout the world for television receivers. Such different standards include the number of lines per frame (the resolution), the modulation technique for both video and sound, color systems, and band width of the signal. The following table summarizes some (but not all) of the receiver characteristics of the major television systems in use throughout the world.

THE TWELVE MAJOR WORLD TELEVISION SYSTEMS<sup>23</sup>

System	Number of Lines	Channel Width MHz	Vision Band Width MHz	Vision/ Sound Separation MHz	Vestigial Side-band MHz	Vision Modu- lation	Sound Modu- lation
A	405	5	3	3.5	0.75	Pos.	AM
B	625	7	5	+ 5.5	0.75	Neg.	FM
C	625	7	5	+ 5.5	0.75	Pos.	AM
D, K	625	8	6	+ 6.5	0.75	Neg.	FM
E	819	14	10	+11.5	2	Pos.	AM
F	819	7	5	+ 5.5	0.75	Pos.	AM
G	625	8	5	+ 5.5	0.75	Neg.	FM
H	625	8	5	+ 5.5	1.25	Neg.	FM
I	625	8	5.5	+ 6	1.25	Neg.	FM
L	625	8	6	+ 6.5	1.25	Pos.	AM
M	525	6	4.2	+ 4.5	0.75	Neg.	FM
N	625	6	4.2	-----	----	Neg.	---

<sup>21</sup>Partial Revision of the Radio Regulations, Geneva, 1971 and Final Protocol: Space Telecommunications, July 17, 1971, recommendation no. Spa 2-10, [1972] 23 U.S.T. 1527, 1850, T.I.A.S. No. 7435, at 324 (effective Jan. 1, 1973).

<sup>22</sup>Conversation with Wilfred Dean, Assistant Director for Frequency Management, Office of Telecommunications Policy, Executive Office of the President of the United States of America, in Washington, D.C., Aug., 1974.

The following example illustrates the complexity of the problem: Great Britain uses systems A and I;<sup>24</sup> France uses system E; most of the rest of Western Europe uses system B; the U.S.S.R. uses system D; the United States and Japan use system M. Even if several countries use the same system according to the above table, they may have different frequency assignments for their channels or have other parameters of their TV receivers that do not agree; e.g., they might use different color systems, three of which exist in the technology today.<sup>25</sup>

#### IV. FREQUENCY ALLOCATION AND SOME TECHNICAL PROBLEMS

Frequency allocations for the broadcasting satellite service were agreed to by the ITU's World Administrative Radio Conference for Space Telecommunications, in Geneva, Switzerland in 1971.<sup>26</sup> These frequency allocations are in the nature of a treaty, and in the United States they have the force of law with respect to those countries which belong to the International Telecommunication Union and have ratified or otherwise acceded to the protocol.<sup>27</sup> Most countries are members of the ITU, but even countries not members of the International Telecommunication Union adhere closely to its regulations.

For the allocation of frequencies the ITU has divided the world into three Regions:

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<sup>23</sup>Office of Telecommunications, Dept. of Commerce, Cable Television for Europe, O.T. Rep. No. 74-28, at 51 (1974). This table was originally presented in CCIR Rep. No. 308, 10th Plenary Assembly, Geneva (1964), and updated by the CCIR report of the XIIIth Plenary Assembly, Geneva (1974), but the original sources were not available to the author at the time this article was prepared.

The field repetition frequency for the systems shown is 50 per second except for system M, used principally in North America and Japan, for which it is 60 per second.

Three color systems are in use:

- (1) NTSC (National Television System Committee) used in the United States and Japan.
- (2) PAL (Phase Alternation Line), a modification of the NTSC system which is much less sensitive to hue color changes caused by transmission problems. It is used in most of Western Europe except France.
- (3) SECAM (Sequential with Memory), which is used in France, the U.S.S.R., and Eastern Europe. O.T. Rep. No. 74-28, at 56-59.

<sup>24</sup>The United Kingdom is phasing out system A. Eventually all U.K. TV broadcasting will be at UHF using system I. There are reports that much of Western Europe will change to system I.

<sup>25</sup>O.T. Rep. No. 74-28, *supra* note 23, at 52-54 (1974). Japan and the United States both use system M as defined in the table, and both use the NTSC color system, but a TV receiver made in Japan to receive on the Japanese network will not receive on U.S. networks.

<sup>26</sup>Partial Revision of the Radio Regulations, Geneva, 1971 and Final Protocol: Space Telecommunications, July 17, 1971, [1972] 23 U.S.T. 1527, T.I.A.S. No. 7435 (effective Jan. 1, 1973).

<sup>27</sup>As of Aug. 1, 1974, only 31 nations had acceded to the protocol. However, most of the 95 nations that signed at Geneva are expected to accede to it.

Region 1: Generally Africa, Europe, the U.S.S.R., Iceland and area between.

Region 2: Generally North and South America, Greenland and area between.

Region 3: Generally Asia (less the U.S.S.R.), Australia, South Pacific to 120° W and area between.<sup>28</sup>

Frequency allocations to the broadcasting satellite service<sup>29</sup> are as follows:

1. Within the band 620-790 MHz, assignments may be made using frequency modulation subject to agreement between administrations concerned and those having services, operating in accordance with the International Table of Frequency Allocations, which may be affected. However, such service should not produce a power flux density in excess of -129 decibel-watts (dBW) per square meter for angles of arrival of less than 20° within the service area of a terrestrial broadcasting station or the territory of another country without the consent of that country. Due to this very low level of power flux density, it is unlikely that other than community-type reception could be realized.<sup>30</sup>

2. Assignments are authorized between 2500-2690 MHz. However, the regulations limit the use of this allocation to domestic and regional systems for community reception; power flux density at the Earth's surface must be less than -137 dBW per square meter per 4 kilohertz (KHz) band depending upon the angle of arrival of the signal. These power levels are not sufficient to allow for other than community-type reception.<sup>31</sup> In regions 2 and 3, portions of the allocation are shared with the fixed satellite service. Also, administrations are urged to take all necessary steps to protect the radio astronomy service in the band 2690-2700 MHz.<sup>32</sup>

3. On a primary basis, assignments are permissible in region 1 in the frequency band 11.7-12.5 GHz, and in regions 2 and 3 in the frequency band 11.7-12.2 GHz. In these bands there are no power flux density limits. However, in region 2 the broadcasting satellite service shares the allocation equally with the fixed satellite service and is limited to domestic systems.<sup>33</sup>

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<sup>28</sup>Radio Regulations, with Appendices, and Additional Protocol, Dec. 21, 1959, [1961] 12 U.S.T. 2377, 2790, T.I.A.S. No. 4893 (effective Oct. 23, 1961).

<sup>29</sup>Partial Revision of the Radio Regulations, Geneva, 1971 and Final Protocol: Space Telecommunications, July 17, 1971, [1972] 23 U.S.T. 1527, T.I.A.S. No. 7435 (effective Jan. 1, 1973).

<sup>30</sup>Office of Telecommunications Policy, Executive Office of the President of the U.S.A., Internal Memorandum, Frequency Aspects of DBS (Nov. 30, 1972).

<sup>31</sup>*Id.*

<sup>32</sup>Partial Revision of the Radio Regulations, Geneva, 1971 and Final Protocol: Space Telecommunications, July 17, 1971, [1972] 23 U.S.T. 1527, T.I.A.S. No. 7435 (effective Jan. 1, 1973).

<sup>33</sup>*Id.*

4. In region 3 the service is allocated on a primary basis along with the Fixed and Mobile Services to the band 22.5-23.0 GHz and is subject to power flux density limits for the protection of terrestrial services in this band.<sup>34</sup>

5. In regions 1, 2 and 3, the broadcasting satellite service is allocated on an exclusive basis to the band 41-43 GHz without any limitations.<sup>35</sup>

The only allocation for the satellite broadcasting service to a frequency band which might be found on existing home television sets is in the frequency band 620-790 MHz, but severe power flux density restrictions are imposed on the satellite broadcasting service. At the higher frequencies (11.7-12.5, and 41-43 GHz) there are few or no limitations, but today's home TV receivers do not operate at these higher frequencies. Moreover, the technical aspects of broadcasting from satellites at the higher frequencies are not fully understood. For example, at frequencies above 10 GHz, and especially above 20 GHz, the water vapor and oxygen in the atmosphere, particularly clouds and rain, attenuate propagation.<sup>36</sup> Investigations into the effects of these propagation losses on system design and on technical standards are just beginning.

Some other technical problems are:

1. Broadcasting satellites require a large amount of electrical power to transmit the TV video signal. Present television systems use a vestigial-sideband amplitude modulated (AM) signal requiring high power to produce a good quality TV picture. To reduce the power requirement (and in some instances to meet the ITU radio regulations) it is most likely that broadcasting from a satellite would use a frequency modulated (FM) video signal which requires that the signal be converted before it can be used by today's TV receiver. FM signals require at least 3 or 4 times more band width than do AM signals.<sup>37</sup> Yet, the radio frequency spectrum generally is regarded as a valuable and limited natural resource which must serve many users and is carefully allocated among the services by each administration (country). Clearly, use of the spectrum for broadcasting satellites will be questioned closely, although a few persons argue that the concept of treating the electromagnetic spectrum as a scarce commodity is obsolete and with the higher frequencies becoming available, frequencies should be liberally authorized and used to provide new telecommunications services at reduced cost.<sup>38</sup>

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<sup>34</sup>*Id.*

<sup>35</sup>*Id.*

<sup>36</sup>Office of Telecommunications, Dept. of Commerce, Annual Report, O.T. Bull. No. 73-2, at 2 (1973); Koenig & Merle, Influence of Rain and Cloud Attenuation on the Design of a 20 to 30 GHz Spacecraft Communications Repeater, 26 Progress in Astronautics and Aeronautics (AIAA 1971); MacLellan, Anticipated Developments in Communications Satellite Applications, 32 Progress in Astronautics and Aeronautics (AIAA 1974).

<sup>37</sup>O.T. Rep. No. 74-28, *supra* note 23, at 56; Lassak, *supra* note 18; Prichard, Broadcasting From Space, presented at International Conference on Space Research and Exploration (Crete 1969).

<sup>38</sup>Visher, Frequency Usage in Future Space Systems, AIAA Paper No. 74-447 (1974).

2. One of the reasons given for cable television development in Europe is the aesthetic benefit of removing unsightly antennae from the roofs of buildings, particularly households. Some of the older towns have passed ordinances requiring new receivers to use cable systems where necessary to preserve historic structures and conserve the view. Examples are Salzburg, Austria, and Rosenheim, West Germany.<sup>39</sup> Imagine what a city would look like with a television set in every household that required a 5- to 10-foot parabolic antenna on the roof to enable it to receive signals directly from a broadcasting satellite!

## V. BROADCASTING SATELLITES AND THE U.S.

Broadcast satellites will not be developed early or easily in the United States because an extensive national broadcasting system already exists. This national broadcasting system consists of a large number of ground-based broadcasting stations connected by a vast and elaborate system of microwave relay links and cables representing an enormous investment in capital, facilities, and existing infrastructure. This system in being works very well and is not abusive of the frequency spectrum as would be broadcasting satellites.

Moreover, in the United States telecommunications are generally viewed as the business of private enterprise, and decisions with respect to the development of new telecommunications systems are made with that policy in mind. Consequently, in January 1973, when the President decided that reductions in federal spending were necessary, a policy decision was made by the National Aeronautics and Space Administration, under pressure from the Executive Office of the President, to stop further communications satellite development after completion of the joint U.S.-Canadian CTS project, and that decision is the policy of the United States government today. This policy does not mean that the United States government is supporting no future developments in communications satellites. Such developments continue in NASA for its own needs; for example, NASA is planning to put into geosynchronous orbit a Tracking and Data Relay Satellite System (TDRSS) to meet the needs of the Space Shuttle age.<sup>40</sup> These efforts do not directly support the development of broadcasting satellites, but may result in technological advances that could contribute to broadcasting satellites at some future time.

Under the present policy, if broadcasting satellites are to be developed for use in the United States, it will have to be by private enterprise. However, U.S. telecommunication industry management is very practical when it comes to new investment. Management is faced with the necessity of earning a profit on invested capital to pay dividends to its stockholders and being able to raise new capital necessary to meet the demands of its customers. From a financial point of view, any broadcasting satellite system for the U.S. would have to take whatever place it can earn among other telecommunication systems.

<sup>39</sup>Black, What's Happening "Over There"? CATV in Europe, TV Communications, pt. 1, no. 6 (1973).

<sup>40</sup>Hearings on S. 2955, *supra* note 11, at 1022-79.

In this connection it is important to note that while the technology for a broadcasting satellite service into community receivers is being demonstrated technically, the market for this kind of broadcasting is not developed, and there has been no showing that the market can support the development and operation of such a broadcasting satellite system.<sup>41</sup>

Clearly, a formidable obstacle to satellite broadcasting directly into the home television set (augmented or unaugmented) is the absence of demonstrated technology. Yet, a much more formidable obstacle to such broadcasting is the fact that there are an estimated 69 million homes with 120 million television sets in the United States.<sup>42</sup> These television sets are an important part of the U.S. television broadcasting system and they would have to be replaced or augmented to establish a broadcasting satellite service direct to home TV receivers. To implement the required receiver capability it would be necessary for the Federal Communications Commission to establish discrete TV channels at the gigahertz (GHz) frequencies assigned to the broadcasting satellite service and to require that all new television sets after a certain date provide for receiving on those channels. Considering that the Federal Communications Commission required all television sets sold in the United States after April 30, 1964, to have UHF channels, and that today there are a relatively small number of these channels being used, it seems unlikely that such action increasing further the number of television channels available in the U.S. will be taken any time soon.

Aside from these technical and economic problems associated with the development and operation of a U.S. broadcasting satellite system, any intent on the part of either the government or private enterprise to develop such a system would receive immediate and concentrated opposition from the broadcasting industry. The industry would be compelled to act to protect its investment in the current system. Probably, there would also be objection from labor organizations who would see broadcasting satellites as a threat to jobs. These objections would create a political problem of substantial proportions that would require a political decision.

I believe it can be said with some certainty that a broadcasting satellite service with the capability of broadcasting directly into home receivers will *not* be developed in the United States within the foreseeable future.

## VI. EDUCATIONAL AND OTHER CONSIDERATIONS

While many people around the world believe strongly in the efficacy of broadcasting satellites with respect to education, there is, as yet, no good data as to what these effects will be. Certainly the purpose, the application, the use, and the effect depend on the specific country where such satellite systems would be used. For example, in the

<sup>41</sup>See Hearings on S. 3542, *supra* note 7, at 89-95.

<sup>42</sup>1974 Electronic Market Data Book, Electronic Indus. Ass'n (Washington, D.C.); see U.S. Bureau of the Census, Statistical Abstract of the United States (95th ed. 1974).

United States, as part of the HET experiment, the ATS-6 is being used to broadcast educational material to augment existing classroom courses directly into junior high schools located in remote areas of the Rocky Mountains.<sup>43</sup> The teachers have been especially trained to use the broadcast material, and the children are accustomed to attending daily class during the school year. The purpose of the demonstration is to investigate the possibilities of providing educational television and other media services via satellite broadcasting to students isolated from the greater educational opportunities available to students in more densely populated areas.

In another part of the HET experiment, the ATS-6 system is being used to bring university courses at the graduate level to practicing teachers in the Appalachia area. By coupling ATS-6 with ATS-3, students are able to converse back and forth with some of the outstanding experts in their field of study and also to obtain immediate feedback on their progress.<sup>44</sup>

In other parts of the experiment, the ATS-6 is being used by the Veterans Administration for medical education and consultation, and experiments are being conducted in Alaska to develop the information needed to meet that state's specific telecommunications needs with respect to education, health, cultural exchange, entertainment, and interconnection facilities required to provide live programming to the general population.<sup>45</sup>

When the ATS-6 satellite moves to provide service to the Indian subcontinent, the educational purposes of Indian programming will be somewhat different. The Indian project is being designed by the Indians to investigate the needs of the Indian population as the Indian government currently understands those needs. The general objectives of the Indian SITE experiment are to:

gain experience in the development, testing, and management of a satellite-based instructional television system, particularly in rural areas and to determine optimal system parameters

demonstrate the potential value of satellite technology in the rapid development of effective mass communications in developing countries

demonstrate the potential value of satellite broadcast TV in the practical instruction of village inhabitants

stimulate national development in India, with important managerial, economic, technological and social implications.<sup>46</sup>

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<sup>43</sup>Hearings on S. 3542, *supra* note 7, at 11-13.

<sup>44</sup>*Id.*

<sup>45</sup>*Id.* at 4-6; NASA, The ATS-F Data Handbook (rev. May 1974).

<sup>46</sup>NASA, *supra* note 45.

The Indian primary instructional objectives will be concerned with family planning, agricultural practices, and national integration. Indian secondary objectives include: contributing to general education, teacher training, occupational skills, and the improvement of health and hygiene.<sup>47</sup>

Indian technical objectives include: a system test of satellite broadcast TV for national development; enhancement of the capability to design, manufacture, deploy, operate and maintain village TV receivers; gain technical experience in design, manufacture, and maintenance of broadcast distribution facilities; and to determine the optimum receiver density, distribution, scheduling, and audience acceptance of the preparation of the program material.<sup>48</sup>

Almost universally, we have come to accept as fact that a broadcasting satellite service will bring advantages to education, but we really do not know what effects TV broadcasting will have on the educational process either in those countries with highly developed educational systems that have had TV for years, or in the economically less-developed countries. I think the innate belief of almost everyone is that the result will be a good one, and I am sure that for some students, young or old, that belief is correct. Still, it is important to stop and reflect on the fact that education at any level is an intensely personal thing; to learn requires an exceptional effort on the part of the individual whether he is learning at a young or older age to read and write, or is a graduate student in a university.

In addition to the formal educational effects which a broadcasting satellite service might have, there are other effects to consider which might be just as important and about which even less is known. Before the installation of a country-wide broadcasting satellite service into home receivers, one would prefer to have some assessment of what the effects will be on such intangibles as the country's political institutions, its local culture, and its social values. To my knowledge, little or no effort has been put into the study of such effects, which are often called technology assessments. Such a study is one of the general objectives of the Indian SITE experiments.<sup>49</sup>

## VII. SUMMARY

In summary, broadcasting from satellites into community-type TV receiving stations costing on the order of a few thousand dollars has been technically demonstrated. However, satellite broadcasting directly into present home receivers is not foreseeable. Broadcasting satellite systems at the higher frequencies (above 11.7 GHz) are being investigated and appear technically feasible, but they can broadcast only into augmented home receivers that will cost substantially more than those of today. There-

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<sup>47</sup>*Id.*

<sup>48</sup>*Id.*

<sup>49</sup>*Id.*

fore to say, "... radio and television services can speak, almost without restriction to listeners in all countries of the world"<sup>50</sup> and, "[t]hrough space and telecommunication techniques, everyone, wherever he may be, can receive directly broadcast radio and television programs coming from any other country,"<sup>51</sup> is incorrect.

Moreover, the ITU Radio Regulations contain restrictions and require coordination regarding transmissions from broadcasting satellites, especially outside of the originating country. In general, these regulations require that in designing a broadcasting satellite service, all technical means available shall be used to reduce to the maximum extent practicable the radiation over other territories of other countries (spillover) unless an agreement has been previously reached with such countries.<sup>52</sup> The specific restrictions included in the Radio Regulations relating to the lower frequency signal levels are at a level low enough so that they will not interfere with terrestrial broadcasting on the same frequency in the impacted country; such low signal levels cannot, of course, be received by home TV receivers, but only by large ground stations with large antennae and sophisticated electronics.

The establishment of broadcasting satellite services will be difficult in countries with highly developed telecommunications networks, such as the United States. Broadcasting satellites might possibly appear in some of the highly developed countries that feel a great need to increase the number of television channels available, but the signals will not be received by current home-type TV receivers; the television sets (receivers) will have to be redesigned and augmented to receive these signals. Moreover, a broadcasting satellite system will not provide a large number of new TV channels.

Broadcasting satellite systems into community-type ground stations to meet the telecommunication needs of some of the developing countries, particularly in the area of education, are being investigated. Should the results of experiments such as the Indian SITE experiment using the ATS-6 satellite and the experiments with the joint Canadian-U.S. Communications Technology Satellite prove successful, there is a possibility that some countries will opt to establish an operating broadcasting satellite service into community-type receivers. However, at this time, the usefulness of these satellites for educational purposes and their effect on the cultural, social, and political institutions of various countries is not known.

With respect to the international legal aspects of the television broadcasting satellite service, it is my view that the proposals that have been put forward are unnecessary at this time. I think it is important to consider that since enforcement procedures are few, international law depends very much upon respect for the law and the goodwill between

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<sup>50</sup>Busak, *The Need for an International Agreement on Direct Broadcasting by Satellite*, 1 J. Space L. 139 (1973).

<sup>51</sup>*Id.*

<sup>52</sup>Partial Revision of the Radio Regulations, Geneva, 1971 and Final Protocol: Space Telecommunications, July 17, 1971, [1972] 23 U.S.T. 1527, T.I.A.S. No. 7435 (effective Jan. 1, 1973).

States. Good international law makes for good adherence to the international law and vice versa.

The international community, and particularly the legal community, should carefully analyze and understand the consequences of proposals to control broadcasting from satellites. It should be kept in mind that the kind of satellite broadcasting of most concern, that is, TV broadcasting into any receiver anywhere in the world, is not technically feasible; technical differences between TV systems and existing regulations of the ITU make impractical the use of broadcasting satellites for "intrusion-type" broadcasts. The ITU regulations contain provisions regarding spillover, and states can control unwanted broadcasting rather easily.<sup>53</sup> Unnecessary regulations and restrictions on broadcasting satellites should not be created lest they be used to impede or inhibit the free flow of information by other media where such is legal, and thereby reduce international understanding and cooperation between the peoples of the world.

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<sup>53</sup>*E.g.*, in some eastern European countries the viewing of western TV broadcasts is prevented by the simple expedient of having the audio channel an extra MHz from the video channel. See O.T. Rep. No. 74-28, *supra* note 23.

Irwin M. Pikus\*

## I. PROBLEM OVERVIEW

Not long after the initiation of our nation's space activity, a program in space communications became significant. This program has resulted in a series of satellites involved in communications, including passive reflectors of energy and active relay satellites.

Among the uses realized and projected for communications satellites are: relaying telephone conversations; relaying data in digital or coded form; closed circuit television; and relaying broadcast material.

Broadcast material may be of an educational nature, a commercial nature (*i.e.*, advertising products or services for sale), a political nature (*e.g.*, position statements by candidates for office), or an entertainment nature. While uses in each of these areas may be very beneficial to those concerned, certain uses could be subverted to the accomplishment of undesirable ends. Herein lies the major problem with direct broadcast application.

The purpose of this article is to examine certain problems arising from the technical aspects of direct broadcasting satellites (D.B.S.) and to inquire into their legal implications.

## II. TECHNICAL FACTORS

### A. The Satellite System

In typical application, the communications system comprises a ground-based transmitter, a space-borne satellite to relay information, and a ground-based receiver, or set of receivers. A signal, sent continuously over the broadcast frequency, emanates from the transmitting antenna and is directed toward the satellite. The satellite, having an antenna system of its own, receives the signal, performs certain operations thereupon (typically, an amplification and conversion to a retransmission frequency), and retransmits the signal in the direction of the ground-based receiver.

For maximum user utility, the relay satellite should be in geo-stationary orbit; that is, in an orbit remaining over a given location of the Earth's surface for a usefully long time. Such orbits are of large diameter and thus the satellite is more than 22,000 miles

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from the Earth's surface.<sup>1</sup> This long retransmission distance places stringent demands upon the satellite's required radiated power so that a considerable amount of power is needed to provide a useful signal level at the receiver site.<sup>2</sup>

The primary advantage of using a direct broadcasting satellite system lies in the fact that at television frequencies (30-300 MHz for VHF), propagation occurs in nearly straight-line paths. Therefore, the earthbound range of ordinary television signals is severely limited by the Earth's curvature. To send a television signal over the face of the Earth would require having relay stations located every 75 miles or so. Obviously, this is not easily done over oceans, but the satellite effectively bridges these distances.

By using a geo-stationary orbit, one satellite can provide coverage to locations within nearly an entire hemisphere. Of course, if the satellite's radiated signal were spread out over the entire hemisphere, the signal strength received at any location in the hemisphere would be very small. Therefore, it is useful to confine the radiated signal to geographically limited regions on the Earth's surface. The techniques for confining radiated signal beams rely on having proper transmission antennas. The simplest antenna is a dipole antenna. The radiation pattern of such an antenna is almost unconfined; the amplitude of radiation along or near the direction of the dipole axis is small, but in all other directions the signal strength is almost uniformly large. Arrays of dipoles, however, can be structured to provide reinforcement of the radiated signal in selected directions and diminution of the signal in other directions. Parabolic antennas are one configuration useful in this context. In principle, a dipole array can be designed to produce any reasonable beam pattern desired, but in practice, certain arrays or structures are preferred; chief among these is the parabolic dish.

With properly designed antennas, the power demand of the radiating satellite can be efficiently matched to the requirement for adequate signal strength on the Earth's surface. However, other considerations enter into the "power equation". For example, more power is required to transmit a color television program than a black and white program. This requirement is related to the increased frequency band width required for color television. Power required by the transmitter is also linked to the sensitivity of the receiver. Thus, if it is necessary to provide a substantially increased receiver sensitivity to utilize the satellite signal, the economics involved may affect the choice between reception by centralized ground relay stations and reception by end users.

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<sup>1</sup>The requirements for a geo-stationary orbit are: (1) the period of satellite rotation about the Earth must be the same as the period of rotation of the Earth on its axis, (2) the satellite's orbital plane must very nearly coincide with the Earth's equatorial plane, and (3) the satellite must be in a circular or near-circular orbit. The period of a circular orbit is related to the orbit altitude above the Earth. A satellite in a geo-stationary orbit will keep station approximately 22,500 miles above the equator.

<sup>2</sup>Signal strength varies inversely with the square of the distance from the source. Thus a transmitter broadcasting from an altitude of 200 miles would produce a signal strength at the Earth's surface approximately 10,000 times greater than the signal strength produced by the same transmitter broadcasting from geo-stationary orbit.

## B. The Technical Problems

The first technical problem to be considered is that of frequency allocation; that is, what frequencies of operation are to be used for direct broadcast? The radio frequency spectrum has become so extensively used that in certain situations it is on the verge of overcrowding. Effective operation of a satellite communication system requires that an operating frequency be chosen which minimizes the detrimental effects of the following factors: a) atmospheric absorption, b) background noise, c) interference, and d) radiation pattern. Such minimization suggests an operating frequency in the range of 1-10 GHz (a GHz is 1000 MHz).<sup>3</sup> Prior to 1971, the only available band was a 500 MHz band about 4 GHz and 6 GHz. In 1971 the World Administrative Radio Conference approved the following frequency bands for communications satellite systems: 10.95 to 11.2 GHz; 11.45 to 11.7 GHz; 14.0 to 14.5 GHz; 17.7 to 19.7 GHz; 19.7 to 21.2 GHz; 27.5 to 29.5 GHz; 29.5 GHz to 31.0 GHz.<sup>4</sup> All of these bands are outside the most desirable spectral region, but the bands near 12 and 14 GHz have been of the most interest so far.

For television purposes, frequencies already allocated may be useful. For example, the NASA/India Satellite Instructional Television Experiment (SITE) will utilize an 860 MHz (UHF) spacecraft transponder aboard the ATS-F satellite.<sup>5</sup>

Technological solutions to the spectrum crowding problem may be based on any of several techniques under active investigation at various laboratories. Such techniques as controlled polarization and advanced forms of modulation hold promise.

The second major technical problem associated with broadcasting from space is that of "spillover". From a satellite in geo-stationary orbit, even a narrowly confined radiation pattern of 3 degrees beam width produces a beam cross-section width at the Earth's distance of approximately 1100 miles. Because the beam is not generally pointed straight down at the center of the earth, the surface area intercepted by the beam will be oblong and of characteristic dimensions greater than 1100 miles.<sup>6</sup> Many countries are less than 1100 miles across. Furthermore, there are many regions of the Earth's surface in which vast political and cultural differences exist within a range of 1100 miles. Of course, the radiated signal does not change from full strength to zero strength at the "beam edge", but actually declines gradually. Using the ATS-F/SITE experiment as an example, from the center of the beam at Nagpur, India, the signal strength declines in the North-South dimension by 1 decibel (db) at 260 miles, 3 db at 650 miles, and 10 db at 1050 miles. A

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<sup>3</sup>See, e.g., Jaffe, *Communication by Satellite*, in *Modern Science and Technology* 543 (R. Colborn ed. 1965); Pritchard & Bargellini, *Trends in Technology for Communications Satellites*, 10 *Astronautics and Aeronautics* 36 (1972).

<sup>4</sup>Partial Revision of the Radio Regulations, Geneva, 1971 and Final Protocol: Space Telecommunications, July 17, 1971, [1972] 23 U.S.T. 1527, T.I.A.S. No. 7435 (effective Jan. 1, 1973).

<sup>5</sup>Hearings on S. 2955 Before the Senate Comm. on Aeronautical and Space Sciences, 93rd Cong., 2nd Sess., pt. 2, at 670-71 (1974).

<sup>6</sup>The surface pattern will be generally egg-shaped with a minimum pattern dimension of 1100 miles.

signal strong enough for use in most of India will also be strong enough to be used in Pakistan, Burma, parts of China and the Soviet Union, and in other nearby countries.<sup>7</sup>

Assuming that spillover program reception is to be prevented, the principal techniques available involve either shaping the beam so that the resultant signal strength outside the intended reception area is too weak to use, or producing a signal which is unusable except by those possessing the necessary technology and equipment. In fact, the signal strength outside the intended area will never be exactly zero no matter how well the beam is shaped. Also, there is cause to question the viability of an exclusionary technique which relies on special receiving technology and/or equipment.

The third major technical problem concerns the possibility of interference with the satellite broadcast by a State intending to counteract the broadcast. Several techniques could be called into play. Jamming by sending out strong distracting signals on the broadcast frequency would produce a noisy reception. A State might be able to broadcast improper satellite control commands and interfere with the operation of the satellite or its orientation, and thus reduce the utility of the broadcast. A State having substantial space capabilities could produce interference by positioning its own space vehicle or other space object so as to alter the characteristics of the signal received by the direct broadcasting satellite or the signal retransmitted by it.

Finally, the fourth major technical problem involves unintentional interference in the utilization of space. Geo-stationary orbits are immensely useful, but there is a limited availability of "orbit space". All such orbits must be approximately 22,500 miles above the Earth. If all geo-stationary orbit positions were to be used by communications satellites, then to avoid interference between them, they would have to be separated by some minimum amount, perhaps as much as 5 degrees.<sup>8</sup> The problem here is not physical interference but radiation interference.

There are several regions over which geo-stationary orbit placement is particularly attractive. The uses to which such positions could be put include surveillance for national security purposes, monitoring associated with treaty verification, Earth observation, navigation, and all types of communications. There is a possibility of demand for geo-stationary orbit positions greatly in excess of the supply. This question of interference needs to be examined in more technical detail.

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<sup>7</sup>Hearings, *supra* note 5, at 671.

<sup>8</sup>*Id.*

### III. LEGAL IMPLICATIONS

#### A. Frequency Allocation

This problem is one of the most difficult and urgent technical problems relating to direct broadcasting satellites. However, there already exists a substantial institutional mechanism for dealing with the legal aspects of the problem. Within the United States, the Federal Communications Commission, and internationally, the International Telecommunication Union, arrange the allocation of the frequency spectrum.

#### B. Spillover

This also is a very difficult technical problem. Here, however, the legal aspects of the question are of considerable concern.

Since the invention of the radio less than a century ago, mankind all over the Earth has been subjected to an increasingly intense bathing in electromagnetic signals. We are subject to radio waves from broadcast stations, short wave stations, "ham" radios, citizen's band radios, police, aircraft, marine and navigational radio, television, and from a host of other sources. Almost anywhere on the Earth we can, with ordinary equipment, receive information by radio from many nations around the world. There has never been recognized a right to be free from the infringement of such radiation, regardless of the points of origin or the purpose of the information carried. Can there be, therefore, any right to be free from such radiation coming from a satellite? There seems to be no basis for such an assertion.

It should be recognized, however, that there is a significant difference between radio-type information and television-type information. The experience in the United States is convincing that television has a far greater impact upon the individual than does radio. As noted above, surface-originated television signals are limited in their ability to carry great distances. Therefore, in most cases, there is little infringement of foreign television material on other countries except for those regions near the borders of the originating country. Perhaps this distinction between radio and television should be examined to see if a reasonable basis exists for asserting a right to be free from television infringement.

#### C. Intentional Interference

The legal implications of intentional interference are perhaps less important than the political or military implications because intentional interference connotes a hostile action on the part of the interfering state or person. We already have treaties, signed by many nations, which deal with the peaceful uses of outer space. An intentional interference propounded by a signatory State would raise questions of treaty violation. However,

suppose the interference arose from either a person or a non-signatory State. In what forum might the resulting legal questions be raised? What jurisdiction may cover such an act by a person who is not a citizen of a signatory State?

We discussed *supra* the fact that the signal from the satellite arriving at the Earth's surface will be weak. Intentional jamming at the receiver site could be easily accomplished. What is the legal situation regarding interference by a citizen of the receiving state? Does interference at the receiver site constitute interference with a space object?

#### D. Unintentional Interference

The question of allocation of orbital space is in need of resolution. There are many competing demands for such space and an uncontrolled race for occupation of usable positions will be detrimental to all intended users. The most reasonable approach to this problem seems to be one in which spacecraft would be assigned to specific positions for a certain time period. This approach, however, may create problems related to national security because many surveillance functions are now performed by military satellites in geo-stationary orbit.

Not every satellite mission poses the same stringent demands on vehicle separation that are made by communication satellites. Surveillance satellites, for example, need only an unobstructed view of the Earth (easily obtained even with satellite separations on the order of feet) and a clear communications channel to the command site. The quality of the communications channel is determined by parameters somewhat different for surveillance and alert missions from those required for direct broadcasting missions. An international registry of spacecraft would be helpful in planning missions so as to avoid interference. Mandatory registration and orbit allocation could eliminate the problem altogether.

#### IV. CONCLUSION

To summarize, direct broadcasting satellite technology leads to four major problem areas in the use of satellites for broadcasting: (a) further crowding of the frequency spectrum, (b) "spilling-over" of the signal onto nations not desirous of receiving it, (c) intentional interference with the system by a nation or a person, and (d) unintended interference caused by or with other space objects in geo-stationary orbit.

The solutions to these problems need individual attention because there are significant differences among them. Frequency allocation problems on the international scale are the concern of the International Telecommunications Union. The technological possibilities for solution include new methods of utilizing signals in shared bands and new methods of utilizing new bands.

"Spill-over" is a problem with very important legal aspects. The UNESCO "Declaration of Guiding Principles on the Use of Satellite Broadcasting", proclaimed on November 15, 1972,<sup>9</sup> states that "[e]ach country has the right to decide on the content of the educational programs broadcast by satellite to its people. . . ."<sup>10</sup> Is there any basis in law for such a principle? Associated with this problem are many basic questions of rights with regard to availability of information and with regard to our constant immersion in a bath of electromagnetic radiation.

The problem of intentional interference deals not only with measures which might be taken by a State, but, because of the ready technical feasibility, with actions of persons. A variety of motives for such actions can be imagined. As a deterrent to actions of persons, some suggest civil sanctions, while others propose criminal sanctions. A major question in this regard is the nature of the forum in which such matters may be heard.

Orbit allocation is a problem which should be dealt with by an international organization empowered to register spacecraft and control the use of such geo-stationary orbital positions as are in over-demand.

As with many applications of space, the technology to accomplish the primary goal in direct broadcasting satellites is here. The secondary matters of adjusting to the proper demands of the international community will require new technological developments and, granting a basic premise of goodwill among nations, these developments promise to provide the solutions needed.

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<sup>9</sup>For a text of the Draft Declaration, see UNESCO Doc. 17 C/76, Part II (July 21, 1972). The Declaration is reproduced in 1 J. Space L. 161 (1973).

<sup>10</sup>*Id.*, IV (2).

APPLICABLE LAW IN CASES OF TORT DAMAGES CAUSED BY  
DIRECT BROADCAST SATELLITES

*Dr. Christian Patermann\**

Of the large number of legal questions raised by direct television broadcasting via satellite, one special question, which initially appears to be of only minor importance, but which interrelates international law, space law, and private international law, is what law will govern liability for damage caused by direct satellite broadcasts which are transmitted on a world-wide or region-wide scale to States having differing legal systems. The damage referred to is, of course, tort damage. This question has hitherto hardly been mentioned in space law literature.<sup>1</sup> To illustrate the kind of tort problem in question here, consider the following example: A commercial advertisement for an internationally-known product is prepared and broadcast in State A via a direct television satellite and the broadcast is received in State B. The advertisement is of the form known as "comparative advertising;" that is, it compares the sponsor's product with competitive products. The law of State A where the commercial was produced and broadcast permits "comparative advertising," but the law of State B, like the law of many countries, does not permit it. A manufacturer of a competitive product in State B that feels that it is handicapped in the distribution of its products by such "comparative advertising" may want to recover such damages as it can prove have resulted from the televising of the type of commercial banned in State B. Whether the manufacturer in State B can recover or not may well depend upon whether the law of the broadcasting state (State A) or the law of the receiving state (State B) is dispositive of the claim.

Probably the most obvious approach would be to try first to resolve this problem on the basis of private international law using the conflict rule in torts since the damage will usually have been caused by a tortious act such as infringement of property rights, infringement of personal rights, and unfair competition.<sup>2</sup> Furthermore, one might also resort to the rules governing so-called "broadcasting offenses" as the same kind of problem already exists in the radio-broadcasting and terrestrial television-broadcasting industries.

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<sup>1</sup>This problem has apparently been dealt with only briefly in the literature. See generally Catala-Franjou, *Responsabilité civile et pénale des émissions, retransmises*, in *Les Télécommunications par Satellites*, Aspects juridiques 196-97 (1968).

<sup>2</sup>Damage caused by infringements of copyrights and patent rights are not dealt with in this article because of the special features of infringements of copyrights and patent rights in the conflict of laws on tort. These special features stem from the so-called "Bündeltheorie", according to which copyrights and industrial property rights are only protected against actions and effects occurring within the territory of those countries which confer or recognize such rights.

However, it is open to doubt whether it is at all possible to apply the provisions of private international law to an act which takes place partly in space. Direct television broadcasts are transmitted via geo-stationary satellites which orbit the earth at an altitude of 36,000 km. It is therefore conceivable that instead of private international law, only space law might be applicable. Against this position, it may be argued that while the transmission of television broadcasts via geo-stationary satellites in outer space constitutes part of the unlawful act as such, outer space is *neither* the *place* where that *act* takes place, *nor* is it the *place* where the *damage* occurs. Outer space is rather what may be called the "medium of transmission". If allowance is made for the act as such, it would be unreasonable to say that the *only* law applicable is space law. Although attempts are being made in the pertinent literature to distinguish between space law and other branches of law,<sup>3</sup> it is not generally assumed that space law and private international law are legal systems which exclude each other. On the contrary, it is held that the general principles of private international law—to the extent that they are locally independent and generally applicable—must be observed and will not be superseded by space law.<sup>4</sup> This is why, when one attempts to solve the issues dealt with here, it is generally safe to resort to the principles of private international law.

It must first be determined whether the provisions of private international law provide a satisfactory solution; that is, whether there are any generally applicable principles of the conflict rule to torts which make it possible to reach an unequivocal decision. Whether an act is tortious is usually decided, almost without exception, on the basis of the *lex commissi loci*<sup>5</sup> under both German and foreign private international law. However, there is no uniform opinion in international literature with regard to the question which is suggested by this statement—namely that of what is meant by *lex commissi loci*. Does it refer to the law of the place where the act constituting a tort was committed (place of action) or to the place where the effect occurred (place of the effect)?

According to German jurisprudence, in particular according to jurisdiction and to the greater part of the literature on the subject, it is held that the *lex commissi loci* may refer both to the place where the tort was committed and to the place where the effect occurred, and the person having suffered damage may claim that solution which is most favorable for him.<sup>6</sup> Both places are so-called points of departure of the same intrinsic

<sup>3</sup>E. Fasan, *Weltraumrecht* 119 (1965); M. McDougal, H. Lasswell & I. Vlasic, *Law and Public Order in Space* 691 (1963).

<sup>4</sup>E. Fasan, *supra* note 3 at 128.

<sup>5</sup>For details on the German law on torts as well as the conflicting foreign laws on torts see Schneeweiss, *Das Verhältnis von Handlungs- und Erfolgsort im deutschen und internationalen Privatrecht unter Berücksichtigung der Rechtsprechung* 1 nn.1 & 2, 3 (dissertation Cologne 1959). See also 7 Soergel-Siebert, *Bürgerliches Gesetzbuch*, art. 12 n.1 (Kegel ed.) [hereinafter cited as Soergel-Siebert].

<sup>6</sup>Soergel-Siebert, *supra* note 5, at art. 12 n.48. *Contra* M. Wolff, *Das internationale Privatrecht Deutschlands* 165 (3rd ed. 1954), which rejects the equivalence of the place of action and the place of effect and holds that the law of the place of effect can only be applied if an act of civil offense can be asserted under the law of the place of action *and* if claims can be set up which are *only* admitted by the law of the place of effect.

value. This is most important whenever the place where the tort was committed and the place where the effect occurred are situated in different countries, and therefore that law which is the most favorable for the injured party is applicable with regard to the requirements and consequences of the tortious act.<sup>7</sup> In the United States, the prevailing view is that the *lex commissi loci* refers to the place where the effect took place (last-event rule).<sup>8</sup> However, in the Romance and other European countries, it is often assumed that the *lex commissi loci* refers to the place where an act was committed.<sup>9</sup> As stated at the outset, there is no uniform opinion in German and foreign literature and jurisdictions regarding private international law, and the same is true of so-called torts by broadcasting.<sup>10</sup>

Another difficulty which complicates the application of the above-mentioned principles of private international law to torts by television broadcasting arises during determination of what is meant by the place where an act was committed. In the case of a live transmission, one may decide that it refers to the place where the television broadcast was *actually produced*. One could also decide, however, that the broadcasting studio always constitutes the place where the act was committed,<sup>11</sup> especially in the case of so-called "canned programs"; that is, programs which were produced at some date prior to broadcast. On the other hand, the determination of the place where the effect took place does not raise any problems. It is the place where a program is received; it is where the television audience watches "comparative advertising" and gains the impression that a given well-known personality consumes a given product in preference to a competitive product.

When trying to apply the basic principles of private international law to solve the problem of which law is applicable to torts by television broadcasting, difficulties arise for two reasons:

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<sup>7</sup>Soergel-Siebert, *supra* note 5, at art. 12 n.48.

<sup>8</sup>Restatement of Conflicts § 145 (1971).

<sup>9</sup>The majority of Italian, Netherlands, Belgian, and French authors hold this view. Binder, *Zur Auflockerung des Deliktrechts*, 20 *Rabel Z* at 421, 427-28, 525 (1955) [hereinafter cited as Binder]. The French authors increasingly insist, however, that *only* the rights of the place of effect should apply. See 2 W. Battifol, *Droit international privé*, tit. IV, ch. 1, sec. I § 2 no. 560-61 (1971).

<sup>10</sup>Rabel, *Conflict of Laws II* at 335 (1947) asserts that the law applicable at the place of the editor and broadcasting unit should be exclusively applied. Other writers maintain that the injured party should be able to also appeal under the law of the place of effect instead of the law of the place of action if he has a justified interest in doing so. Soergel-Siebert, *supra* note 5, at art. 12 n.8; Binder, *supra* note 9, at 446. Some practical examples of "broadcasting offense" problems are presented in Binder, *id.*, at 403.

<sup>11</sup>German publications dealing with torts in the field of television broadcasting consider the transmitting room to be the place of action and the place where the television broadcast is received to be the place of effect *without* any differentiation being made. Soergel-Siebert, *supra* note 5, at art. 12 n.82.

1. There is no *uniform* international legal opinion as to whether the law of the place at which the tort was committed, or of that at which the effect occurred, is applicable to international torts.<sup>12</sup>

2. Even if the principles of private international law are applied, it is not possible in the case of torts by television broadcasting to determine unequivocally the place where the act was committed.

This analysis must therefore examine whether, because of the great cultural, political and social significance of direct satellite broadcasts,<sup>13</sup> the principles of private international law could be "enriched" by other aspects; that is to say, in addition to the conflict law on torts, other aspects would be considered as well, such as space-related aspects, to find a uniform solution tailored to the specific features of torts by television broadcasting. Such an attempt at a solution would be in keeping with recent trends—at least in German private-international-law literature—according to which the traditional concepts of the *lex commissi loci* and of the laws of the place of action and of the place of the effect are loosened in terms of their meaning and the status of tort determined in each individual case with special consideration for the sociological, economic and other conditions of the tortious act.<sup>14</sup>

In the case of torts by television broadcasting, specific aspects such as the following may have to be taken into account:

1. The effects of direct television broadcasting are *international* to a degree unknown to date; they approach being *universal*.

2. The combined audio-visual impressions on the individual viewer are more *intensive* than, for example, the impressions made by international short-wave radio programs.

3. Receiving countries with the most varied social and legal systems will be affected by *one* act to a much *larger extent* than in the case of short-wave radio broadcasts.

4. Because of the high cost of developing broadcasting satellites, there will probably be only a *few* countries which will be in a position to develop this advanced technology.

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<sup>12</sup>See also Ehrenzweig, Der Tatort im amerikanischen Kollisionsrecht der ausserverträglichen Schadenersatzansprüche, in 1 Festschrift für Rabel 655 (1954).

<sup>13</sup>U.N. G.A. Res. 2916/XXVII (1972).

<sup>14</sup>As to the problem of whether the place where the wrong is committed is the right point of departure, see Soergel-Siebert, *supra* note 5, at art. 12 n.21 fn.1; Binder, *supra* note 9, at 403; Bröcker, Möglichkeiten der differenzierten Regelbildung im internationalen Deliktrecht 1 (dissertation Munich 1967).

5. According to the Outer Space Treaty,<sup>15</sup> the exploration and use of space is to be carried on "for the benefit and in the interests of *all* countries, irrespective of their degree of economic or scientific development"<sup>16</sup> and "without discrimination of any kind, on a basis of equality."<sup>17</sup> (emphasis added)

6. The Convention on International Liability for Damage Caused by Space Objects.<sup>18</sup>

In view of the large magnitude of damage that could be caused by TV satellite broadcasts with their world-wide effects, and because of the potential virtual *monopoly* of the few countries that will have the financial and economic resources to develop such broadcasting satellites and decide on the contents of their programs, the idea of *maximum protection* against *acts causing damage* should be given early *priority* when discussing the question of which law shall be applicable to determine whether or not there has been an act requiring payment of damages. The *exclusive* applicability of the law of the *place where the tort was committed* would be least suited to meet the need for protection because, if the law of the country of transmission was the only law applicable, producers or sponsors of "canned" programs and commercials would probably choose a country of transmission where the legal requirements for the existence of a tortious act are favorable to them. It is conceivable that, similar to "tax haven" countries, there could in the future be "television haven" countries; that is, countries preferred by producers because, under the national legislation of such countries, an act requiring the payment of damages is made dependent on the existence of very specific preconditions, and certain protected interests are either not safeguarded or are less protected than in other countries. To avoid such a risk, the alternatives should be either (a) to apply exclusively the law of the country where the effect has taken place, or (b) to apply the law of either the State of transmission or the State where the effect has occurred that is the most favorable for the injured party.

The latter alternative has the practical disadvantage that it will probably be difficult to decide in each individual case which law is the most favorable for the injured party by simply comparing the law of the broadcasting country and that of the country of reception. Should the decisive factor be that, according to the law of the place of action, the amount of damages may in general be larger than that available under the law of the country of reception? How does a less clear-cut degree of fault in the law of the country of reception affect the determination if the national law of the broadcasting country provides for the possibility of claiming additional compensation, such as for intangible

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<sup>15</sup>Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, January 27, 1967, [1967] 18 U.S.T. 2410, T.I.A.S. No. 6347, 610 U.N.T.S. 205 (effective Oct. 10, 1967).

<sup>16</sup>*Id.* at art. I.

<sup>17</sup>*Id.*

<sup>18</sup>March 29, 1972, [1973] 24 U.S.T. 2389, T.I.A.S. No. 7762 (effective Oct. 9, 1973) [hereinafter cited as Convention].

damage? It would be a disadvantage of solution (a) if in individual cases the law of the broadcasting country was more favorable than that of the country of reception.

In the interest of legal security and unambiguousness, and in particular to avoid practical legal determinations as to which law is more favorable for the injured party, it is the author's opinion that solution (a) should be chosen; that is, the law of the country of reception (place of the effect) should be the only one applicable. An advantage of this choice is that such a provision has for some time been a recognized principle in the conflict of laws on torts in some countries and the above-mentioned aspects are taken into full account there, which would not be the case if the law of the place of action was exclusively applicable.

As to the Convention on International Liability for Damage Caused by Space Objects,<sup>19</sup> it is clear that the Convention cannot be applied to the type of damages under discussion here because the Convention only covers corporal damages and not intangible or inconsequential damages.<sup>20</sup>

The solutions described above correspond to the special situation of torts by television if television programs are intentionally broadcast to one particular country or to an intended group of countries. In such a case, the population or society of the country or countries deserve protection. The populations involved can insist that their legal systems be respected and be made the bases for assessing whether or not a tortious act has been committed. The broadcasting country in such a case must accept the risk of the television programs' contents being assessed as tortious by the law of the country of reception.

However, it is questionable whether the principle of exclusive applicability of the law of the country of reception should also be adhered to in the case of spill-over, the technically unavoidable illumination of marginal zones by a broadcasting satellite.<sup>21</sup> When spill-over occurs, for technical reasons, programs are received "en passant" in a country for which they were not intended. It is doubtful whether in such a case the broadcasting country must comply with the possibly more rigorous law of the country in which the programs are only received "en passant". This would, in practice, be almost tantamount to a kind of "absolute liability", and there are practical reasons for asserting the position that all broadcasting countries must, from the beginning, consider the risks of spill-over. They will be aware of which countries with their respective laws will be affected and which of those countries are unlikely to "offer resistance" to the programs of the broadcasting country. The broadcasting country creates what might be called a "source of increased danger" in a field of technological development which, for financial and economic reasons, cannot be created by all countries with equal efforts. It is hence

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<sup>19</sup>*Id.*

<sup>20</sup>*Id.* at art. I.

<sup>21</sup>See Kolossov, Legal Consequences of "Spill-Over" Resulting from Satellite Direct Broadcasting, Proc. 15th Colloquium on the Law of Outer Space 73 (1973).

quite reasonable to argue that even in cases of spill-over, the legislation of the country of reception should be applicable and not that of the place of action. It is, however, also possible to hold the opposite view, namely that such an "absolute liability" is an unjustified "inconvenience" for a country which is thus being "punished" for its leading position in the use of outer space. The intention of this paper is not to provide a definite assessment and solution of this problem area, but rather to point out the tort-related legal problems involved in direct broadcasting.

It is uncertain whether there are any prospects for the above-mentioned principles becoming internationally recognized, for instance, by being passed as a resolution or even by being included in an international agreement on the principles for regulating legal problems involved in direct broadcasting by satellite. A problem similar to the one dealt with in this paper was raised in connection with the question of which law should be applicable in the event of damage caused by space objects—the law of the country which owns the space object, or of the country which has launched it, or from whose territory it was launched, or of the country on whose territory the damage occurred. In Article XII of the Convention on International Liability for Damage Caused by Space Objects, the contracting parties have only agreed that such damage shall be compensated in accordance with international law and the principles of equity and justice.<sup>22</sup> The view that the laws of the *place of the effect* should be applicable was *not accepted*. Consequently it seems optimistic to assume that the principles described above will be incorporated in an international agreement or an international resolution on direct television broadcasting. However, at its XVIIth General Conference, the General Assembly of UNESCO in its XXXth Plenary Session on 15 November 1972, at the recommendation of the Communication Commission, adopted the "Declaration of Guiding Principles on the Use of Satellite Broadcasting for the Free Flow of Information, the Spread of Education and Greater Cultural Exchange".<sup>23</sup> Article X of that Declaration states that: "In the preparation of programmes for direct broadcasting to other countries, account shall be taken of differences in the national laws of the countries of *reception*."<sup>24</sup> (emphasis added)

This emphasis on the national laws of the *countries of reception* in the UNESCO Declaration might be a topical point of departure for further discussion of this problem in the terms outlined above.

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<sup>22</sup>Convention, *supra* note 18, at art. XII.

<sup>23</sup>U.N. Doc. A/AC.105/109/Corr. 1 (1973), and reprinted in 1 J. Space L. 161 (1973).

<sup>24</sup>*Id.*

**DIRECT TELEVISION BROADCASTING BY SATELLITES:  
SOME ALTERNATIVES IN CASE OF AN IMPASSE**

*Dr. Stephen Gorove\**

The United Nations Working Group on Direct Broadcast Satellites, which was established under a General Assembly resolution,<sup>1</sup> has been studying and reviewing *inter alia* the legal and political problems related to direct satellite broadcasting. The purpose of this presentation is to review briefly some of the issues of law and policy on which the Working Group has found a general measure of agreement and those on which it has reached no such consensus.<sup>2</sup> With respect to the latter, some alternatives will be suggested.

Looking at the deliberations of the Working Group we find that it developed a number of principles which, in its view, should govern direct broadcasting by satellites. Among these were the principle that direct television broadcasting by satellites should serve the purposes of maintaining international peace and security through developing mutual understanding and strengthening friendly relations and cooperation among all states and peoples, assisting in social and economic development, particularly in the developing countries, facilitating and expanding the international exchange of information, promoting cultural exchanges and enhancing the educational level of peoples of various countries.<sup>3</sup>

More specifically, the Working Group was in agreement that all states should have an equal right to carry out direct television broadcasting by satellite and that they should be entitled to enjoy and share in the benefits of activities in the field of direct television broadcasting by satellite, irrespective of their degree of economic or scientific development and without discrimination of any kind.<sup>4</sup>

Furthermore, the Working Group shared the view that international cooperation is a touchstone for the development and use of direct television broadcast by satellite and

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This article is an elaboration of the author's presentation at the Seventeenth Colloquium on the Law of Outer Space In The Hague in October 1974 and of his remarks before a regional conference on Direct Broadcast Satellites and Space Law held at the University of Mississippi Law Center on November 1, 1974.

<sup>1</sup>S. A. Res. 2453 B/XXIII (1968).

<sup>2</sup>For a recent, detailed account, see Report of the Working Group on Direct Broadcast Satellites on the Work of its Fifth Session, doc. A/AC. 105/127 (1974). See also Report of the Legal Sub-Committee on the Work of its Fourteenth Session, doc. A/AC. 105/147, Annex II (1975).

<sup>3</sup>*Id.* at 10.

<sup>4</sup>*Id.* at 11.

that States and regional international organizations, both governmental and non-governmental, particularly the United Nations, should encourage and cooperate in efforts to strengthen the capability of interested states, including in particular the developing countries, to make use of direct television broadcasting by satellite.

Also, the Working Group had little difficulty in agreeing that States should recognize the desirability of creating conditions favorable to the promotion of international cooperation among broadcasters and regional broadcasting associations as a means of advancing the foregoing objectives. In addition, it was felt that direct television broadcasting by satellite should be conducted within the technical parameters and procedures established by the International Telecommunications Convention and its Radio Regulations and that practical approaches to the use of the technology of direct television broadcasting by satellite on a regional or international cooperative basis should be given particular consideration by states having shared needs and mutual interests.<sup>5</sup>

The Working Group was also of the general view that states should bear international responsibility for activities in the field of direct broadcast by satellite in accordance with Article VI of the Outer Space Treaty. Similarly, the Working Group was in agreement that when direct television broadcasting by satellite is conducted by an international intergovernmental organization, responsibility for compliance with principles in this field of activity, as appropriate, should be borne both by the international organization and by the states participating in such organization.<sup>6</sup>

Unfortunately, beyond the above enumerated general principles governing direct television broadcasting by satellites, there has been little consensus with respect to more specific provisions, including such basic questions as those relating to prior consent, spill-over, program content, illegality of broadcasts, right and duty to consult and other lesser matters.

Among the areas of disagreement the most crucial one related to the question of prior consent. While many delegations insisted that no country should undertake direct satellite broadcasting to another country without prior consent of the latter, some delegations asserted that the principle of prior consent was unacceptable.

The states advocating prior consent base their arguments on the principles of sovereignty and on the Revised Radio Regulations adopted by the World Administrative Conference for Space Telecommunication in 1971. States opposed to the principle of prior consent base their arguments *inter alia* on the principles of free flow of information and freedom of exchange of ideas and point out that any power of veto which a receiving state may have would be inconsistent with the Universal Declaration of Human Rights. They also point out that acceptance of the principle of prior consent would infringe upon the sovereign rights of states to maintain their domestic public media systems free from

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<sup>5</sup>*Id.* at 11 and 12.

<sup>6</sup>*Id.*, at 13.

control or restriction imposed by other states and would cause serious difficulties to a country's domestic broadcasting system if it were to apply to broadcast spill-over.<sup>7</sup>

Even a brief glance at the diametrically opposed views which have been touched upon in the foregoing discussion seems to indicate that a long and hard road is likely to lie ahead of the future deliberations of the Working Group if some measure of *rapprochement* is to be achieved.

The most fundamental disagreement relates to the question of whether or not prior consent by the receiving state is essential before direct television broadcasting can be sent to a particular country. Since many states are unlikely to change their position with respect to the question of prior consent, it would appear that the best procedure for the Working Group would be at this stage of our development to deal with problems which are expected to arise in the immediate future. This, according to all indications, would not include the problem of direct television broadcasting to home receivers inasmuch as according to our current expectations there will be no such broadcast prior to 1985.<sup>8</sup> Therefore, it would seem better to concentrate on the problems which would arise in connection with community instead of individual home receivers. Community receivers would normally be under some governmental supervision or control in most, if not all, states which insist on prior consent. Hence, such states could internally regulate the operation and use of their community receivers without interference by other states and, if they felt it necessary, they could exclude reception of unwanted telecasts. In the same manner such states could probably also control the distribution of augmented, or if the technology should develop, unaugmented (but still specially designed) home receivers for the same purpose.

To be sure, the above described system of unilateral exclusion is not preferable to an international bilateral or multilateral agreement on direct television broadcasting by satellites but it could conceivably satisfy both the advocates and opponents of prior consent in a situation where the differences are irreconcilable. Obviously such a system runs counter to the idea of the free flow and exchange of information and the right to receive and impart such information which is a fundamental human right. However, it is hoped that such exclusion of direct foreign television broadcast by satellites would be used only very sparingly and with great reluctance by states only in cases where most substantial national security interests are affected or threatened.

After a decade or so when sufficient experience has been obtained through the use of direct television broadcasts by satellites to community receivers and various forms of bilateral and multilateral agreements have been concluded, the Working Group would be hopefully in a better position to look at the problems associated with individual home reception.

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<sup>7</sup>*Id.* at 13-15.

<sup>8</sup>See remarks made by U. S. representative Lee T. Stull before the U. N. Working Group on Direct Broadcast Satellites on March 13, 1974, 70 Dept. St. Bull. 445 at 447 (1974).

**DIRECT TELEVISION BROADCASTING BY SATELLITES AND  
FREEDOM OF INFORMATION**

*Dr. Manfred A. Dausen\**

The new technology of direct television broadcasting by artificial earth satellites, defined by the World Administrative Radio Conference for Space Telecommunications in 1971 as "radiocommunication service in which signals transmitted or retransmitted by space stations are intended for direct reception by the general public,"<sup>1</sup> is on the point of entering its experimental phase. The first international cooperative project using the experimental Applications Technology Satellite F (ATS-F) will be undertaken on the basis of an agreement entered into by the USA and India in 1969.<sup>2</sup> Likewise, a joint venture between the USA and Canada using the first Communications Technology Satellite (CTS) is planned for 1975.<sup>3</sup> Japan is planning to launch a medium-size experimental broadcast satellite in 1976 or 1977 with a view toward conducting experiments in preparation for the future use of these techniques.<sup>4</sup> Direct satellite transmission to existing unaugmented home receivers on an operational basis will, however, not become available before the mid-eighties.<sup>5</sup>

The revolutionarily novel dimension of direct television broadcasting from outer space platforms and its impact on mass communications may illustratively be pointed out by a dual fact:<sup>6</sup>

a) Whereas traditional point-to-point transmission is limited to a coverage area of approximately 7,500 to 10,000 square miles, an area which may be enlarged to 150,000 square miles by means of airplanes, direct television broadcasting covers a surface of about 1,000,000 square miles. Three geostationary satellites placed equidistantly in the equatorial plane could transmit to approximately 90 per cent of the earth's surface.

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<sup>1</sup>Partial Revision of the Radio Regulations, Geneva, 1971 and Final Protocol: Space Telecommunications, July 17, 1971, [1972] 23 U.S.T. 1527, 1573, T.I.A.S. No. 7435 at 47 (effective Jan. 1, 1973) [hereinafter cited as Radio Regulations].

<sup>2</sup>Hearings on S. 2955 Before the Senate Comm. on Aeronautical and Space Sciences, 93rd Cong., 2nd Sess., at 768 (1974).

<sup>3</sup>*Id.* at 668.

<sup>4</sup>Dausen, *La télévision directe par satellites et le droit international*, 1973 *Revue Générale de l'Air et de l'Espace* 380; *cf.* U.N. Doc. A/AC.105/127 ¶122 (1974).

<sup>5</sup>U.N. Doc. A/AC.105/51 ¶9 (1969).

<sup>6</sup>Dersi, *Outer Space—TV Law as Jus Speciale*, Proc. 16th Colloquium on the Law of Outer Space 60, 60-61 (1974).

b) Contrary to pure sound transmissions, the visual presentation of television broadcasts has not only a far stronger effect on the public at large, but is also unimpeded by linguistic barriers.

Considering that the new techniques essentially escape the national control of the receiving states, direct television broadcasting from outer space raises new and important legal problems in several fields such as national sovereignty, international responsibility and liability, the protection of copyrights, and the rights of interpretative artists and performers. The most crucial issue arising in this context is, however, that of the relationship between the individual's fundamental right to the free flow of information and national sovereignty of states over their airspace, including the controversial concept of sovereign rights over the ether space.<sup>7</sup>

The community of nations has dealt with this question for several years. In 1969 the United Nations, in pursuance of General Assembly resolution 2453 B (XXIII),<sup>8</sup> established a Working Group on Direct Broadcast Satellites (hereinafter called: Working Group) which has so far held five sessions. Similarly, the United Nations Educational Scientific and Cultural Organization (hereinafter UNESCO), in accordance with its statutory purpose of contributing to peace and security by promoting collaboration among the nations through education, science and culture, has given attention to the legal and deontological questions involved.

#### I. THE UNESCO DECLARATION OF PRINCIPLES

On November 15, 1972, the General Conference of the UNESCO adopted at its 17th session a basic declaration entitled "Declaration of Guiding Principles on the Use of Satellite Broadcasting for the Free Flow of Information, the Spread of Education, and Greater Cultural Exchange" (hereinafter, the Declaration).<sup>9</sup> The elaboration of this instrument goes back to 1962 when the General Conference authorized the Director General "to undertake studies on the consequences which the new techniques of communication by artificial satellites might have on the achievement of UNESCO's objectives."<sup>10</sup>

The Declaration recognizes in article V (1) that

[t]he objective of satellite broadcasting for the free flow of information is to ensure the widest possible dissemination, among the peoples of the world, of news of all countries, developed and developing alike.

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<sup>7</sup>Goedhuis, Preliminary Report and Questionnaire on the Legal Aspects of the Use of Direct Broadcasting Satellites, 56th Conf. of the Int'l L. Ass'n 6 (1974-75).

<sup>8</sup>U.N. G.A. Res. 2453B/XXIII (1968).

<sup>9</sup>U.N. Doc. A/AC.105/109/Corr. 1 (1973), also printed in 1 J. Space L. 161 (1973) [hereinafter cited as the Declaration].

<sup>10</sup>12 U.N. ECOSOC, Res. 5.112 (1962).

Article IX (1) specifies the scope of the principle by proclaiming it

necessary that States, taking into account the principle of freedom of information, reach or promote prior agreements concerning direct satellite broadcasting to the population of countries other than the country of origin of the transmission.

The maxim of "free flow of information" is, however, subject to far-reaching restrictions as to the contents of the information to be disseminated. Notably, "[s]atellite broadcasting shall respect the sovereignty and equality of all States"<sup>11</sup> and "shall be apolitical and conducted with due regard for the rights of individual persons and non-governmental entities, as recognized by States and international law."<sup>12</sup> The objective of satellite broadcasting shall be to provide "a new means of disseminating knowledge and promoting better understanding among peoples,"<sup>13</sup> which requires that account be taken, *inter alia*, of "the objectives of peace, friendship and co-operation between Peoples, and of economic, social and cultural progress."<sup>14</sup>

Despite the considerable factual weight of this declaration as an expression of a uniform *opinio juris nationum*, it must be emphasized that resolutions of international organizations do not constitute applicable rules of international law but may, under the *bona fides* clause, only in exceptional circumstances be considered as binding upon the states which voted for them.<sup>15</sup>

## II. THE PROPOSALS SUBMITTED TO THE UN WORKING GROUP

Contrary to the UNESCO, the United Nations has so far not succeeded in reaching a consensus of a majority of nations on this highly ticklish issue. Notably, in its fifth and last session which was held early in the spring of 1974, the views expressed by the several delegations were largely divergent as to both the existence and scope of a right to free information and its implementation with regard to direct television broadcasts.

The discussions on political and legal implications were based on four major working papers which covered various concepts to be taken into account while formulating appropriate principles and which contained detailed proposals for regulation in a future agreement or agreements:

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<sup>11</sup>Declaration, *supra* note 9, at art. II(1).

<sup>12</sup>*Id.* at art. II(2).

<sup>13</sup>*Id.* at art. IV(1).

<sup>14</sup>*Id.* at art. IV(2).

<sup>15</sup>O. Asamoah, The Legal Significance of the Declarations of the General Assembly of the United Nations 70, 159, 243 (1966); Meyer, Der Weltraumvertrag, 16 Zeitschrift für Luftrecht und Weltraumrechtsfragen 65, 69 (1967); Virally, La valeur juridique des recommandations des organisations internationales, 1956 Annuaire Français de Droit International 66.

1. Draft Principles governing the Use by States of Artificial Earth Satellites for Direct Television Broadcasting submitted by the delegation of the Soviet Union pursuant to General Assembly resolution 2916 (XXVII) and based on an earlier submitted Soviet Draft Convention of August 9, 1972.<sup>16</sup>

2. Draft Principles governing Direct Television Broadcasting by Satellite jointly submitted by Canada and Sweden and based on a joint Working Paper of May 2, 1973.<sup>17</sup>

3. Draft Principles on Direct Broadcast Satellites submitted by the delegation of the United States on March 11, 1974.<sup>18</sup>

4. Working Paper listing the problems involved in formulating principles governing the use by satellites for direct television broadcasting along with suggestions for the solution of such problems, submitted by Argentina and serving as a basis for a Draft International Convention on Direct Broadcasting by Satellite submitted by Argentina on July 5, 1974.<sup>19</sup>

The four above working papers may, with a view to the concept of "free flow of information", be evaluated as follows:

1. The Soviet proposal<sup>20</sup> clearly reflects the misgivings of Communist states and a certain number of developing countries about their possibly being discriminated against by the rapid advancement of space science and technology.

While not recognizing a right to free information across the national borderlines, it calls upon states to "carry out direct television broadcasting by means of artificial earth satellites to foreign States only with the express consent of the latter."<sup>21</sup> As to program contents, there should be excluded from television programs transmitted by means of artificial earth satellites "any material which is detrimental to the maintenance of international peace and security, which publicizes ideas of war, militarism, national and racial hatred and enmity between peoples, which is aimed at interfering in the internal domestic affairs of other States, or which undermines the foundations of the local

<sup>16</sup>U.N. Doc. A/AC.105/WG.3(V) CRP.1 (1974) and Corr. 1, reprinted in U.N. Doc. A/AC.105/127 (1974), Annex II [hereinafter the Soviet proposal].

<sup>17</sup>U.N. Doc. A/AC.105/WG.3/L.4 (1974), reprinted in U.N. Doc. A/AC.105/127 (1974), Annex III [hereinafter the Canada/Sweden proposal].

<sup>18</sup>U.N. Doc. A/AC.105/WG.3(V) CRP.2 (1974), reprinted in U.N. Doc. A/AC.105/127 (1974), Annex IV, and also in Hearings on S. 2955 Before the Senate Comm. on Aeronautical and Space Sciences, 93rd Cong., 2nd Sess., at 776-78 (1974) [hereinafter the United States proposal].

<sup>19</sup>U.N. Doc. A/AC.105/WG.3(V) CRP.3 (1974), reprinted in U.N. Doc. A/AC.105/127 (1974), Annex V [hereinafter the Argentine Draft Principles]; U.N. Doc. A/AC.105/134 (1974) [hereinafter the Argentine Draft Convention].

<sup>20</sup>Soviet proposal, *supra* note 16.

<sup>21</sup>*Id.* at art. V.

civilization, culture, way of life, traditions or language.”<sup>22</sup> Furthermore, advertising and other commercial broadcasts would require specific agreements between the States concerned.<sup>23</sup>

Such broadcasts which are carried out without the express consent of the foreign state concerned or which contain material to be excluded from programs under the above principles should be regarded as illegal and giving rise to the international liability of the broadcasting state.<sup>24</sup>

2. In contradistinction to the Soviet proposal, the United States proposal of draft principles<sup>25</sup> does not include a provision that consent must be obtained by a broadcasting state from the receiving states prior to the transmission. On the contrary, prior consent, the major issue in all official debates, is decisively rejected by the United States, the essential considerations being opposition to government censorship of program content and interference with the maxim of free flow of information and ideas as, *inter alia*, enunciated in article 19 of the Universal Declaration of Human Rights.<sup>26</sup>

The principle of freedom of information is invoked in article IV of the United States proposal which provides:

Such activity [international direct television broadcasting] should also be conducted in a manner which will encourage and expand free and open exchange of information and ideas while taking into account differences among cultures and maximizing the beneficial use of new space communications technologies.

Freedom of information is, however, only one of the guiding principles which should govern broadcasting activities. It is embedded into the whole of objectives and purposes which the new techniques should serve and among which are invoked “the maintenance of international peace and security with a view to enhancing co-operation, mutual understanding and friendly relations among all States and peoples,”<sup>27</sup> and, more specifically, the sharing in benefits derived from this activity by all States.<sup>28</sup>

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<sup>22</sup>*Id.* at art. IV.

<sup>23</sup>*Id.* at art. III.

<sup>24</sup>*Id.* at art. VI.

<sup>25</sup>United States proposal, *supra* note 18.

<sup>26</sup>Statement by U.S. Representative at the Fifth Session of the U.N. Working Group on Direct Broadcast Satellites, Press Release at Geneva, Switzerland, Mar. 13, 1974. Statement reprinted in Hearings on S. 2955 Before the Senate Comm. on Aeronautical and Space Sciences, 93rd Cong., 2nd Sess., at 776-78 (1974). Cf. Galloway, Direct Broadcast Satellites, Proc. 17th Colloquium on the Law of Outer Space, 3 (1975); Galloway, Direct Broadcast Satellites and Space Law, 3 J. Space L., 30 (1975).

<sup>27</sup>United States proposal, *supra* note 18, at art. III.

<sup>28</sup>*Id.* at art. V.

3. The joint Canada/Sweden proposal<sup>29</sup> and the Argentine proposal<sup>30</sup> take an intermediary stand as to the compatibility of free international television broadcasting with the exigencies of national sovereignty and the doctrine of non-intervention in the internal affairs of States.

While the belief is expressed that "direct television broadcasting by satellite must be governed by international law so as to ensure the free flow of communications on a basis of respect for the sovereign rights of States and the principle of non-intervention and equality,"<sup>31</sup> and that "[s]tates shall promote the free flow of social communication and shall ensure the veracity of information,"<sup>32</sup> such activities shall not "in any manner impair the rights of States, of the family and of the individual."<sup>33</sup> The Argentine Draft Principles comment in juridical terms that "[t]he principle of freedom of information and free flow of communications is not incompatible with the adoption of additional principles designed to harmonize the rights of States and to protect the economic, social and cultural values of their peoples."<sup>34</sup>

The prior consent requirement, respectively incorporated into articles V and VI of the Canada/Sweden proposal and article 10 of the Argentine Draft Convention, is regarded as essential in order to harmonize the conflicting principles. The Argentine Draft Principles comment thereon:

Prior consent allows for the solution of many questions and reserves the solution concerning the program content.

The freedom enshrined in the 1967 Treaty on Outer Space is not an unlimited freedom, but is subject to international co-operation, which determines the legality or illegality of any activity conducted in space or in the sphere of space communications.

Consent implies participation in scheduled activities.<sup>35</sup>

Like the Soviet Draft Convention, the Argentine Draft International Convention provides for specific agreements for international commercial advertising to which the freedom of information clause is not considered basically applicable.<sup>36</sup>

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<sup>29</sup>Canada/Sweden proposal, *supra* note 17.

<sup>30</sup>Argentine Draft Principles, *supra* note 19.

<sup>31</sup>Canada/Sweden proposal, *supra* note 17, preamble and art. 2.

<sup>32</sup>Argentine Draft Convention, *supra* note 19, at art. VIII(1).

<sup>33</sup>*Id.*

<sup>34</sup>Argentine Draft Principles, *supra* note 19, at ¶13.

<sup>35</sup>*Id.* at ¶14.

<sup>36</sup>Argentine Draft Convention, *supra* note 19, at art. XX.

## III. THE DISCUSSIONS IN THE UN WORKING GROUP

Based essentially on the four above-cited working papers, the discussions within the framework of the UN Working Group revealed similar disagreement among the delegates on this most controversial issue. As the Working Group's report on its fifth session stated, most delegations were of the view that direct television broadcasting by satellites should be conducted bearing in mind the need to ensure the flow of information on a basis of strict respect for the sovereign rights of States and for the right of all peoples to preserve their culture. The opposite position was taken by the delegations of Communist states and a certain number of developing countries, *i.e.*, that the concept of "free flow of information" does not constitute an applicable principle of international law and that states should, in the matter of international exchange of information, act in accordance with a maxim of strict observance of the sovereign rights of states. As an intermediary position, the view was expressed that direct television broadcasting activities should be conducted in a spirit of cooperation so as to reconcile the sovereign rights of states to the need for ensuring the free and open exchange of information and ideas among nations.<sup>37</sup>

Prior consent, including program participation, and program contents of satellite-transmitted broadcasts were the two main subjects of debate during the Working Group's fifth session.<sup>38</sup>

## A. Prior Consent and Participation

The requirement of prior consent—which signifies that no country should engage in direct satellite broadcasting to other countries without prior authorization by the latter—was emphasized by most delegations to the Working Group. It was upheld that prior consent, as already incorporated in article 7, regulation 428 A of the Revised Radio Regulations adopted by the 1971 World Administrative Conference for Space Telecommunications,<sup>39</sup> would be most appropriate to satisfy the recognized rights of states to regulate their communications systems and to decide in light of social, political, economic, cultural and other considerations the type of broadcasting service they desire. It would, furthermore, be in harmony with international legislation and its interpretation of the free flow of communications. The right of participation in broadcasting activities involving coverage of other states' territory was qualified as a necessary corollary of the prior consent clause.

The opposite view was expressed by a minority of delegations that the prior consent clause would be unacceptable to the community of nations as it would seem to undermine and regressively depart from the vital concepts of freedom of information and exchange of ideas which would be essential to a better understanding among states and, hence, for the maintenance of international peace and security. State sovereignty was

<sup>37</sup>U.N. Doc. A/AC.105/127 ¶132 (1974).

<sup>38</sup>Goedhuis, *supra* note 7, at 13 *et seq.*

<sup>39</sup>Radio Regulations, *supra* note 1, 23 U.S.T. at 1648, T.I.A.S. No. 7435 at 122.

interpreted by the opponents to the prior consent rule as comprising every state's right to maintain its domestic public media system free from control or restrictions imposed by others, *i.e.*, the receiving states. While article 19 of the Universal Declaration of Human Rights<sup>40</sup> was invoked as support, the ITU Radio Regulations<sup>41</sup> were not considered applicable as they relate merely to the technical aspects, but not the substance, of direct broadcast satellite systems.

An intermediary view was expressed to establish a clear distinction between direct television broadcasts by satellite specifically intended for foreign states and those resulting from unintentional spill-over. The intermediary view was that the prior consent requirement should only apply to the former category, whereas only the latter should be covered by the scope of the ITU Radio Regulations.<sup>42</sup>

#### B. Program Content

During the Working Group's discussions, close consideration was given to the question of desirability of formulating separate principles of program content as well as to the question of internationally admissible program content itself. For the supporters of the prior consent rule, the issue was one of the considerations on which prior consent should be given or withheld. For the opponents, content requirements were considered as a suitable instrument to fill the regulatory gap which results from the lack of internationally recognized procedures for efficient control of broadcasts by receiving states.

One opinion set forth was that there should be, regardless of the regime of authorization, a specific obligation to exclude from the scope of international direct television broadcasting certain types of programs, primarily any material detrimental to the maintenance of international peace and security or which publicizes war-mongering ideas, militarism, national and racial hatred and enmity between peoples, or interferes in the domestic internal affairs of other states. Another opinion expressed was the opposite view that restrictions on program content would infringe upon the sovereign rights of states to administer their domestic media systems without content interference from other states. The inclusion of a specific provision relating to program contents, it was argued, would be tantamount to dictating to states what should or should not be included in their programs. Among the supporters of the prior consent rule, it was furthermore upheld that the requirement of prior consent would render program content provisions nugatory, particularly since the principle of prior consent would be complemented by that of participation, which would necessarily pre-suppose an agreement on program content.<sup>43</sup>

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<sup>40</sup> 1948 U.N. Y.B. on Human Rights 459.

<sup>41</sup> Radio Regulations, *supra* note 1.

<sup>42</sup> U.N. Doc. A/AC.105/127 ¶42 (1974).

<sup>43</sup> *Id.* at ¶49.

Partly, a differentiation was made between commercial advertising and other types of programs so that only the former should require specific program content agreements between the states concerned.<sup>44</sup>

#### IV. A LEGAL ANALYSIS

The question of freedom of information in the field of direct television broadcasting by satellites can be analyzed and evaluated from two points of view, that of the sovereign rights of states, and that of the individual's right to the unobstructed flow of communications.

National sovereignty is generally considered as a necessary condition for the existence of states, and, hence, a basic concept of both the doctrine of state and that of public international law. It is traditionally defined as "supreme authority, an authority which is independent of any other earthly authority."<sup>45</sup> It may be recalled that the notion of sovereignty has never become, even at the outset of the space age, a controversial issue although it was discussed in somewhat geographical terms of where airspace ends and outer space begins.<sup>46</sup>

However, the concept of supreme and absolute authority is no longer acceptable in national as well as international law, which shows an increasing tendency to admit of certain restrictions on states' power. The recognition by the international legal order of basic human rights and freedoms is a main accomplishment of our century, particularly its post-war period,<sup>47</sup> and is an essential element of what is called "the new international law."<sup>48</sup>

Freedom of information, a fundamental right of the individual, is recognized by the domestic legal order of an overwhelming majority of states. The United States Constitution, *e.g.*, proclaims in its first amendment the freedom of speech and the freedom of the press,<sup>49</sup> freedoms which, according to the decisions of the United States Supreme Court, encompass the freedom of broadcasting.<sup>50</sup> This constitutional provision is *inter alia* implemented by the Freedom of Information Act of 1966.<sup>51</sup>

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<sup>44</sup>*Id.* at ¶150.

<sup>45</sup> Oppenheim & Lauterpacht, *International Law—A Treatise* 115 (7th ed. 1952); *cf.* A. Verdross, *Völkerrecht* 7 (5th ed. 1964).

<sup>46</sup>M. Dausès, *Die Grenze des Staatsgebietes im Raum* 14 (1972); *cf.* Galloway, *supra* note 26.

<sup>47</sup>*See* U.N. Charter arts. 13, 55, 56, 62, 68 and 76c.

<sup>48</sup>A. Alvarez, *Le droit international nouveau* (1959); W. Friedmann, *The Changing Structure of International Law* 58 (1964).

<sup>49</sup>U.S. Const. amend. I.

<sup>50</sup>M. Forkosch, *Constitutional Law* § 330 (1969).

<sup>51</sup>5 U.S.C. § 1002 (1966).

The Fundamental Law of the Federal Republic of Germany enunciates the right of everyone

to freely express and disseminate his opinion verbally, in writing and by images and to inform himself unimpededly from generally accessible sources. The freedom of the press and the freedom of reporting by broadcasting and film are guaranteed. Censorship does not take place.<sup>52</sup>

These basic human rights meet with barriers only "in the provisions of the general laws, the legal provisions for the protection of youth and the right of personal honour."<sup>53</sup>

Among the Communist states, article 125 of the Constitution of the USSR guarantees the freedom of expression and the press.<sup>54</sup>

In international law the principle of freedom of information is to be found in four major instruments. The Universal Declaration of Human Rights, adopted on December 10, 1948, by the United Nations General Assembly, proclaims in article 17 everyone's right "to freedom of thought and expression; this right shall include freedom . . . to seek, receive and impart information and ideas by any means and regardless of frontiers."<sup>55</sup> However, resolutions of international organizations do not constitute applicable norms of international law.<sup>56</sup>

The European Convention for the Protection of Human Rights and Fundamental Freedoms,<sup>57</sup> signed at Rome on November 4, 1950 by the member States of the Council of Europe, is particularly noteworthy insofar as it entitles "any person, non-governmental organization or group of individuals" to lodge complaints to a specifically established European Commission of Human Rights against any State party having recognized the competence of the Commission to receive such petitions.<sup>58</sup> Article 10(1) of the Convention recognizes, subject to certain conditions and restrictions which might be necessary in the interest of national security and public safety, for the protection of health and morals, and of the reputation or rights of others,

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<sup>52</sup>Fundamental Law of the Federal Republic of Germany, art. 5 ¶1.

<sup>53</sup>Fundamental Law of the Federal Republic of Germany, art. 5 ¶2. See Schmidt, Bleibtrau & Klein, *Kommentar zum Grundgesetz für die Bundesrepublik Deutschland* 190 (3rd ed. 1973).

<sup>54</sup>Kotok, *Le droit constitutionnel soviétique*, in *Principes du droit soviétique* 99 (P. Romachkine ed.).

<sup>55</sup>1948 U.N. Y.B. on Human Rights 459.

<sup>56</sup>See O. Asamoah, *supra* note 15; Bindschedler, *La délimitation des compétences des Nations Unies*, 108 *Recueil des Cours de l'Académie de Droit Int'l* 446 (1963); Johnson, *The Effect of Resolutions of the General Assembly of the U.N.*, 32 *Brit. Y.B. Int'l L.* 121 (1955-56); Meyer, *supra* note 15; Virally, *supra* note 15.

<sup>57</sup>1950 U.N. Y.B. on Human Rights 418-26.

<sup>58</sup>*Id.*, art. 25(1) at 423.

the right to freedom of expression. This right shall include freedom to hold opinions and to receive and impart information and ideas without interference by public authority and regardless of frontiers.<sup>59</sup>

On a world-wide level, the International Covenant on Civil and Political Rights,<sup>60</sup> adopted and opened for signature, ratification and accession by General Assembly resolution 2200 A (XXI) of December 16, 1966, but which is not yet in force, proclaims in words similar to those of the European Convention the fundamental right of everyone

to freedom of expression; this right shall include freedom to seek, receive and impart information and ideas of all kinds, regardless of frontiers, either orally, in writing or in print, in the form of art, or through any other media of his choice.<sup>61</sup>

Conditions on the exercise of these rights may only be provided by law as necessary

- (a) For respect of the rights or reputations of others;
- (b) For the protection of national security or of public order (*ordre public*), or of public health or morals.<sup>62</sup>

An optional protocol to the Covenant which provides, like the European Convention, for a right of complaint by individuals after exhaustion of available local remedies, has also not yet entered into force.<sup>63</sup>

A specific Draft Convention on Freedom of Information has been on the agenda of the United Nations General Assembly since its 14th session. The Third Committee adopted its preamble and article 1 at the 14th session; at the 15th session, article 2 was adopted; and at the 16th session articles 3 and 4 were adopted. From the 17th session on, the Third Committee has not been able to continue its consideration of the Draft.<sup>64</sup>

This Draft Convention, which was a working paper before formation of the Working Group on Direct Broadcast Satellites,<sup>65</sup> declares the following guiding principles:

- (a) Each Contracting State undertakes to respect and protect the right of every person to have at his disposal diverse sources of information;

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<sup>59</sup>*Id.* at 421.

<sup>60</sup>20 Y.B. of the U.N. 423-32 (1966).

<sup>61</sup>*Id.*, art. 19(2) at 426.

<sup>62</sup>*Id.*, art. 19(3) at 426.

<sup>63</sup>*Id.* at 431. *See* arts. 1, 2, 4 and 5 of the Protocol.

<sup>64</sup>U.N. Doc. A/7164 (1968) and Annexes I and II.

<sup>65</sup>U.N. Doc. A/AC.105/WG.3/L.2 (1974).

(b) Each Contracting State shall secure to its own nationals, and to such of the nationals of every other Contracting State as are lawfully within its territory, freedom to gather, receive and impart without governmental interference, save as provided in article 2, and regardless of frontiers, information and opinions orally, in writing or in print, in the form of art or by duly licensed visual or auditory devices.<sup>66</sup>

Article 2(1) points out that the exercise of those freedoms carries with it duties and responsibilities. That exercise, however, may

be subject only to such necessary restrictions as are clearly defined by law and applied in accordance with the law in respect of: national security and public order (*ordre public*); systematic dissemination of false reports harmful to friendly relations among nations and of expressions inciting to war or to national, racial or religious hatred; attacks on founders of religions; incitement to violence and crime; public health and morals; the rights, honour and reputation of others; and the fair administration of justice.<sup>67</sup>

These restrictions shall, however, "not be deemed to justify the imposition by any State of prior censorship on news, comments and political opinions."<sup>68</sup>

As to direct television broadcasts, article 7 of the Draft Convention, so far not adopted by the Third Committee, merits attention. It provides that

[n]othing in the present Convention shall affect the right of any Contracting State to take measures which it deems necessary in order:

- (a) To develop and protect its national news enterprises until such time as they are fully developed;
- (b) To prevent restrictive or monopolistic practices or agreements in restraint of the free flow of information and opinions.<sup>69</sup>

This provision may justify derogations from the principle of freedom of broadcasting in the interest of technologically less-developed countries in order to allow them to further their own communications media.

## V. CONCLUSIONS

This review of the concepts of both national sovereignty and freedom of information clearly demonstrates that the sovereign rights of states must be regarded as prevailing over the individual's right to the unobstructed flow of information. This prevalence results in the first place from the fact that freedom of information, although it

<sup>66</sup>U.N. Doc. A/7164 (1968), art. 1, Annex I at 1.

<sup>67</sup>*Id.*, art. 2(1), Annex I at 2.

<sup>68</sup>*Id.*, art. 2(2).

<sup>69</sup>*Id.*, art. 7, Annex II at 1.

is incorporated into a considerable number of state constitutions, has so far not found an uncontested place in the international legal order. The International Covenant on Civil and Political Rights and the Convention on Freedom of Information have not yet entered into force, while the Universal Declaration of Human Rights, as a mere General Assembly resolution, lacks any compelling force. The European Convention, on the other hand, is only applicable to a limited number of European states.

Freedom of information can, consequently, only be enjoyed by individuals on the terms and conditions which the sovereign states may impose upon its exercise. With respect to direct television broadcasting activities, this thesis would imply the following:

1. States are free, by virtue of their sovereign rights, to authorize or prohibit television broadcasts specifically intended for their territory. Unintentional broadcast transmissions into foreign territories, *i.e.*, spill-over radiations, are, so far as they are not covered by the above paragraph, to be reduced to the minimum that is technically feasible and economically practical. It should be clarified whether the rule of prior consent or that of prior prohibition should govern a pertinent regulation of the matter. Considering that the states are free to choose their own political, economic and cultural system and that the maxim of national sovereignty and the doctrine of non-intervention are preeminent over individual rights and freedoms under international law, the rule of prior express consent seems to be most appropriate to reconcile the principle of free flow of information to the requirements of sovereign states.<sup>70</sup> The prior consent rule implies the participation of the receiving states in the preparation and contents of television programs as a pre-condition of consent.<sup>71</sup>

2. Independent of the regime of authorization, there are certain basic legal rules applicable to program contents, *e.g.*, the general principles of international law, including the Charter of the United Nations, and the provisions of the 1967 Treaty on Outer Space.<sup>72</sup> Moreover, there was unanimity among the delegates to the Working Group that further documents of international law would be directly applicable,<sup>73</sup> *inter alia*:

a. The International Convention concerning the Use of Broadcasting in the Cause of Peace, signed on September 23, 1936,<sup>74</sup>

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<sup>70</sup>Cf. Argentine Draft Convention, *supra* note 19, at art. X; Canada/Sweden proposal, *supra* note 17, at arts. V and VI; Soviet proposal, *supra* note 16, at art. V.

<sup>71</sup>Argentine Draft Principles, *supra* note 19, at ¶14; Búsák, La radiodiffusion directe par satellites, Proc. 17th Colloquium on the Law of Outer Space (1975).

<sup>72</sup>Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, January 27, 1967, [1967] 18 U.S.T. 2410, T.I.A.S. No. 6347, 610 U.N.T.S. 205 (effective Oct. 10, 1967).

<sup>73</sup>Búsák, The Need for an International Agreement on Direct Broadcasting by Satellites, 1 J. Space L. 144 (1973); U.N. Doc. PUOS/C.2 (XIII)/WG.III/DG/CRP.1 (1974), a proposal by several States of a list of international instruments that should be applicable to direct broadcasting by satellites.

<sup>74</sup>[1938] 186 L.N.T.S. 301.

b. United Nations General Assembly resolution 110/II<sup>75</sup> on measures to be taken against propaganda and the inciters of a new war,

c. United Nations General Assembly resolutions 1236/XII<sup>76</sup> and 1301/XIII<sup>77</sup> concerning friendly and peaceful relations among states,

d. United Nations General Assembly resolution 424/V<sup>78</sup> prohibiting radio broadcasts containing attacks against other countries.

3. Both the prior consent requirement and the elaboration of an ethic and legal code relating to program contents seem to contradict the concept of free flow of information across national frontier lines. On the other hand, sovereignty in our modern interdependent world can no longer be measured by the yardstick of traditional law concepts in terms of Jean Bodin or Hugo Grotius. A future code of program contents, therefore, should not only be prohibitive but also affirmative in the sense that, subject to certain clearly defined conditions and restrictions which might be necessary for the protection of public order and the rights and freedoms of others, prior consent should not be withheld, and its refusal would constitute an abuse of state sovereignty. A guarantee of a certain minimum level of free international exchange of information would be the cornerstone of an affirmative program code to be enshrined in a pertinent agreement on the matter.<sup>79</sup>

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<sup>75</sup>U.N. G.A. Res. 110/II (1947).

<sup>76</sup>U.N. G.A. Res. 1236/XII (1957).

<sup>77</sup>U.N. G.A. Res. 1301/XIII (1958).

<sup>78</sup>U.N. G.A. Res. 424/V (1950).

<sup>79</sup>Dausès, La liberté de l'information en matière de la télévision directe par satellites, Proc. 17th Colloquium on the Law of Outer Space, 16 (1975).

I.

*Union of Soviet Socialist Republics: proposal reproduced from document A/AC.105/WG.3(V)/CRP.1 and Corr.1 in accordance with the decision of the Working Group in paragraph 30 of the report*

**PRINCIPLES GOVERNING THE USE BY STATES OF ARTIFICIAL EARTH SATELLITES FOR DIRECT TELEVISION BROADCASTING,**

being elaborated pursuant to General Assembly resolution 2916 (XXVII) with a view to the conclusion of an international agreement or agreements\*

**Article I**

1. All States shall have an equal right to carry out direct television broadcasting by means of artificial earth satellites. Such broadcasting shall be carried out exclusively in the interests of peace, progress, the development of mutual understanding and the strengthening of friendly relations between all States and peoples.

2. All States shall have an equal right to enjoy the benefits arising from direct television broadcasting by means of artificial earth satellites, without discrimination of any kind.

**Article II**

States agree to base themselves, in their television broadcasting activity using artificial earth satellites, on the generally recognized principles of international law, including the United Nations Charter and the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, of 27 January 1967.

**Article III**

States shall carry out direct television broadcasting by means of artificial earth satellites for the purposes of enhancing the educational level of the population, developing culture and expanding international exchanges in the fields of science, culture

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\*Taken from U.N. Doc. A/AC.105/127, Annex II (April 2, 1974).

and sport. The transmission of advertising and other commercial material may be carried out only on the basis of specific agreements specially concluded between the States concerned.

#### Article IV

States undertake to exclude from television programmes transmitted by means of artificial earth satellites any material which is detrimental to the maintenance of international peace and security, which publicizes ideas of war, militarism, national and racial hatred and enmity between peoples, which is aimed at interfering in the internal domestic affairs of other States, or which undermines the foundations of the local civilization, culture, way of life, traditions or language.

#### Article V

States may carry out direct television broadcasting by means of artificial earth satellites to foreign States only with the express consent of the latter.

#### Article VI

States shall regard as illegal and as giving rise to the international liability of States direct television broadcasts specifically aimed at a foreign State but carried out without the express consent of the latter, containing material which according to these principles should be excluded from programmes, or received as a result of unintentional radiation if the broadcasting State has refused to hold appropriate consultations with the State in which the broadcasts are received.

#### Article VII

States shall bear international responsibility for all national activities connected with the use of artificial earth satellites for the purposes of direct television broadcasting, irrespective of whether such broadcasting is carried out by governmental agencies or by non-governmental organizations and juridical persons and of whether it is carried out by States acting independently or through international organizations. Television broadcasting with artificial earth satellites to foreign States may be carried out only by organizations which are under the control of the Governments of the States concerned.

#### Article VIII

1. If any State has reason to believe that activities connected with direct television broadcasting planning by that State will cause potentially harmful interference

to other States or will lead to unintentional radiation of their territory, it shall hold appropriate consultations before undertaking such activities.

2. If a State has reason to believe that unintentional radiation of its territory will occur as a result of direct television broadcasts by another State, it may request that appropriate consultations be held. If, as a result of such unintentional radiation, foreign programmes can be received in the territory of a State by ordinary receivers or by receivers fitted with simple additional devices, the broadcasting State shall immediately enter into consultations with the former State on its request regarding the content of the programmes received.

#### Article IX

1. In case of the transmission to any State of broadcasts which are illegal in the meaning of article VI, that State may take in respect of such broadcasts measures which are recognized as legal under international law.

2. States agree to give every assistance in stopping illegal television broadcasting.

#### Article X

1. States shall co-operate on a bilateral and multilateral basis in matters relating to the establishment of technical standards for direct television broadcasting by means of artificial earth satellites and, in particular, in matters connected with the assignment of frequencies for direct broadcasting and with the placing in geostationary orbit of artificial satellites for direct television broadcasting, with due regard to the pertinent recommendations and resolutions of the International Telecommunication Union.

2. When making direct television broadcasts by means of artificial earth satellites, States shall take all necessary measures in order to prevent interference with sea and air traffic.

#### Article XI

States shall co-operate with each other on a bilateral and multilateral basis in matters connected with protection of copyright in television broadcasts by means of artificial earth satellites. The precise conditions for such co-operation shall be established in appropriate agreements between the interested States.

In such co-operation they shall give special consideration to the interests of those developing countries which have expressed an interest in the use of direct television broadcasting for the purpose of accelerating their national development.

### Article XII

States undertake not to include in international agreements which they conclude in connexion with bilateral or multilateral co-operation in the field of direct television broadcasting by means of artificial earth satellites provisions which conflict with their obligations under these principles.

### Article XIII

In order to promote international co-operation in respect of direct television broadcasting by means of artificial earth satellites, States agree to inform the Secretary-General of the United Nations and the United Nations Educational, Scientific and Cultural Organization to the greatest extent possible of the nature of television programmes transmitted by them or by their organizations for foreign States.

### Article XIV

States shall endeavour to ensure that the international organizations in which they participate and whose activities are relevant to direct television broadcasting by means of artificial earth satellites carry on their activities in accordance with these principles.

## II

*Canada and Sweden: proposal reproduced from document  
A/AC.105/WG.3/L.4, in accordance with the decision of  
the Working Group in paragraph 30 of the report*

### **DRAFT PRINCIPLES GOVERNING DIRECT TELEVISION BROADCASTING BY SATELLITE\***

The General Assembly,

Convinced that direct television broadcasting by satellite has the potential to further the social and cultural progress of peoples, to broaden the dissemination of information and cultural values, to facilitate mutual understanding and thereby to strengthen the foundations of world peace,

Convinced also that this technology can be utilized beneficially in the service of important national and international goals such as the enhancement of education;

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\*Taken from U. N. Doc. A/AC.105/107, Annex III (April 2, 1974).

national development and the transmission of television to people in all geographical areas,

Convinced further that satellite television broadcasting, at the world-wide and regional levels, can only be realized fully on the basis of broad international co-operation, between Governments and non-governmental entities in accord with the principles set out below,

Believing that direct television broadcasting by satellite must be governed by international law so as to ensure the free flow of communications on a basis of respect for the sovereign rights of States and the principles of non-intervention and equality,

Bearing in mind the Universal Declaration on Human Rights, the International Covenants on Human Rights, the Declaration on Principles of International Law Concerning Friendly Relations and Co-operation among States in Accordance with the Charter of the United Nations and the Declaration of Guiding Principles on the Use of Satellite Broadcasting for the Free Flow of Information, the Spread of Education and Greater Cultural Exchange, adopted by the 1972 UNESCO General Conference,

Considering that the radio frequency spectrum is a limited natural resource belonging to all nations and that its use is governed by the International Telecommunication Convention and its Radio Regulations,

Recalling resolution No. Spa2-1 adopted by the ITU WARC-ST in 1971, which in its preamble states that all countries shall have equal rights in the use of both the radio frequencies allocated to various space radiocommunications services and the geostationary satellite orbit for those services,

Taking into account resolution 1721 (XVI) of 20 December 1961 declaring that communication by means of satellites should be available as soon as practicable on a global and non-discriminatory basis,

Recalling resolution 2733 (XXV) of 16 December 1970 which recommended that Member States, regional and international organizations including broadcasting associations, should promote and encourage international co-operation on regional and other levels in order, *inter alia*, to allow all participating parties to share in the establishment and operation of regional satellite broadcasting services and/or in programme planning and production.

Recalling finally resolution 2916 (XXVII) of 14 November 1972 in which the General Assembly considered it necessary to elaborate principles governing the use by States of artificial earth satellites for direct television broadcasting with a view to concluding an international agreement or agreements,

Solemnly declares that in the conduct of their activities in the field of direct television broadcasting by satellites, States shall be guided by the following principles:

## I

All States shall conduct their activities in the field of direct television broadcasting in accordance with the relevant principles of international law, including the Charter of the United Nations, the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies, the Declaration on Principles of International Law concerning Friendly Relations and Co-operation among States and the International Telecommunications Convention and its Radio Regulations as revised at the World Administrative Radio Conference for Space Telecommunications, Geneva 1971;

## II

Direct television broadcasting by satellite shall be carried out in a manner compatible with the maintenance of international peace and security, the development of mutual understanding and the strengthening of friendly relations among all States and peoples. Such broadcasting shall also be conducted by the basis of respect for the principles of the sovereignty of States, non-intervention and equality and in the interest of promoting the free flow of communications;

## III

Every State has the right to carry out and share in the benefits of activities in the field of direct television broadcasting by satellite;

## IV

Activities in the field of direct television broadcasting by satellite shall be based on international co-operation by Governments and non-government entities;

## V

Direct television broadcasting by satellite to any foreign State shall be undertaken only with the consent of that State. The consenting State shall have the right to participate in activities which involve coverage of territory under its jurisdiction and control. This participation shall be governed by appropriate international arrangements between the States involved;

## VI

The right of consent and participation stated in Principle V shall apply in those cases

(a) where coverage of the territory of a foreign State entails radiation of the satellite signal beyond the limits considered technically unavoidable under the Radio Regulations of the International Telecommunication Union or

(b) where notwithstanding the technical unavoidability of spill-over to the territory of a foreign State, the satellite broadcast is aimed specifically at an audience in that State within the area of spill-over;

## VII

If a State, notwithstanding the co-ordination procedures adopted by States at the World Administrative Radio Conference for Space Telecommunications, Geneva 1971, has reason to believe that, as a result of the activities of the States, there will be radiation over its territory beyond the limits considered technically unavoidable under the Radio Regulations of the International Telecommunication Union, consultations shall be held between States concerned in accordance with Principle X;

## VIII

States or their authorized broadcasting entities participating in direct television broadcasting by satellite between States shall co-operate with each other with regard to the scheduling, content, production and exchange of programmes and all other aspects, including if appropriate, the training of technical and programme personnel. The terms of such co-operation shall be governed by appropriate international arrangements between participating States or their authorized entities;

## IX

States shall bear international responsibility for direct television from satellites whether such activities are carried on by governmental agencies or by non-governmental entities and for assuring that such broadcasting is conducted in conformity with these principles.

When television broadcasting by means of satellites is carried out by an international organization, responsibility for compliance with these principles shall be borne by the international organization and by States participating in such an organization;

## X

A State which has reason to believe that another State is not adhering to these Principles shall have the right to request consultations with that State. A State receiving such a request shall enter into such consultations without delay.

If the consultations do not lead to a mutually acceptable settlement of differences States shall seek solutions through established procedures for the settlement of disputes such as conciliation, mediation, arbitration or judicial settlement.

## III

*United States of America: proposal reproduced from document  
A/AC.105/WG.3(V)/CRP.2 in accordance with the decision of  
the Working Group in paragraph 30 of the report*

**DRAFT PRINCIPLES ON DIRECT BROADCAST SATELLITES\***

## I

The use of outer space for international direct television broadcasting by satellites should be conducted in accordance with international law, including in particular the Charter of the United Nations, the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies, and in the light of relevant provisions of the Universal Declaration of Human Rights and the Declaration on Principles of International Law Concerning Friendly Relations and Co-operation Among States.

## II

International direct television broadcasting should be conducted within the technical parameters and procedures established by the International Telecommunication Convention and its Radio Regulations.

## III

Such activity should be carried out in a manner compatible with the maintenance of international peace and security with a view to enhancing co-operation, mutual understanding and friendly relations among all States and peoples.

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\*Taken from U. N. Doc. A/AC.105/127, Annex IV (April 2, 1974).

## IV

Such activity should also be conducted in a manner which will encourage and expand the free and open exchange of information and ideas while taking into account differences among cultures and maximizing the beneficial use of new space communications technologies.

## V

Every State is entitled to carry out international direct television broadcasting by satellites and to share in benefits derived from this activity. Such sharing should increasingly include, as practical difficulties are overcome, opportunities for access to the use of this technology for the purpose of sending as well as receiving broadcasts.

## VI

States and international and regional organizations, particularly the United Nations, and other entities where appropriate, should co-operate in efforts to strengthen the capability of interested States, including in particular developing countries, to make use of international direct television broadcasting by satellites as the technology may become available. Such efforts should include increased training in technical and programme production fields, in which connexion consideration should be given to the establishment of regional centres, and the expanded exchange of programmes and personnel.

## VII

Practical approaches to the use of this technology on a regional or other international co-operative basis should be given particular consideration by States having shared needs and mutual interests.

## VIII

States should encourage the potential contributions of international professional associations, in fields such as medicine, engineering, education and the arts, in solving social development problems and in enhancing the quality of life through the effective use of this technology.

## X

States should seek to resolve any disagreements which may arise concerning the carrying out of international direct television broadcasting by satellites through

consultation and, as may be necessary, through established procedures for the settlement of disputes.

## IX

States should recognize the desirability of creating conditions favourable to the promotion of international co-operation among broadcasters and regional broadcast associations as an effective means of advancing the objectives of these principles.

## XI

The United Nations and Member States should undertake to review the questions of the use of satellites for international direct television broadcasting if practical experience indicates the need for such a review.

## IV

*Argentina: proposal reproduced from document  
A/AC.105/WG.3(V)/CRP.3 in accordance with the decision of  
the Working Group in paragraph 30 of the report\**

## INTRODUCTION

The problems relating to direct broadcasting by satellite have, since the earliest endeavours of the Working Group established by the General Assembly of the United Nations, engaged the attention of the Argentine delegation. Its first contribution can be found in the working paper presented on 29 July 1969 (A/AC.105/WG.3/WP.1). The following year, at the third session of the Working Group, in New York, it submitted on 14 May 1970 what came to be known as the "Twelve Tables" of direct broadcasting, principles which were incorporated in many paragraphs of the report on that session (A/AC.105/83).

At the present session, believing that the Working Group's mandate is not to draw up legal formulas or draft international agreements—a task which falls within the purview of the Legal Sub-Committee—it is submitting for the consideration of the members of the Working Group a paper which simply furnishes a general presentation of the questions involved and a brief explanation of what, in its view, might form an appropriate underlying principle.

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\*Taken from U. N. Doc. A/AC.105/127, Annex V (April 2, 1974).

In preparing this working paper, we have taken account of the reports of the past four sessions, the various working papers presented by the delegations of Canada and Sweden, the papers prepared by France and the USSR in 1970, the "Twelve Tables" of direct broadcasting submitted by Argentina in 1970, the UNESCO-sponsored seminar on this topic held at Buenos Aires in August 1972, the work of UNESCO and its Declaration of 1972, the draft international convention submitted by the USSR in 1972 and its new version, the draft declaration proposed by Canada and Sweden, together with the comments in the most recent working paper presented by those delegations, the Declaration of the Second World Inter-Broadcasting Unions Conference (Rio de Janeiro, 1973) and the texts prepared by the Inter-Union Working Group (Madrid, January 1974), and also the work of the recent conference of the International Broadcast Institute and the American Society of International Law (Bellagio, Italy, 20-24 February 1974).

### STATEMENT OF PROBLEMS AND PROPOSED SOLUTIONS

The problems involved, together with means of resolving them, are set out in separate numbered paragraphs below.

1. **Rights of States:** All States, irrespective of their degree of development, shall have an equal right to use direct broadcasting by satellite for the purpose of realizing their national objectives and fulfilling the aims and purposes of international co-operation in this field of activity.

Direct broadcasting by satellite is based on national sovereignty and on the fundamental rights of States, of the family and of the individual.

2. **Legal context:** Direct national broadcasting by satellite is governed by the laws and regulations of each State.

Direct international broadcasting by satellite is governed by international law, through its universally accepted principles, and by specifically applicable international instruments concluded, or to be concluded, under international law, telecommunications law and space law.

3. **Benefits:** Mankind as a whole is the beneficiary of international activities in the field of direct broadcasting by satellite. Accordingly, all States have an equal right to enjoy and share in the benefits deriving from direct international broadcasting by satellite.

Where a State or States do not participate in a regional system, the other co-operating States must make every effort to consider the interests and the sovereign rights of the non-participating States.

8. **Broadcasting unions and associations:** Broadcasting unions, national associations and all broadcasting stations in general, must collaborate in programme

production and exchanges and other aspects of direct broadcasting by satellite, including the training of technicians and programming personnel.

In the field of information, they must co-operate and assist one another as far as possible in supplying news items and reports; in the field of education, they must afford all possible assistance in the form of material that will improve or supplement educational efforts; in cultural matters, they must provide means for the broadcasting stations concerned to include in their programmes works from the most varied cultural heritages.

9. **Obligations of States:** To abstain from any direct broadcast by satellite which is contrary to principles and standards which have been established or are to be established, or which are in any way prejudicial to the rights of States, the family and the individual.

10. **Obligations of broadcasting stations:** To respect the spirit of all peoples, their culture, their own history and their national development.

11. **International responsibility:** The State shall bear prime and inalienable responsibility, in accordance with the 1967 Treaty on Outer Space, for international activities it undertakes in the use of direct broadcasting by satellite. This responsibility includes broadcasts by governmental agencies, non-governmental organizations and legal entities, which shall be subject to the control of the State concerned.

4. **Access:** Radio frequencies are a limited natural resource, forming the common heritage of mankind and their use is governed by the International Telecommunication Convention and Radio Regulations.

Equitable access to frequencies and to the geostationary orbit for direct broadcasting by satellite shall be guaranteed for all States, according to their needs.

5. **Facilitation of access:** States and international organizations must co-operate at the international and regional levels in order to facilitate the access of countries which are not yet fully developed to activities in the field of direct broadcasting by satellite.

6. **International co-operation:** States and international organizations must encourage and promote international co-operation at all levels. Such co-operation is reflected, among other ways, in close collaboration between the specialized agencies of the United Nations system, intergovernmental regional organizations and national bodies.

International co-operation, on the basis of the 1967 Treaty on Outer Space, is a legal obligation and is a precondition for the legality of activities carried on in outer space, including direct broadcasting by satellite.

Accordingly, States and their broadcasting authorities shall co-operate with one another in respect of programming, programme content, production, interchange of programmes and all other aspects, including the training of technical and programming personnel.

7. **Regional systems:** The expression "regional" is used here in a broad sense. We take regional systems to mean arrangements between States or groups of States which, on the basis of cultural, religious, linguistic, social or economic affinities, geographical proximity or any other grounds of common interest, decide to conclude agreements for joint systems of direct broadcasting by satellite; such agreements must comply with existing international arrangements. Regional agreements cover a variety of different situations and the system itself is regarded as a common regional facility for national, subregional and regional use. Such agreements presuppose and necessarily affect various functions, namely, the legislative, operational and administrative, and programming functions.

Regional co-operation in programming, particularly for educational and developmental purposes, requires co-ordination and joint planning with all of the interests involved: Governments, educational authorities, development agencies, broadcasting stations.

Regional broadcasting organizations must participate in all stages of the exercise.

In the case of broadcasts made by an international organization, responsibility for compliance with the principles and standards which have been established, or may be established, shall lie with the international organization.

12. **Responsibility of broadcasting authorities and organizations:** The responsibility of broadcasting organizations is increased by the new prospects opened up by direct broadcasting by satellite. These organizations shall ensure that the service is well regulated, effective and economical, and conforms to the principles and standards adopted by States. They shall also establish, as appropriate, their own codes of ethics.

13. **Free flow of information and social communication:** The free flow of information and, in general, of social communication shall not be impaired in any way or measure as a result of direct broadcasting by satellite and, as in the case of traditional communications, the emerging rights of the national sovereignty of States shall be respected.

The principle of freedom of information and free flow of communications is not incompatible with the adoption of additional principles designed to harmonize the rights of States and to protect the economic, social and cultural values of their peoples.

It is appropriate to ensure the veracity of the information imparted to the public, and to indicate the body which assumes responsibility for any news programme and the origin of any news item.

The right of reply forms a complement to freedom of information.

14. **Cases in which prior consent should be sought, and case of prior acceptance.**

In cases where direct broadcasts by satellite are intended for a foreign State, express prior consent is required; the possibility of tacit or extemporaneous consent is not acceptable in such cases.

The ITU spill-over standards do not appear to be applicable to all cases and can have no other scope than that of the Union itself.

Prior consent allows for the solution of many questions and reserves the solution concerning programme content.

The freedom enshrined in the 1967 Treaty on Outer Space is not an unlimited freedom, but is subject to international co-operation, which determines the legality or illegality of any activity conducted in space or in the sphere of space communications.

Consent implies participation in scheduled activities.

Unintentional, technically unavoidable radiation from a national programme intended specifically for a national audience of the broadcasting State shall conform to the standards provided for in the International Telecommunication Convention and its radio regulations.

Notwithstanding this, if a State experiencing spill-over has reason to suppose that it may be affected and exercises its right vis-a-vis the broadcasting State, through consultation, prior acceptance is in order.

The prior acceptance of the receiving State in this case does not imply authorization for it to participate in the programming of the broadcasting State.

#### 15. Programme content and participation.

Content should be described in very general, broad, non-specific and non-detailed terms. It does not appear feasible to regulate the content of direct broadcasts at the global level.

Participation in the preparation of programmes should encompass content. Any person participating will have access to all stages and aspects of the programme, among which prime importance should be attached to content.

Any State is entitled to participate in activities which involve broadcasts whose scope encompasses territories under its jurisdiction.

Any State is also entitled to determine the content of the educational programmes broadcast to its population and to participate freely on equal terms in their preparation and production, when such programmes are the outcome of the co-operation of a number of States.

The question at issue is not merely the requirement of prior consent or prior acceptance in the cases provided for in the previous section. Participation must also be ensured. The technical feasibility of confining a broadcast within national frontiers would solve only one aspect of the problem and would do so in a negative manner. We would like to see the problem solved in a specifically positive manner: in other words, not only should recognition be given to the right to say "no" and to the consequent obligation of the broadcasting State to exclude from the broadcasting area the geographical area which has withheld its consent, but we should like the right to say "yes" to be established and recognized, so that there should be no exclusion and that all States should participate, in order that the aspirations of all peoples, as expressed and ratified in formal instruments of the United Nations and its specialized agencies, should be fulfilled. In short, to the freedom to say "no" we should like to add the freedom to say "yes".

The word "participation" is peculiar to our times. States and individuals do not nowadays wish benefits to be transmitted to them in any of the traditional forms; they want to participate, and the first step towards this goal is achieved by acquitting the necessary technology and taking part in the planning and preparation of programmes, in all their stages, of which the benefit is the last.

#### 16. Copyright and allied rights.

Copyright and the rights of interpretative artists and performers shall not be affected by the use of the new technique of direct broadcasting by satellite.

#### 17. Protection of television signals.

Consideration must be given to efforts to establish principles and standards relating to the unauthorized transmission of signals carrying programmes broadcast by satellite. Such legal protection shall have the same scope as when applied to direct radio broadcasting.

#### 18. Dissemination of education and the intensification of cultural exchanges.

Direct broadcasting by satellites shall seek to achieve the most rapid possible development of education, increase educational opportunities, improve the content of school programmes, facilitate teacher training, eliminate illiteracy and contribute to the achievement of a continuous process of education, while at the same time avoiding the inclusion of subjects which give rise to conflict.

In order to promote cultural exchanges, direct broadcasting by satellite shall stimulate greater contact and mutual understanding among peoples, so that they may have the greatest possible opportunities of enjoying programmes relating to social and cultural life, including artistic and sporting events.

Cultural programmes must respect the distinctive character, value and dignity of every culture, and the right of all States and peoples to preserve their culture as an element of the common heritage of mankind.

19. Commercial aspects.

Direct broadcasting for commercial and advertising purposes to countries other than the country of origin shall be the subject of specific agreements between the States and broadcasting associations concerned.

20. Publicity of activities.

All activities undertaken through direct broadcasting by satellites must conform to a system of maximum publicity and dissemination, clandestine direct broadcasting being eliminated.

States will inform the Secretary-General of the United Nations and the Director-General of UNESCO of the nature of any direct broadcasts by satellite to foreign States that they undertake themselves or through agencies under their jurisdiction.

21. Inadmissible broadcasts.

Any broadcasts that a State does not wish to be made in its territories or among its population are inadmissible.

Every State and every transmitter shall refrain from making such broadcasts.

22. Regime of consultation.

Consultation is in order if a State has reason to suppose that the activities relating to direct broadcasting by satellites for which it has made provision may cause interference prejudicial to other States or give rise to unintentional radiation in their territories.

It is also in order if a State has reason to suppose that unintentional radiation will occur in its national territory as a result of direct broadcasts by another State. In this case it may request that consultations be held.

Consultation is the prior step to the acceptance provided for in section 14.

23. Right to take counter-measures.

If, nevertheless, an illegal situation arises, the State affected is entitled to take appropriate counter-measures to re-establish the legal order that has been upset. That right shall be recognized by means of a legal instrument and may arise from the agreements that are concluded.

24. Disruption of shipping, air traffic and radioastronomy.

In using direct broadcasting by satellites, States will adopt all necessary measures to prevent the disruption of shipping, air traffic and radioastronomy.

25. Settlement of of disputes

Any disputes that may arise in connexion with direct broadcasting by satellite will be resolved by the procedures established for the settlement of disputes and, with the consent of the parties in dispute, by judicial arbitration or settlement.

V.

**REPORT OF THE CHAIRMAN OF WORKING GROUP II\***

1. Following the procedure adopted at its thirteenth session, the Legal Sub-Committee, on 10 February 1975, established Working Group II for the item "Elaboration of principles governing the use by States of artificial earth satellites for direct television broadcasting".

2. At its first meeting held on 25 February, the Working Group decided that it would attempt to deal with all the principles reflected in the Report of the Working Group on Direct Broadcasting Satellites on the work of its fifth session (A/AC.105/127), including the five principles considered at the thirteenth session of the Legal Sub-Committee.

3. The Working Group also decided at its first meeting on 25 February to transform itself into a Drafting Group of the whole. The Drafting Group held 10 meetings. The first six meetings were devoted to the consideration of the principles not discussed at the thirteenth session of the Legal Sub-Committee and the next two meetings to the consideration of the five principles which had been discussed previously. The final two meetings were devoted to the finalization of the drafts to be included in the report of the Working Group.

4. At its meeting on 4 March, the Working Group endorsed the work of the Drafting Group and decided to request the Sub-Committee to reproduce the present report, together with the texts of the principles given below (which include words or sentences in square brackets, or alternative formulations, on matters where consensus could not be reached) as an annex to the report of the Sub-Committee on the work of its fourteenth session.

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\*Taken from U.N. Doc. A/AC.105/147, Annex II (March 11, 1975).

### Purposes and objectives

#### Alternative A

Activities in the field of direct television broadcasting by satellite should serve the purpose of maintaining international peace and security, developing mutual understanding and strengthening friendly relations and co-operation among all States and peoples, assisting in the social and economic development particularly in the developing countries, facilitating and expanding the international exchange of information, promoting exchanges in the field of culture, science and economy and enhancing the educational level of peoples of various countries. To this end activities in the field of direct television broadcasting by satellite shall be carried out by States exclusively in a manner compatible with the above-mentioned objectives and with due regard to the provisions of the principle . . .\*

#### Alternative B

Activities in the field of [international] direct television broadcasting by satellite should facilitate and expand the mutual international exchange of information and ideas, promote cultural and scientific exchanges, and enhance the educational level of all peoples. Such broadcasting should encourage the development of mutual understanding, friendly relations, and co-operation among all States and peoples, and should be conducted in a manner compatible with the maintenance of international peace and security. Efforts should be made where appropriate to encourage beneficial applications of direct television broadcasting by satellite which may assist in social and economic development particularly in the developing countries.

#### Applicability of international law

[States shall ensure that] Activities in the field of direct television broadcasting by means of artificial earth satellites [are] [should be] conducted in accordance with [generally recognized rules of] international law including the Charter of the United Nations, the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies of 27 January 1967, the relevant provisions of the International Telecommunication Convention and its Radio Regulations and in accordance with the principles of international law relating to friendly relations and co-operation among States and human rights [including those contained in the Declaration on Principles of International Law concerning Friendly Relations and Co-operation among States and the Universal Declaration of Human Rights] [and the International Covenant on Civil and Political Rights.]

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\*Which relates to the applicability of international law.

## Rights and benefits [of States]

Every State has an equal right to conduct and to authorize [under its supervision] activities in the field of direct television broadcasting by means of artificial earth satellites. All States and peoples [and individuals] [are entitled to] [should have an appropriate opportunity for] [should enjoy] equitable sharing without discrimination in the benefits derived from such activities on mutually agreed terms including, subject to national legislation, access to the use of this technology.

### International co-operation

Activities in the field of direct television broadcasting by means of artificial earth satellites [shall be based on] [should encourage] international co-operation. Such co-operation shall be the subject of appropriate arrangements between the States concerned and/or entities authorized by them.

### State responsibility

States shall bear international responsibility for activities in the field of direct television broadcasting by means of artificial earth satellites carried out by them or under their jurisdiction and for the conformity with these principles of any such activities.

When direct television broadcasting by means of artificial earth satellites is carried out by an international organization, responsibility for compliance with these principles shall be borne both by the international organization and by States participating in such organization.

### Consent and participation

#### Alternative A

Direct television broadcasting by means of artificial earth satellites specifically aimed at a foreign State shall require the consent of that State. The consenting State shall have the right to participate in activities which involve coverage of territory under its jurisdiction. This participation shall be governed by appropriate arrangements between the States involved.

The consent and participation referred to in Principle . . . shall not apply where coverage of the territory of a foreign State results from radiation of the satellite signal within the limits considered technically unavoidable under the Radio Regulations of the International Telecommunication Union.

**Alternative B**

Direct television broadcasting by satellite should be conducted in accordance with the principles set out herein, and in particular in accordance with principle . . . \* It may be subject to such restrictions imposed by the State carrying out or authorizing it as are compatible with the generally accepted rules of international law relating to freedom of expression, which includes freedom to seek, receive and impart information and ideas of all kinds, regardless of frontiers.

The consent of any State in which such broadcasting is received is not required, but the State carrying it out or authorizing it should consult fully with any such receiving State which so requests concerning any restrictions to be imposed by the former State.

The foregoing is without prejudice to the restrictions which may be imposed in accordance with international law on technical grounds.

**[Spill-over****Alternative A**

In carrying out activities in the field of direct television broadcasting by satellites, all technical means available shall be used to reduce, to the maximum extent practicable, the radiation over the territory of other countries [which enable reception of television programmes with conventional or augmented television sets] unless an agreement has been previously reached with such countries.

**Alternative B**

Without prejudice to the ITU regulations concerning the avoidance of interference, all reasonable means should be used to reduce to the minimum any unintended radiation of the territory of other countries.]

**Programme content**

[States or their broadcasting entities which participate in direct television broadcasting by satellite with other States should co-operate with one another in respect of programming, programme content, production and interchange of programmes.]

[The broadcasting of commercial advertising, direct or indirect to countries other than the country of origin, should be on the basis of appropriate agreements between the countries concerned.]

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\*Which relates to participation and co-operation.

[Notwithstanding the foregoing States undertaking activities in direct television broadcasting by satellites should in all cases exclude from the television programmes any material which is detrimental to the maintenance of international peace and security, which publicizes ideas of war, militarism, national and racial hatred and enmity between peoples, which is aimed at interfering in the domestic affairs of other States or which undermines the foundations of the local civilization, culture, way of life, traditions or language.]

#### Unlawful/inadmissible broadcasts

[States shall regard as unlawful and as giving rise to the international liability of States direct television broadcasts specifically aimed at a foreign State but carried out without the express consent of the latter, containing material which according to these principles should be excluded from programmes, or received as a result of unintentional radiation of the broadcasting State has refused to hold appropriate consultations with the State in which the broadcasts are received.]

[In case of the transmission to any State of television broadcasts which are unlawful, that State may take in respect of such broadcasts measures which are recognized as legal under international law.]

[States agree to give every assistance in stopping unlawful direct television broadcasting by satellite.]

[Any broadcasts that a State does not wish to be made in its territory or among its population and in respect of which it has made known such decision to the broadcasting State are inadmissible.]

[Every transmitter, State, international organization or authorized agency shall refrain from making such broadcasts or shall immediately discontinue such broadcasts if it has begun to transmit them.]

#### Duty and right to consult

##### Alternative A

If a State, notwithstanding the provisions of principles... and...\* and the co-ordination procedures required under the provisions of the Radio Regulations of the International Telecommunication Union, has reason to believe that as a result of activities carried out or authorized by other States in the field of direct television broadcasting by means of satellites, it will be prejudicially affected by radiation over its territory, it may

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\*Alternative A under "Consent and Participation".

request that consultations be held. A State receiving such a request shall enter into such consultations without delay.

### **Alternative B**

Any State requested to do so by another State should without delay enter into consultations with the latter State concerning any matter arising from activities in the field of direct television broadcasting carried out or authorized by either of them which are likely to affect the other.

### **Peaceful settlement of disputes**

Any disputes that may arise from activities in the field of direct television broadcasting by means of artificial earth satellites should be resolved by prompt consultations among the parties to such disputes. Where a mutually acceptable resolution cannot be achieved by such consultations, it should be sought through other established procedures for the peaceful settlement of disputes.

### **Copyright, neighbouring rights and protection of television signals**

[Copyright and neighbouring rights shall not be affected by the use of direct broadcast television.] States shall co-operate on a bilateral and multilateral basis for protection of copyright and neighbouring rights by means of appropriate agreements between the interested States. In such co-operation they shall give special consideration to the interests of developing countries in the use of direct television broadcasting for the purpose of accelerating their national development.

[The provision of the Convention relating to the distribution of programmes carrying signals transmitted by satellite, Brussels, 1974, shall not be affected by this principle.]

### **Notification to the United Nations system**

In order to promote international co-operation in the peaceful exploration and use of outer space, States conducting or authorizing activities in the field of direct television broadcasting by satellites should inform the Secretary-General of the United Nations to the greatest extent possible of the nature of such activities [including information on the contents of programmes]. On receiving the said information, the Secretary-General of the United Nations should disseminate it immediately and effectively to the relevant United Nations specialized agencies, as well as to the public and the international scientific community.

## Disruption

In using direct television broadcasting by means of satellites, States shall take all necessary measures in order to prevent disruption between services with due regard to priority of communications relating to the safety of life.

### VI.

#### Survey of the technical and economic considerations of direct television broadcasting from satellites\*

1. The technical feasibility of direct broadcasting from satellites has moved much nearer to practical realization within the last few years and it is possible to predict with some certainty that operational systems could be made available within the forthcoming decade. A rigorous assessment of all the technical parameters involved would be impractical within the context of this Annex and, in addition, a duplication of the work of the ITU. International Radio Consultative Committee of the ITU (CCIR) studies relevant to this subject amongst others are: Report 215-2 and Report 473, as revised in 1974.

2. Consequently the following discussion will cover only the most important parameters, i.e. those which have a more direct and immediate bearing on the practical choice of a direct broadcast satellite system. Within the context of direct broadcasting from satellites, two types of system have been given detailed attention by many countries and international organizations, e.g. ITU. They are "individual" and "community" reception. These terms are defined by the ITU Radio Regulations as follows:

"Broadcasting-satellite service:

A radiocommunication service in which signals transmitted or retransmitted by space stations are intended for direct reception<sup>1</sup> by the general public.

Individual reception (in the broadcasting-satellite service).

The reception of emission from a space station in the broadcasting-satellite service by simple domestic installations and in particular those possessing small antennae.

Community reception (in the broadcasting-satellite service).

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\*Taken from U.N. Doc. A/AC.105/127, Annex VI (1974).

<sup>1</sup>In the broadcasting-satellite service, the term "direct reception" shall encompass both individual reception and community reception.

The reception of emissions from a space station in the broadcasting-satellite service by receiving equipment, which in some cases may be complex and have antennae larger than those used for individual reception, and intended for use

- by a group of the general public at one location, or
- through a distribution system covering a limited area.”

### 2.1 *Choice of orbit*

The choice of orbit for satellite broadcasting is influenced primarily by the coverage required and the daily hours of transmission desired. A satellite in the geostationary orbit (altitude about 35,870 km above the equator) would allow coverage to individual countries using spot beams and continental coverage with global beams. Transmission time could probably be continuous, assuming sufficient power was available on the satellite. A limitation of geostationary satellites is that coverage beyond 70° of latitude north or south is not effective. Polar area coverage could be provided by non-synchronous satellites in high elliptical orbits, although they could require more elaborate receiving antennae. Over all it can be concluded that the geostationary orbit has considerable advantages and therefore no further consideration is given to subsynchronous satellites in this Annex. Introduction of new provisions on the station-keeping of space stations and on the pointing accuracy of antennae on geostationary satellites, and method of calculating interference between geostationary satellite networks sharing the same frequency bands have been promulgated by the ITU, and under intensive study by its technical organs.

### 2.2 *Frequencies*

In 1971 the World Administrative Radio Conference (WARC) convened by the ITU allocated frequency bands to the Satellite Broadcasting Service. The frequency allocations are as follows:

*Within the frequency band 620-790 MHz, assignments may be made to television stations using frequency modulation in the broadcasting-satellite service subject to agreement between administrations concerned and those having services, operating in accordance with the Radio Regulations Table of Frequency Allocations, which may be affected (see Resolutions Nos. Spa 2-2 and Spa 2-3).*

*The use of frequency band 2500-2690 MHz by the broadcasting-satellite service is limited to domestic and regional systems for community reception and such use is subject to agreement between administrations concerned and those having services operating in accordance with the Table of Frequency Allocations, which may be affected (see Resolutions No. Spa 2-2 and Spa 2-3). The power flux density at the earth's surface must not exceed the values given in Nos. 470 NH-470 NK, specified in the Radio Regulations.*

*In the frequency band 11.7-12.5 GHz* in Region 1 and in the band *11.7-12.5 GHz* in Region 1, existing and future fixed, mobile and broadcasting services shall not cause harmful interference to broadcasting satellite stations operating in accordance with the decisions of the appropriate broadcasting assignment planning conference (see Resolution No. Spa 2-2).

*In the band 11.7-12.2 GHz in Regions 1 and 2*, use by the broadcasting-satellite and fixed satellite services is limited to domestic systems and is subject to previous agreement between the administrations concerned and those having services operating in accordance with the Table of Frequency Allocations, which may be affected (see article 9A and Resolution No. Spa 2-3).

*The frequency band 22.5-23 GHz* is allocated to the broadcasting satellite service in Region 3, subject to power flux density limits, for the protection of the terrestrial services in this band.

*The frequency bands 41-43 GHz and 84-86 GHz* are exclusive allocations to the broadcasting-satellite service for all Regions.

The choice of the most suitable of these frequency bands for any particular system is a difficult and complex subject influenced by many factors. Among the more important are atmospheric absorption attenuation, scintillation and radio noise from natural sources and sharing between space and terrestrial services.

Resolution No. Spa 2-1 relating to the use by all countries, with equal rights, of frequency bands for space radiocommunication services, which provides, *inter alia*, that the registration with the ITU of frequency assignments for space radiocommunication services and their use should not provide any permanent priority for any individual country or group of countries and should not create an obstacle to the establishment of space systems by other countries.

### 2.3 Coverage area

The coverage area is determined by the size of the country or countries requiring the particular service and it is the function of the satellite antenna to concentrate the radiation in the coverage area, allowing as little energy as possible outside it. Current techniques of antenna designing allow of the possibility of carefully shaped radiation patterns (beam shaping) to minimize spill-over into adjacent countries. This subject is being studied by the CCIR.

In arranging the technical characteristics of a broadcasting-satellite service a country is obliged to take all technical means available to reduce to a maximum extent practicable the radiation over the territory of other countries unless an agreement has been previously reached with such countries (article VII 428A). Furthermore, provisional procedures for technical co-ordination between stations in the broadcasting satellite service and other space systems and for co-ordination between stations in the broadcasting satellite

service and terrestrial radial systems have been adopted by the ITU in Resolutions Spa 2-2 and Spa 2-3.

#### 2.4 Reception quality

Reception quality is *inter alia* a function of satellite power and it can be shown that whilst good quality can be achieved over the entire service area, there is a strong economic relationship between the two factors. Generally it can be said that reception quality would be at least equal to that achieved with terrestrial systems.

#### 2.5 Receiving equipment (receivers and antennae)

Depending on the choice of transmission method (frequency band, modulation method, quality objectives, etc.), it is necessary to envisage the need for converters to adapt existing receivers or for entirely new types of receivers. Different antennae must also be considered. It may be of interest to note that for particular applications or requirements, substantial reductions in satellite transmitting power, launching requirements and related costs can be achieved by utilizing more elaborate receiving equipment which would provide for community receiving arrangements.

Typical cost figures for providing converters to existing domestic receivers vary according to complexity, sensitivity and numbers produced.

#### 2.6 Satellite technology

At its first session held in 1969 the Working Group on Direct Broadcast Satellites, in its report (A/AC.105/51), included examples of system parameters and costs for television broadcasting by satellite. At its present session, the Working Group had neither the time nor the resources to update this material in detail. Furthermore, it was pointed out that it was extremely difficult to give any reliable cost figures which could prove to be misleading unless substantiated at great length. Consequently, this section is couched only in general terms. This subject is at present under study by the International Telecommunication Union which can be expected to report in due course.

Considerable studies have been undertaken (Canada, Japan, USA, ESRO, UNESCO, etc.) for single-programme and multiple-programme satellites. Within the weight limitation imposed by the particular launch vehicle one key area of technology is that of providing sufficient power to meet satellite transmitter output requirements.

Other factors which must be taken into account and which have a direct bearing on costs are the possibility of launch failures, design life of the satellite, earth stations to provide the programme material to the satellite, ground support facilities, i.e. telemetering, tracking and control, and philosophy concerning space and ground support facilities.

## VII.

## General Assembly Resolution 3235 (XXIX)\*

## Convention on Registration of Objects Launched into Outer Space

*The General Assembly,*

*Reaffirming* the importance of international co-operation in the field of the exploration and peaceful uses of outer space, including the Moon and other celestial bodies, and of promoting the rule of law in this new field of human endeavour,

*Desiring*, in the light of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer space, including the Moon and Other Celestial Bodies,<sup>1</sup> the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space<sup>2</sup> and the Convention on International Liability for Damage Caused by Space Objects,<sup>3</sup> to make provision for registration by launching States of space objects launched into outer space with a view, *inter alia*, to providing States with additional means and procedures to assist in the identification of space objects,

*Bearing in mind* its resolution 3182 (XXVIII) of 18 December 1973, in which it requested the Committee on the Peaceful Uses of Outer space to consider as a matter of priority the completion of the text of the draft Convention on Registration of Objects Launched into Outer Space,

*Having considered* the report of the Committee on the Peaceful Uses of Outer Space,<sup>4</sup>

*Noting with satisfaction* that the Committee on the Peaceful Uses of Outer Space and its Legal Sub-Committee have completed the text of the draft Convention on Registration of Objects Launched into Outer Space,

1. *Commends* the Convention on Registration of Objects Launched into Outer Space, the text of which is annexed to the present resolution;

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\*Taken from U.N. Doc. A/RES/3235(XXIX), Nov. 26, 1974. Adopted by the Assembly on Nov. 12, 1974 in the 2280th plenary meeting. For earlier draft of the Registration Convention, see 1 J. Space L. 86 (1973).

<sup>1</sup>General Assembly resolution 2222 (XXI), annex.

<sup>2</sup>General Assembly resolution 2345 (XXII), annex.

<sup>3</sup>General Assembly resolution 2777 (XXVI), annex.

<sup>4</sup>*Official Records of the General Assembly, Twenty-ninth Session, Supplement No. 20 (A/9620).*

2. *Requests* the Secretary-General to open the Convention for signature and ratification at the earliest possible date;
3. *Expresses its hope* for the widest possible adherence to this Convention.

*2280th plenary meeting  
12 November 1974*

### Annex

#### Convention on Registration of Objects Launched into Outer Space

*The States Parties to this Convention,*

*Recognizing* the common interest of all mankind in furthering the exploration and use of outer space for peaceful purposes,

*Recalling* that the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies of 27 January 1967 affirms that States shall bear international responsibility for their national activities in outer space and refers to the State on whose registry an object launched into outer space is carried,

*Recalling also* that the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space of 22 April 1968 provides that a launching authority shall, upon request, furnish identifying data prior to the return of an object it has launched into outer space found beyond the territorial limits of the launching authority,

*Recalling further* that the Convention on International Liability for Damage Caused by Space Objects of 29 March 1972 establishes international rules and procedures concerning the liability of launching States for damage caused by their space objects,

*Desiring*, in the light of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, to make provision for the national registration by launching States of space objects launched into outer space,

*Desiring further* that a central register of objects launched into outer space be established and maintained, on a mandatory basis, by the Secretary-General of the United Nations,

*Desiring also* to provide for States Parties additional means and procedures to assist in the identification of space objects,

*Believing* that a mandatory system of registering objects launched into outer space would, in particular, assist in their identification and would contribute to the application and development of international law governing the exploration and use of outer space,

*Have agreed* on the following:

#### Article I

For the purposes of this Convention:

- (a) The term "launching State" means:
  - (i) A State which launches or procures the launching of a space object;
  - (ii) A State from whose territory or facility a space object is launched;

(b) The term "space object" includes component parts of a space object as well as its launch vehicle and parts thereof;

(c) The term "State of registry" means a launching State on whose registry a space object is carried in accordance with article II.

#### Article II

1. When a space object is launched into earth orbit or beyond, the launching State shall register the space object by means of an entry in an appropriate registry which it shall maintain. Each launching State shall inform the Secretary-General of the United Nations of the establishment of such a registry.

2. Where there are two or more launching States in respect of any such space object, they shall jointly determine which one of them shall register the object in accordance with paragraph 1 of this article, bearing in mind the provisions of article VIII of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, and without prejudice to appropriate agreements concluded or to be concluded among the launching States on jurisdiction and control over the space object and over any personnel thereof.

3. The contents of each registry and the conditions under which it is maintained shall be determined by the State of registry concerned.

### Article III

1. The Secretary-General of the United Nations shall maintain a Register in which the information furnished in accordance with article IV shall be recorded.
2. There shall be full and open access to the information in this Register.

### Article IV

Each State of registry shall furnish to the Secretary-General of the United Nations, as soon as practicable, the following information concerning each space object carried on its registry:

- (a) Name of launching State or States;
  - (b) An appropriate designator of the space object or its registration number;
  - (c) Date and territory or location of launch;
  - (d) Basic orbital parameters, including:
    - (i) Nodal period,
    - (ii) Inclination,
    - (iii) Apogee,
    - (iv) Perigee;
  - (e) General function of the space object.
2. Each State of registry may, from time to time, provide the Secretary-General of the United Nations with additional information concerning a space object carried on its registry.
3. Each State of registry shall notify the Secretary-General of the United Nations, to the greatest extent feasible and as soon as practicable, of space objects concerning which it has previously transmitted information, and which have been but no longer are in earth orbit.

### Article V

Whenever a space object launched into earth orbit or beyond is marked with the designator or registration number referred to in article IV, paragraph 1 (b), or both, the

State of registry shall notify the Secretary-General of this fact when submitting the information regarding the space object in accordance with article IV. In such case, the Secretary-General of the United Nations shall record this notification in the Register.

#### Article VI

Where the application of the provisions of this Convention has not enabled a State Party to identify a space object which has caused damage to it or to any of its natural or juridical persons, or which may be of a hazardous or deleterious nature, other States Parties, including in particular States possessing space monitoring and tracking facilities, shall respond to the greatest extent feasible to a request by that State Party, or transmitted through the Secretary-General on its behalf, for assistance under equitable and reasonable conditions in the identification of the object. A State Party making such a request shall, to the greatest extent feasible, submit information as to the time, nature and circumstances of the events giving rise to the request. Arrangements under which such assistance shall be rendered shall be the subject of agreement between the parties concerned.

#### Article VII

1. In this Convention, with the exception of articles VIII to XII inclusive, references to States shall be deemed to apply to any international intergovernmental organization which conducts space activities if the organization declares its acceptance of the rights and obligations provided for in this Convention and if a majority of the States members of the organization are States Parties to this Convention and to the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies.

2. States members of any such organization which are States Parties to this Convention shall take all appropriate steps to ensure that the organization makes a declaration in accordance with paragraph 1 of this article.

#### Article VIII

1. This Convention shall be open for signature by all States at United Nations Headquarters in New York. Any State which does not sign this Convention before its entry into force in accordance with paragraph 3 of this article may accede to it at any time.

2. This Convention shall be subject to ratification by signatory States. Instruments of ratification and instruments of accession shall be deposited with the Secretary-General of the United Nations.

3. This Convention shall enter into force among the States which have deposited instruments of ratification on the deposit of the fifth such instrument with the Secretary-General of the United Nations.

4. For States whose instruments of ratification or accession are deposited subsequent to the entry into force of this Convention, it shall enter into force on the date of the deposit of their instruments of ratification or accession.

5. The Secretary-General shall promptly inform all signatory and acceding States of the date of each signature, the date of deposit of each instrument of ratification of and accession to this Convention, the date of its entry into force and other notices.

#### **Article IX**

Any State Party to this Convention may propose amendments to the Convention. Amendments shall enter into force for each State Party to the Convention accepting the amendments upon their acceptance by a majority of the States Parties to the Convention and thereafter for each remaining State Party to the Convention on the date of acceptance by it.

#### **Article X**

Ten years after the entry into force of this Convention, the question of the review of the Convention shall be included in the provisional agenda of the United Nations General Assembly in order to consider, in the light of past application of the Convention, whether it requires revision. However, at any time after the Convention has been in force for five years, at the request of one-third of the States Parties to the Convention and with the concurrence of the majority of the States Parties, a conference of the States Parties shall be convened to review this Convention. Such review shall take into account in particular any relevant technological developments, including those relating to the identification of space objects.

#### **Article XI**

Any State Party to this Convention may give notice of its withdrawal from the Convention one year after its entry into force by written notification to the Secretary-General of the United Nations. Such withdrawal shall take effect one year from the date of receipt of this notification.

**Article XII**

The original of this Convention, of which the Arabic, Chinese, English, French, Russian and Spanish texts are equally authentic, shall be deposited with the Secretary-General of the United Nations, who shall send certified copies thereof to all signatory and acceding States.

IN WITNESS WHEREOF the undersigned, being duly authorized thereto by their respective Governments, have signed this Convention, opened for signature at New York on . . .

1. *Regional Conference on "Direct Broadcast Satellites and Space Law", November 1, 1974, University of Mississippi Law Center.*

(The following is a detailed account of the panel and open discussions which took place after the major presentations\* and which were, as best as they could be, reconstituted from recordings at the above Regional Conference. All panelists indicated that they spoke in their personal capacities and that their views did not necessarily represent the views of any organization with which they were associated.)

*Professor Gorove* (Chairman of the Conference): One set of possible problems that we have not touched upon relates to the Federal Constitution and in particular, the First Amendment. What problems, if any, might arise if the United States agreed to a treaty which would require prior consent both on the part of the United States and on the part of a foreign country or several foreign countries before any transnational, direct television broadcasts can take place?

It seems to me that one could look at it from different points of view. One is a question of the right, if any, of an individual under the First Amendment to appear on TV or make a statement and have it televised to foreign audiences. Another one, is the question of the rights, if any, of the various television networks intending to send transnational broadcasts. Also, the question could come up with respect to the foreign audience's right, if any, to receive such broadcast originating from the United States. The foreign audience may be completely foreign or it may include Americans who are in a foreign country; such as, for instance, Canada, France or Mexico, who would like to watch and listen to an American broadcast originating from the United States. Further questions may arise, in relation to the right, if any, of the foreign telecaster to broadcast to the United States without prior consent and the rights of American citizens to view and listen to particular foreign broadcasts. Let me emphasize that I do not wish to prejudge the existence of such rights, I just wish to raise some questions. In the same manner, I would like to ask if you thought the United States Government would violate the Federal Constitution if we entered into a prior-consent-treaty with another country. Is it within the treaty-making power of the United States to conclude such a treaty?

Also, we have not looked at the regulatory function of the FCC in relation to licensing TV stations and its responsibilities to the public within our administrative and constitutional framework with possible reference to First Amendment rights.

Further, I would like to address to the panel a question that, in a sense, has always puzzled me, namely, how can insistence on prior consent be reconciled with what appears to be a wide-spread custom in certain areas of the world where you may tune in very easily to foreign television stations and watch any foreign program without any problem. For instance, in some of the northern areas of the United States, you can watch Canadian

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\*See *infra* pp. 1-57.

broadcasts and in Canada you can watch American programs. The same thing may happen if you travel in Switzerland and go to Basel. Basel is a city which is under French rule on one side and under Swiss jurisdiction on the other side. At any rate, it is most easy to watch French, German or Swiss programs, whichever you may prefer, in the surrounding areas. Also, there are some places where you can watch Italian, French, German and Swiss broadcasts without any difficulty with your current set. You have a range of about 70 or 80 miles and, in that area, you may tune in to any TV station with adequately strong signal. So far as I know, no real problems have arisen and no objections have been made.

I believe one of our distinguished speakers referred to the fact that certain Communist countries in Eastern Europe can, by some technical means, prevent people from watching Western TV broadcasts.\* So even at the present time the government could very easily control this. In most of these countries, I believe, a monthly fee has to be paid to the government in order to keep your TV set. Also, if the right kind of sets were not on sale, a matter which could be controlled by the government, people could not watch foreign programs. So, it seems to me this whole matter could be done by government regulations, and the whole program would not arise. So rather than talking about prior consent, they could just exclude reception of foreign broadcasts.

Let me also say that anybody can tune in practically anywhere in the world with a shortwave radio set, and can listen to Radio Teheran, Moscow, or Peking and so forth, and nobody is much upset about that. True, that in some of the Communist countries, they used to have very extensive jamming operations in order to try to prevent people from listening to the foreign radio broadcasts but, at any rate, the thing has been done and has been in operation for a long time. Occasionally you may have heard, perhaps, objections. However, the very same countries also have radio broadcasts to which you can listen in other countries and which are directed to these countries and, sometimes, they may not be very complimentary of what they say about the United States policy or the policies of some other countries. I would like to ask our panelists to respond to some of these observations and questions.

*Mr. Frutkin:* Since I am the only non-lawyer here, it is very easy for me to answer most of these questions. First, I would like to make the observation that it is true that radio is already doing precisely what people are saying they are afraid of for space TV to do. I believe the difference is that modern political regimes, especially totalitarian regimes, have a very grand notion of the power of TV. They can live with radio, but they are worried about the capacity of TV to impact the minds of their people. The notion that the United States might be able to send a kind of visual Voice of America to the peoples of the Soviet Union in a broadcast covering or blanketing them, I am certain, frightens the Soviet Union a great deal. It does not frighten us very much because we know that nobody pays much attention to TV, except for the commercials, so we do not worry about it in return, but the Soviet Union does worry about it. I believe this is one of the reasons that the matter is of such great concern. In fact, when the Soviet Union first presented its position on direct broadcasting it incorporated a provision which provided

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\*Editor's note: East European viewing may be prevented by the simple expedient of manufacturing TV sets to receive audio and video signals on different frequencies or with different modulation than foreign TV sets.

that a country would have the right to knock down a satellite which was broadcasting TV into its territory without permission. That is how far they went. They have since dropped that provision which is rather provocative. I believe that is the main thing that has upset some of these people. The other thing is that there is a human factor at stake, or there is a human factor operating here, namely that there are really a lot of people in these forums talking about something that they know nothing about. I realize that is not a very complimentary statement, but, I believe, it is the truth.

Then let me make some observations on your first point. According to the summary that you have given to the agreements so far reached, the United States does subscribe to the notion that states, nations, shall be responsible for their broadcasts from space. That is inconsistent with the notion that an American citizen has the right to stand up before a microphone and give his views internationally; at least I think it is inconsistent. You can not allow an individual citizen to stand up and exercise his right of free speech and still, in any meaningful sense, say that this nation is responsible for its international broadcasts. The two things are inconsistent and the U. S. would have to regulate in some way the expressions of views of American citizens on international broadcast TV. That does not bother me one bit, because we do that at home already. When people speak of the First Amendment in this connection, they are speaking of an abstraction and not speaking of the facts of life. The American citizen does not now have the right to stand up on a TV station and say what he wants to say. The TV station first of all has to be licensed, and its license is reviewed according to its public performance in the public interest, and some government agency decides what the public interest is, not the individual citizen. Then the right of the citizen to get up and deliver his views on a TV station which is licensed, that right is subject to the judgment of the TV station whether to let him get up there and have equal time or not. So it is just like any discussion of our free private enterprise economy—we do not have one. We have a regulated economy, we also have a regulated First Amendment, in my view.

Also, we have laws of libel and slander, and all these things restrict the First Amendment. So I do not find it shocking that we should think of agreeing internationally to some sensible code of conduct to govern not only ourselves but any other nation's use of another microphone, which is all that we are talking about here—just another microphone. It is an exotic one up there in the satellite, but it is just like any other radio microphone that you use to broadcast from one country to another.

There is still another consideration. There is a law which is honored in the breach which prevents an individual citizen from conducting foreign policy. An American cannot go abroad and treat political matters with foreign nations. That law is violated regularly by Congressmen and others who visit other countries, but there is such a law, and that is still another simple example of the fact that we do restrict our individual freedom of speech internationally. These are the only comments I have, and they are made without inhibition.

*Mrs. Galloway:* I think as Mr. Frutkin does about the beginning of all this. That first discussion we had was when the Soviet Union made a proposal and it was worded in such a manner that they would shoot down a direct broadcast satellite whether or not it was over the Soviet Union. It could have been over the high seas, and this created quite a commotion and a great many nations objected to this. So later they changed their position and said that they had been misinterpreted, that what they meant to do was to take all legal means against such broadcasts, but they never did define what the legal means were. Evidently this came from fear, and it was a very unusual thing because hitherto you just shot things down that were in the airspace, like the Soviet Union could legally shoot down our U-2 plane which flew over the Soviet Union. However, people had not talked about shooting down satellites, even when they were a different kind, like the earth resources or the remote sensing satellites, especially the early meteorological ones which were taking pictures of the land, and some of these were military reconnaissance satellites. So, I believe, all this arose from fear.

Also, there are some people who think that the motivation was that you begin by getting a rather rigid regulation of TV broadcasts, and after you get that, then you move in for the same type of rigid regulation of radio broadcasts. So the thing would work just the opposite; it does not work that way because the radio is fairly free and there have not been such violent objections to it.

I also think that some of the people who discuss these questions in the U.N. meetings must get some political capital back home. There are not so many, but if you read all the speeches, it does make an impact on you personally because you begin to feel this fear of the unwanted program. It is true that we regulate these matters in the public interest within the United States. We are a member of the Treaty on Outer Space, the 1967 treaty which says that the government is responsible for space activities, both governmental and non-governmental, within its own territory, which raises questions as to the extent to which the government would go. However, I do not believe that the United States Government would become a party to a treaty which rigidly struck at the very mores of the people so that you were really destroying regulated freedom. I think that the Government would not do that because this is only one form of space communications technology. We already have the International Telecommunications Satellite Consortium, the INTELSAT organization; we also have the COMSAT organization for regular space communications that you are familiar with, that you receive every day. This is so strong a combination of governmental and private, national and international, endeavor that, I do not believe, they would let one particular technological use bring all of this into imbalance.

*Dr. Patermann:* Mr. Chairman, you have put some questions to the panel and I would like to give you my view on these questions. The first, as you mentioned, if you are in some parts of the Northern United States, like Maine, you may very easily tune in Canadian TV broadcasts from abroad, and as you rightly pointed out, the same applies in a more intensive extent to many European countries. For example, in my country\* you

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\*Editor's note: West Germany

can receive in the North the Danish TV. I come from a small town near the Eastern border where we always receive the TV programs from the German Democratic Republic, and *vice versa*. In the West, you have The Netherlands and Belgium who can receive the German TV broadcasts and we receive theirs. We have French television in the South of Germany. You can receive broadcasts from Switzerland, Austria, and France at the same time. And if you are in Geneva, you have the Italian, French, and Swiss TV also at the same time. These facts have been debated in the United Nations Working Group in the fourth session. I remember very well that the representative of the European Broadcasting Union said that until now there have never been any kind of complaints on so-called terrestrial spill-over. In fact, the report which is in front of me states that spill-over in terrestrial broadcasting has not so far apparently given rise to problems despite its wide-spread occurrence. We very much insisted on getting this part in the report because it shows what I believe is very important, namely, that we have been living for about 40 or 50 years with the fact that you can easily tune in shortwave radio stations all over the world, and that you can receive TV broadcasts from terrestrial bases easily in neighboring countries.

Turning to the legal point concerning the spill-over in terrestrial broadcasts, there is even a regulation in the Radio Regulations, namely No. 421, which explicitly admits spill-over on terrestrial TV. That is very important. It is a material fact that is very frequently simply forgotten. The argument from the other side is that this is admitted for terrestrial broadcasts but for direct broadcast satellites we will not permit it in the Radio Regulations. That is a very simple counter-argument. These are the facts and these are the discussions which have been had.

Concerning the legal framework, lawyers in our country tried to find a way to determine whether this international practice we have been living with now for many decades already constitutes customary law or not. I believe that is a very important question: whether you can derive that from the fact that shortwave radio broadcasting transmissions have been widespread all over the world with a near impossibility of being jammed by the receiving country and without any kind of thought of giving permission to another country. That is the other way around it. It is a difference of whether I am in a position to jam a session and whether I can really impose my view in forbidding the other country to send transmissions into my country.

The important point is that you can engage in this international practice on shortwave radio and on terrestrial broadcast TV in Germany and all European countries without any problem and without any state protest. Never once has France protested against German TV. Never have we protested against Dutch, Belgian and Swiss broadcasts. This is good neighborhood, it is generally accepted. There has been no objection raised against that. All these facts do not represent facts which are necessary to have customary law. That is, I believe, a very important point. One should talk about that. You might need the *opinio communis* and *longa consuetudo* in Latin. We talked with the Russians about that and they had no reaction to that. So, I believe, it would be very worthwhile deepening that point, whether all this international practice is already so far established

that you can speak of an internationally accepted, legally binding practice which if you just put in the other side's position for direct broadcast satellites, would be an exception which, to my point of view, is not at all justified because I do not see how the TV audience can see any difference whether the broadcast is coming directly from the TV transmitter or whether it is coming from a relay station. To them, it is just on the screen. The other kind of question is whether you can really manipulate it by putting something before it. So these questions have been dealt with in international discussion, but a sufficient legal answer has not yet been given, and one should think about that. Let me come to the last point—Radio Regulations No. 421, which I mentioned already, is a kind of hint as to whether you can say it is already customary law or not.

In Germany, we do not have any constitutional problems. The problems however are manifold. We have the great fear that this is the start of the end, that is, if you start to regulate the direct broadcast satellite question by very rigid, manipulated regulations or guidelines or whatever it is, in such a broad way as has been proposed by the Soviet Union. We fear, as the question is premature now, that one can very easily transform such guidelines to terrestrial TV, to shortwave, longwave, mediumwave radio and all kinds of communications. That would be very, very difficult for us because we live in a divided country. Therefore, we are very much against it.

*Dr. Gorove:* I would like to come back for a moment to Mr. Frutkin's remark. I believe he was referring to the Logan Act which is applicable to American citizens who make unauthorized statements on behalf of the government. Mostly, I believe it arose out of the desire to prevent private persons from assuming obligations on behalf of the United States. I do not see any connection between that act and a situation where an individual, if he wants to, does appear on TV, and says certain things on his own behalf. Let me add I have not said at all that a prior-consent-treaty would necessarily be a violation of the Federal Constitution. What I have said is that we ought to look at the question of just what the rights are in relation to the various categories of people which I have mentioned. However, I have not come to the conclusion that necessarily any kind of prior-consent-treaty would be a violation of the First Amendment. In fact, I have noted that the FCC does exercise regulatory authority at present. If the FCC would act arbitrarily or in violation of First Amendment rights, you would have a case in court and the court would then decide. However, a certain amount of regulation in the public interest has been held to be all right, and if this were the extent of the regulation that would go into a prior-consent-treaty, that is, the FCC would have the same rights in relation to incoming and outgoing broadcasts as it currently has domestically, I do not believe you would have too much of a constitutional problem. However, we have had cases like the *Red Lion*\* case where the Supreme Court has said the right related not so much to the right of the speaker but to the viewer's right to see and listen to persons expressing different views because obviously the TV station could not provide everybody with a forum to speak under the banner of free speech. This would be impossible.

Also, we have had cases involving the Postmaster General. Under federal law at one time, the Postmaster General was able to withhold unsealed mail originating from

\**Red Lion Broadcasting Co. v. FCC*, 395 U. S. 367 (1969).

communist countries having communist propaganda and slogans in them until the addressee indicated that he really wanted the materials. That particular act was held to be unconstitutional by the Supreme Court, since it interfered with the right of the recipient to receive information even though it may have been communist propaganda; not involving the right of the sender to send the information, but the right of the receiver to receive it. So there are some constitutional problems none of which, it seems to me, is necessarily insurmountable if the prior-consent-treaty would involve a similar type of control as that exercised by the FCC at the present time.

Turning to Dr. Patermann's observations, I find them very interesting and revealing. I am in full agreement with him and I believe he has made an excellent point in relation to the possibility that the wide-spread international practice in relation to shortwave radio and spill-over from conventional terrestrial TV broadcasts could be regarded as already having created a customary law.

Another point I want to come back to relates to the question of liability for damages. I have not looked at this question from the point of view of direct TV broadcast by satellite, but from my recollection of the Liability Convention, it seems that the Convention would not cover or was not envisaged at the time when it was concluded that it would cover the type of damage that would arise out of direct TV broadcasts of the kind that you have described. I do not know whether Eilene Galloway can confirm this, but my recollection is that when the Space Treaty came up for discussion and ratification in the Senate, it was the understanding of the members of the Foreign Relations Committee that the damages covered related to direct, tangible types rather than indirect and intangible types of damage.

Damage caused by a falling space object would be the primary example of direct type of damage. Also, if two spacecraft collided or a spacecraft collided with an aircraft, the damage arising would be direct damage.

I believe a similar question came up in connection with earth resources technology satellites, *i.e.*, whether a country like Brazil could bring an action for damages against, for instance, the United States, because we have surveyed certain areas of Brazil and have found that these areas are good for prospecting, and we have released this information to another country which takes advantage of it in some form while the Brazilian Government does not know about it as yet. Whether a foreign government could bring a damage claim under the Liability Convention against the United States under such circumstances is the question. When I addressed myself to that question not too long ago,\* I came to the conclusion that I did not think so. Let me re-emphasize that I have not specifically addressed myself to the very interesting question raised by Dr. Patermann but my general feeling on the spur of the moment would be that the Liability Convention was not envisaged to cover that type of situation, and I do not believe that if a case came up the ultimate conclusion would be that it would cover it. I wonder what Dr. Patermann says to this.

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\*Editor's note: See Gorove, *Earth Resources Survey Satellites and the Outer Space Treaty*, 1 J. Space L. 80 (1974).

*Dr. Patermann:* I completely agree with you. I have just read through Article 1 of the Liability Convention and there it is clearly stated that the term "damage" does not apply further than "injury or other impairment of health; or loss of or damage to property of States or of persons, natural or juridical, or property of international intergovernmental organizations." That means that so-called "immaterial" damages that we have in Germany are not covered by the quoted phrase and, for this reason, I believe we must point to new sources to cover these and one of these possibilities would be to have the conflict rules of private international law enriched by other aspects, but by no means could you use the International Convention on Liability for that. I spoke about this point with French and British colleagues and they completely agreed that there is a common understanding that the scope of this international convention is limited in the way you have described it.

*Dr. Gorove:* At this time, I would like to open the discussion for questions from the audience. Please state your name and address your question to anybody on the panel.

*Mr. Bill Bearden:* I would like to ask Dr. Patermann about the tort liability of the manufacturer who was damaged by false advertising claims and wonder if his basis for a claim could lie in the use of direct TV broadcast. I was also wondering if you had any similar kinds of problems arising out of terrestrial TV broadcasts where you had a spill-over and the citizen of the country where the broadcast had not originated claimed damages against an advertiser.

*Dr. Patermann:* I just want to remind you of the fact that these problems are not brand new and you find many of these aspects already existing, but they have until now never been so sharply worked out because they have not had such an immediate impact. For example, on shortwave radio normally you do not have any advertising programs, with the exception of the famous Radio Luxembourg in Europe. It is similar on terrestrial TV in Europe now. I mentioned earlier that it is possible to take account of the so-called broadcasting offenses. For example, if you have an enormous broadcast transmission advertising scheme or things like that, or you just denigrate the personality of a world-wide known person, then you have in principle exactly the same problem, but the fact that it is done by communication satellites, or by DBS, is aggravating the problem. The scope of damage could be multiplied into a larger scale than it is known now, but I agree with you, as I reported at the beginning of my lecture, that the question, in principle, has already existed for 30 years.

*Mr. Norman Mott:* Mrs. Galloway, I am having some trouble understanding why this country would be so much in favor of not requiring consent, and in particular, allowing broadcasts that particularly involve First Amendment problems of propaganda being sent into this country, when we would have difficulty in our own legal system of shutting off certain things that would be deemed by whoever would deem them as dangerous to our form of government. Would we not be better off if we avoided propaganda problems by treaty, than if we allowed them?

*Mrs. Galloway:* I have heard your point brought up in the Senate by various people who heard of this for the first time, especially some of the professional staff people, and they say we would not want another country broadcasting a lot of pornography and all sorts of other things that we did not want. However, the position that the government has taken, which, I believe, is also shared by industry including CBS, NBC, and other broadcasting companies, is that they do not want that type of regulation. They would like to keep it flexible. They do not want to deter the advance of technology if the technology should come and we should want to use it. They do not want to make a rigid system before we know what it is all about. For a long time, we just said the whole thing was premature. Then there were so many people who expressed theories about it that a policy was put forth, the points of which I gave, that seemed to be compatible with what we wanted. Then, someone else made the comment that, we do not try to regulate all the foreign radio. You can tune in on a shortwave set to any of that, so why should we do it with TV? However, the other problems, I believe, are dealt with in Mr. Gehrig's paper because he has explained that just solely from the economic point of view, we are not going to wipe out all of our ground stations and present way of handling communications by TV and Radio. We are not going to do that just to use this other technology. It is a technology that can be used without many problems if you are just broadcasting into a community set, as in India. As for the other part, it would seem very suitable for a large country, say some country in Africa, or within the Soviet Union itself, if just used for their own programs. It would seem suitable for a place like that where they did not have roads or teachers or educational facilities, and they wanted to broadcast medical information, agricultural information about crops, and so forth. So, I believe, there is some regulation now of the content in that there are some kinds of programs that we do not want.

*Dr. Gorove:* I am entirely in agreement with you. The FCC regulates this at the present time so you could not have pornography on TV, and there is always licensing. Mr. Frutkin pointed out that there is real control exercised by the FCC because it may not renew a license after its expiration. Yet the FCC's control is limited by statutory and constitutional requirements. So if it extended to any violation of First Amendment rights, you would probably get a case in court.

*Mr. Mott:* The proposition that I am worried about is not the American broadcasters, but rather the people broadcasting into this country. Now granted, there are many ways that we could perhaps regulate the signal itself, but it would be expensive to solve that problem; technically, there is a problem. The question I was asking is that there seems to be very little way to regulate reception in this country that would be possible under the First Amendment. Therefore, we go back to the original problem, which is permitting a tremendous amount of foreign propaganda to enter this country via satellite into home receivers that might agitate a little number of people. I think we ought to attack the basic problem in the way that would be most efficient and perhaps not worry about the problems that arise if we do not allow a free flow of information. Granted that is a harsher position, but we do forget it is something that is acting adversely, and that greater degree of regulation can be applied to that type of broadcasting than to American broadcasting.

*Dr. Gorove:* I do not know whether your question is more of a hypothetical question than a real question. What Dr. Paternmann related to us, I believe, is very instructive with respect to the current situation in Europe where you have absolutely no control. You have not had any objection by European countries where the TV broadcasts have been crossing boundaries from one country into another. I do not know for sure, but I think it is highly unlikely that you would have a kind of propaganda shower against the United States, because what you would have to do, I imagine, is to tune in your set to a particular station, and if you did not want to, you did not have to tune in. If there was some sort of intentional interference with your own broadcast, that might be a different situation. However, we have heard technical experts say that it could not overcome your own local broadcast. The signal is not that strong. So, in other words, the propaganda would have to come into unoccupied channels in order for you to get reception. Beyond that, I grant you that there may be certain objectionable things, like vulgar expressions, obscenity, and the like. But is it really likely that a country would engage in this and expose itself to the detrimental effects of international, if not world-wide, condemnation with respect to what they were doing? They would be condemned, I believe, internationally by people the world over who would ask why they were engaged in doing this in relation to our country. I do not think that is a very likely situation to arise, but that does not necessarily answer your question, which tries to point in the direction that maybe some form of control over such broadcasts would be essential. I believe the United States could go so far as to apply FCC type of regulatory control to foreign broadcasts to see that they do not broadcast obscene things or incite people to violent overthrow of our government, and other similar things.

*Mrs. Galloway:* Your question is really a specific instance in this general problem I mentioned. There is a conflict between sovereignty and free flow of information that arises because of different legal systems and different psychologies in the various countries. So if you were writing a paper on that, this is one of the things you would want to take up because the assumption is that the United States is willing to have anyone broadcast, but actually we could not receive it, unless we had the right kind of receivers.

With regard to the other point that was brought up, when they were discussing the Treaty on Outer Space in the Senate as to whether or not they were going to give their advice and consent to ratification, the Senate Foreign Relations Committee got out a report saying that it was their understanding in reporting it favorably to the Senate that damage would not include electronic damage. They were very worried that some form of damage would be put in there that would be astronomical in amount, and that the Senate or Congress would be writing a blank check for some sort of damages that they did not know what they were. So you do not have that kind of damage, but in this whole area you do have a lack of definition of the word "benefit." We have the Space Treaty that says we are going to use and explore outer space for the benefit of all mankind and we think it is a benefit to have free flow of information, the assumption being that that leads to friendly relations and maintains peace. There are some other countries that think that is not a benefit, but I think they would not go so far as to say it was damage in the sense of liability.

*Dr. Gorove:* Some years ago I wrote an article\* discussing *inter alia*, the meaning of "benefit" that Eilene Galloway is talking about. I thought it was a fascinating and challenging thing to devote a lengthy piece of writing to a single provision in Article I of the Space Treaty, namely, that the exploration and use of outer space had to be "for the benefit and in the interests" (plural, mind you) of all countries. One could argue that if it is in the interests of all countries, that includes our own interests, so therefore it could not be against our own interests. Anything that would be against our own interest, would not be in the interests of all countries, because we would not be included.

*Mr. John Crouch:* I would like to address a question to the entire panel, and that is, what would be the sanctions under international law against a pirate transmitter, perhaps on the high seas, or in a non-treaty country? By a pirate transmitter, I mean a transmitter that will transmit a signal to an operating direct broadcast satellite in the appropriate picture code, which signal will displace or be superimposed upon the proper uplink signal, and will then be broadcast back down to the particular country that is receiving that broadcast in such a fashion that the spot signal is transmitted to the satellite and rebroadcast by it too rapidly to be interfered with by the ground crew controlling satellite operations. The pirate transmitter would hence be able to insert spot commercials and suggestive materials into the content of a regular broadcast via direct broadcast satellite.

*Mrs. Galloway:* The International Telecommunication Union allocates radio frequencies, and some of these are for operational purposes and some of them are for experimental purposes. Now our direct broadcast satellite, the one that is for community receivers, about which we are not having trouble, and our earth resources satellites operate on an experimental band, which is not operational. If we decided right away to become operational, we would have to get a different frequency from the International Telecommunication Union. Now 140 nations are members of the ITU, and you don't have to have a policeman or any kind of police force to make the nations comply with this allocation, because if they did not, there would be chaos in communications, both in outer space and on the earth. So they comply with that. We can not change our ERTS to operational now, because we are operating on an experimental band. So the only way you could do it is if you were willing to accept a lot of interference, which you usually are not willing to do. So I do not see technically how this could be done. If the pirate used the same frequency, I should think, it would just be a jumble.

*Mr. Crouch:* You could conceivably overpower the beam that was being used to uplink the regular signal to the broadcast satellite.

*Mrs. Galloway:* I guess I really do not know enough about the technology of that to know exactly how it could be done, but I suppose that you would have to locate where it began in order to do anything about it.

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\*Editor's note: See Gorove, Freedom of Exploration and Use in the Outer Space Treaty: A Textual Analysis and Interpretation, 1 Denver J. Int'l L. & Pol. 93 (1972); see also Gorove, Limitations on the Principle of Freedom of Exploration and Use in the Outer Space Treaty: Benefit and Interests, Proc. 13th Colloquium on the Law of Outer Space 74 (1971).

*Dr. Patermann:* I have a very clever book with me here, a dissertation by one of my German colleagues which was only put out two or three months ago, and has one chapter dealing with the question of pirates. So far as I can find, there has been, at least in Europe in 1965, the European Convention Against Pirate Transmissions, but for the time being, it is only on the scale of terrestrial radio broadcasts and not TV. This convention is based on the recommendation of one of the World Administrative Radio Conferences around the end of the fifties which does not forbid such pirate transmissions, but it asks the respective governments to do everything in their legislation to prevent pirate transmissions from getting into their country. Two or three months ago, off the Netherlands coast, there was a popular pirate transmitter which was closed by force by the Netherlands because this transmitter had been transmitting very popular broadcasts to Great Britain, the Netherlands, and Belgium. All three countries came together, and as the pirate was closest to the Netherlands coast, the Netherlands sent some policemen there and said if you do not close it down now, we will do it by force. So far as I am informed, the transmitter was closed down voluntarily.

Now coming to your question, what would happen if such a pirate transmitter were to transmit either TV broadcasts or even direct broadcasts, I think the only way to protect, if you want protection against that—and maybe you do not want to protect against it, it may be a very fine thing to have a very good TV transmission from the high seas if the program is good and if the spectators can be contented and not be charged for it—would be to amend this convention and say that it is not only for radio broadcasts but also for direct TV. That would be the kind of legal instrumentality that would protect against it. Whether you really would want it, would depend on your political world. However, I think that insofar as it would be detrimental to the interests of the state, the states which receive such transmissions will not hesitate to amend this convention and, perhaps, to establish a new one.

*Dr. Gorove:* Let me try to clarify your question a little further. If somebody here in the United States operated such a pirate station, it would seem to me that this would be against federal law, if the operation was without the appropriate authorization or license issued by the FCC. At the present time, as you have heard from all these discussions, there is no international agreement in relation to the so-called principle of prior consent that some countries advocate. So if this operation takes place somewhere else, or the question arises whether internationally you can do something about it, apart from the question that it may be a violation of domestic law, it would seem to me that internationally the only thing the United States is obligated to do under Article VI of the Space Treaty is to make sure that the activities of public and private organizations in relation to outer space are in line with the provisions of the Outer Space Treaty. There may be even some question as to whether it is an activity in outer space when you are doing something here on earth. But the utilization of outer space by the use of a broadcast satellite is, even in the manner described by you, a use of outer space. However, the United States Government is obligated only to make sure that there is no violation of the Outer Space Treaty. The Outer Space Treaty says nothing about direct broadcast satellites. So, at the present time, no matter how you look at it, whether you look at it

from the point of view of what has been referred to as possible customary law, or in any other way, there is no international law which would say that prior consent is essential. So internationally, I do not see just what law is being violated thereby.

In conclusion, I would like to say that we are most grateful to our out-of-state visitors and guest speakers and we want to thank them very much for their participation and contribution to the success of this conference. I would also like to take this opportunity to express our gratitude to our sponsoring organizations, namely, the American Society of International Law, the University of Mississippi Law Center, and the L. Q. C. Lamar Society of International Law and their officers. The conference is now closed.

## 2. *Other Events*

"International Cooperation in Outer Space" was one of the topics of discussion at the Fifteenth Strategy for Peace Conference (Oct. 17-20, 1974, Warrenton, Va.) sponsored by the Stanley Foundation and chaired by Professor James Van Allen of the University of Iowa.

"Legal Implications of Joint Ventures in Outer Space" constituted the general theme of the Third Annual International Law Symposium held on October 24, 1974, at the University of Akron School of Law. S. Neil Hosenball, Deputy General Counsel of NASA, led off the discussion focusing on current international cooperative endeavors and was followed by Professor Carl Q. Christol of the University of Southern California, who spoke on the U. N.'s role, while Brig. Gen. Martin Menter (ret.) retraced the implications of earth resources satellites. Professors William Foster and Hamilton DeSaussure of McGill University acted as commentator and moderator, respectively.

The papers and presentations, as well as the panel and open discussions at the Regional Conference on Direct Broadcast Satellites and Space Law held at the University of Mississippi Law Center under the chairmanship of Professor Stephen Gorove on November 1, 1974, are reproduced in this issue of the JOURNAL OF SPACE LAW.\*

The Belgrade Spaceship Trial, which was first heard in 1971 at the World Peace Through Law Conference in Yugoslavia was re-enacted on May 31, 1975, at the University of Southern California before presiding Justice Macklin Fleming of the California Court of Appeals. Marion Dentzel acted as chairman, and Professor Carl Q. Christol, William Dentzel and Chester Leo Smith were the coordinators.

The "VII Jornadas Nacionales de Derecho Aeronatico y Espacial" were held under the auspices of the "Instituto de Derecho Aeronatico y Espacial" of the Faculty of Law and Social Sciences of the Universidad Nacional de Cordoba on August 13-16, 1975. The

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\*Pp.

Fifth Working Session was chaired by Professor Aldo Armando Cocca and devoted to the topic of "Proposed International Conventions in Space Law".

The U.S.-U.S.S.R. Aerospace Panel, chaired by the Hon. Edward R. Finch, Jr., met in Montreal on August 11, 1975 in connection with the Annual Meeting of the American Bar Association. The presentation by ABA President James D. Fellers of commemorative medals was followed by a panel discussion. Panelists on the American side included Charles Rhyne, President of the World Peace through Law Center, NASA General Counsel Neil Hosenball and U. S. Astronaut Alan Bean. Panelists on the Soviet side were Interkosmos Vice-Chairman Dr. V. S. Vereshchetin, Professor Dr. Gennady P. Zhukov and Soviet cosmonaut A. V. Filipchenko. Among those questioning the panel were Professor Stephen Gorove, Professor Mateesco Matte, Brig. Gen. Martin Menter (ret.), and Dr. George S. Robinson.

The Seventeenth International Symposium on Aerospace Law will be held in Atlanta, Georgia on September 10, 1975, during the annual Convention of the Federal Bar Association.

The Eighteenth Colloquium on the Law of Outer Space is expected to be held in connection with the 27th Congress of the International Astronautical Federation in Lisbon, Sept. 21-27, 1975. Topics on the agenda include: legal aspects of the utilization of energy from space, legal status of geostationary orbit, legal aspects of international space cooperation and other subjects.

The Space Law Committee of the Inter-American Bar Association is scheduled to discuss current problems of space law during the XIX Conference of the Association in Cartagena, Colombia, Sept. 27-Oct. 4, 1975.

### 3. *Brief News*

The flawless launchings of Soyuz and Apollo spacecraft on July 15, 1975, from launch sites half a world apart marked the beginning of the successful Apollo/Soyuz Test Project, the first cooperative space venture between the United States and the Union of Soviet Socialist Republics. Two days later, after playing the role of "chase" vehicle, the Apollo craft caught the Soyuz vehicle and the two successfully accomplished the first of several technical objectives by demonstrating a compatible docking system in orbital operations. During the following two days, the two spacecraft flew in a docked configuration while the two crews successfully achieved the primary mission objectives of verifying techniques for transfer of personnel in orbit and performing joint crew activities while docked in orbit. The interchange of crew members between the two docked craft marked the first time in history that citizens of one nation had entered the spacecraft of another nation while the spacecraft orbited the earth. This first international manned mission was conducted pursuant to the 1972 agreements between the United States and the Soviet Union.\*

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\*Reprinted in 2 J. Space L. 133-38 (1974).

The Canadian Telesat-C domestic communication satellite was launched on May 7, 1975, from Cape Canaveral, Florida. The spacecraft was successfully placed in a geosynchronous orbit at 119 degrees West longitude (south of Los Angeles, California).

India's first satellite, launched April 19, 1975, has begun returning useful data.

Contracts have been let by the Japanese National Space Development Agency for design of two experimental communication satellites that will be launched in 1979. Each spacecraft will weigh approximately 286 pounds (130 kilograms).

Launchings of Soviet Venera-9 June 9, 1975, and Venera-10 June 14 spacecraft mark the fourth Soviet dual-spacecraft mission to Venus in the past six years. The two Venera spacecraft are of similar design and are in the 10,000 pound (4,500-kilogram) weight class. They are scheduled to arrive at Venus in October.

The United States Orbiting Astronomical Observatory (OAO-3), in a 450-mile earth orbit since August, 1972, is now devoting some of its observation capability to a search for possible intelligent life elsewhere in the universe.

Under the first major space project conducted jointly by the United States and West Germany, a spacecraft named Helios is to acquire data about solar atmosphere, radiation and interplanetary space.

*The Future of the U. S. Space Program*, by Arthur L. Levine, Praeger Publishers (New York, Washington, London, 1975, pp. 198, \$16.50).

The author of this book is Associate Professor of Public Administration at Baruch College, City University of New York. He worked for the National Aeronautics & Space Administration from its inception in 1958 until 1972. During his years of service he had ample opportunity to observe and participate in various facets of our space program and his study reflects a conscious utilization of his vantage position.

The title of this book appears to be, to some extent, misleading. It refers to the "Future of the U. S. Space Program." The book, however, is much more an over-view of the U. S. space program, past, present and future, than a discussion of prospects for the future to which only one chapter is devoted out of a total of eight. Of course, no future program could be very meaningfully presented to the reader without an analysis of the historical context and present-day realities. Thus, the author's review of the development of the U. S. space program, its civilian and military aspects (Chapter 1), the impact of early policy developments on the establishment of the National Advisory Committee for Aeronautics and the creation of the National Aeronautics & Space Administration (Chapters 2 and 3), the space policies of the Eisenhower and Kennedy administrations, the commitment to a manned lunar landing, the space program under Johnson's presidency (Chapters 4 and 5) and what the author calls the "post-Appollo policy struggle" (Chapter 6) is quite essential before his discussion of the prospects for the future (Chapter 7) and his conclusions (Chapter 8).

The two most important questions, according to his own evaluation, to which the author has addressed himself in focusing on the future of the U. S. space program, were the following: how should space be used and who should decide how space should be used? With respect to the first question the author has found that "at present, space is being used by the United States for civilian projects with emphasis on scientific exploration, practical applications, national prestige, and international cooperation." But the author has also found that the United States has a considerable space program in support of defense activities. With respect to the second question, concerning the authority for making space policy, he has also come up with a multiple answer. He found that not only the leaders of NASA and other administration officials, including the President and his staff, but also Congressional committees, the scientific community, the aerospace industry, as well as the public, has a role in the formulation of the nation's space efforts.

In conclusion, the author felt compelled to sound a warning against the possibility of a drift developing in the U. S. space policy of the future. There were some manifestations of such a drift during the period between 1969 and 1972.

While the author's conscious exclusion of the technical and military aspects of the U. S. space program is understandable, this reviewer feels that a discussion of the policy choices and alternatives with respect to the formulation of the more important international legal principles of space law should have been given some attention in the author's treatment of the broad contours of our space policy. However, as far as it goes, the author has done a commendable job in reviewing past trends and assessing future expectations in a vital area of national endeavor.

Stephen Gorove  
*Chairman, Editorial Advisory Board,*  
*JOURNAL OF SPACE LAW*

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