

2-1-1970

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Recommended Citation

J. A. Johnson, *Law and Space Telecommunications*, 2 U. Miami Inter-Am. L. Rev. 1 (1970)
Available at: <http://repository.law.miami.edu/umialr/vol2/iss1/3>

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LAW AND SPACE TELECOMMUNICATIONS*

JOHN A. JOHNSON**

A few short months ago millions of people on this planet shared the thrilling and awe-inspiring experience of man's first landing on the moon. This event, though taking place more than a quarter of a million miles from earth, was seen simultaneously by more people than have ever witnessed any previous event in all of man's history. The peoples of the world, whether in Latin America, in Europe, or in Asia, were able to share equally in this great adventure, viewing man's first contact with the moon within a fraction of a second of its actual occurrence. This vicarious participation was made possible through the medium of live television transmission from the Apollo spacecraft to antennas on the earth and then around the world via the INTELSAT communications satellites.

The technology which has enabled man to penetrate outer space and reach the moon has also given us the ability to communicate on a worldwide basis via satellites. The communications satellite was recognized at an early stage in the development of space technology as an efficient and inexpensive means of linking the nations and peoples of the world. While the scientists and engineers were developing the satellites, the policy makers and the law makers had to consider how best to realize the practical benefits of this new technological development. Should the customary legal framework which applied to traditional telecommunications mechanisms, for instance submarine cables, be applied to this new technology? Or should a different legal framework be established, one as inventive as this new technology itself?

Within the United States, the first product of political and legal inventiveness in this sphere was the enactment of the Communications Satellite Act of 1962, which authorized the creation of a private entity, the Communications Satellite Corporation, to develop and apply the new technology. The 1962 Act declared it to be the policy of the United States "to establish, in conjunction and in cooperation with other countries, as expeditiously as practicable, a commercial communications satellite sys-

* Paper delivered at the XVI Conference of the Inter-American Bar Association, Caracas, Venezuela, November 1969.

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tem, as part of an improved global communications network, which will be responsive to public needs and national objectives, which will serve the communications needs of the United States and other countries, and which will contribute to world peace and understanding. The new and expanded telecommunication services are to be made available as promptly as possible and are to be extended to provide global coverage at the earliest practicable date."

On the international scene, various organizations were active. The 16th General Assembly of the United Nations in December, 1961, adopted Resolution 1721, stating that "the General Assembly believes that communications by means of satellites should be available to the nations of the world as soon as practicable on a global and non-discriminatory basis." Two years later, in December, 1963, the 18th General Assembly unanimously adopted Resolution 1962, which enumerated principles applicable to communications satellites, including recognition of non-governmental activities in outer space. The International Telecommunication Union (ITU) in 1963 convened the Extraordinary Administrative Radio Conference in Geneva for the purpose of allocating radio frequency bands for space radio communications purposes and to revise provisions of the international radio regulations, thus making possible the initiation of commercial satellite communication services. The ITU will convene a World Administrative Space Conference in 1971 in order to deal further with the allocation of frequencies for space communications. International organizations, including UNESCO, the International Civil Aviation Organization, the International Bank for Reconstruction and Development, and the Inter-American Development Bank have been interested in matters related to satellite communications.

Following formation of the Communications Satellite Corporation (Comsat) pursuant to the 1962 Act, negotiations were commenced among interested nations as to the means by which satellite communications might be organized on an international basis. Once again the question had to be answered as to the framework: should the traditional bilateral or limited multilateral approach used for cables be applied to satellite communications, or should a more comprehensive multilateral approach be adopted? The latter was chosen. It was determined to establish an international joint venture in which membership would be open to all member states of the ITU. In 1964, after several months of negotiations, the representatives of eleven governments signed the international Interim Arrangements which established INTELSAT. By late 1969 the membership in INTELSAT had grown to 70 nations, and more are expected to join in the near future.

The INTELSAT Interim Arrangements consist of three interrelated international agreements. The first, the Interim Agreement, between and among governments, sets forth the structure and authority of the consortium. The second, the Special Agreement, is signed by governments party to the Interim Agreement or telecommunications entities, public or private, designated by such governments. The third agreement, the Supplementary Agreement on Arbitration, will be discussed in some detail below.

The INTELSAT agreements are concerned mainly with the "space segment," which is defined in the Interim Agreement as "the communications satellites and the tracking, control, command and related facilities and equipment required to support the operation of the communications satellites." It is the signatories to the Special Agreement who are the owners of the space segment and provide the capital required to finance its development and establishment. The signatories contribute to the capital costs of the system and own its assets in undivided shares in proportion to their respective investment quotas, which at the present time vary from approximately 53% for the largest co-owner (Comsat) to a small fraction of 1% for a number of the smaller members. The earth stations which send and receive the signals to and from the satellites are not INTELSAT property but are separately owned and operated by public or private organizations as authorized by the applicable domestic law. However, INTELSAT establishes the standards to which earth stations must conform if they are to be allowed access to the INTELSAT system.

As noted above, signatories to the Special Agreement may either be the governments themselves or government-designated communications entities which may be either public or private. This provides for a very flexible arrangement and is responsive to the differing organization of telecommunications within each country. Participation in INTELSAT is thus made accessible to countries of different legal and economic systems. For example, in the United States, communications have always been considered to be within the private sector, under government regulation. The United States Government is party to the Interim Agreement while the Communications Satellite Corporation, a private corporation, is signatory to the Special Agreement and is the United States investor and participant in the consortium. In the United Kingdom the Post Office corporation, a government-owned company, is the INTELSAT investor and participant. In France and Spain the governments of those two nations are, respectively, the signatories to the Special Agreement.

INTELSAT is an unincorporated joint venture. It has two organs: the Interim Communications Satellite Committee and the Manager.

The Committee has responsibility for the design, development, construction, establishment, maintenance, and operation of the INTELSAT space segment. It is composed of signatories whose quotas, individually or in groups, equal or exceed 1.5 percent. There are now eighteen members of the Committee representing forty nine of INTELSAT's seventy members.

Each signatory exercises a vote in proportion to its investment quota. The Committee endeavors to act unanimously. Failing unanimous agreement, decisions on important substantive matters specified in the Interim Agreement are taken by the concurrence of the signatory with the largest vote plus signatories casting not less than 12.5 percent of the vote. Such matters include, for example, approval of budgets, establishment of standards for earth stations, establishment of the rate of charge for use of the space segment, approval of major contracts, and approval of quotas for new members. Decisions in other matters require only a majority of the votes cast.

In order to provide management services for the joint venture, the Interim Agreement specifies that the Communications Satellite Corporation shall act as Manager, pursuant to general policies of the Committee and in accordance with its specific determinations, in the design, development, construction, establishment, operation and maintenance of the space segment.

How has this novel organizational structure worked? Within the short five-year history of INTELSAT, three generations of satellites have been launched and placed in orbit, and construction of the fourth series is underway with a view to launching in 1971. Each generation of satellites has offered new vistas for telecommunications.

INTELSAT I, "Early Bird," launched in April, 1965, had only a 240 voice circuit capacity and a planned lifetime of eighteen months, although it actually provided service for more than three and a half years and is still a usable satellite. Three years after "Early Bird" the INTELSAT III series was launched, with a 1200 voice circuit capacity and a planned lifetime of five years. The coming generation, the INTELSAT IV, will have a 5000 voice circuit capacity and a planned lifetime of seven years. INTELSAT members have already established forty earth stations for operation with INTELSAT satellites and it is contemplated that by the end of 1972 about seventy earth stations will be operational.

Given the rapidity of technological change and the possibility that the initial arrangements would prove to be inadequate for the ends sought, there was reluctance in 1964 to cast the international agreements in permanent form. Accordingly, the Interim Agreement provided that "within one year after the initial global system becomes operational and in any case not later than 1 January, 1969, the Committee shall render a report to each Party to this Agreement containing the Committee's recommendations concerning the definitive arrangements for an international global system which shall supersede the interim arrangements established by this Agreement." It further provided that the United States was to convene a Plenipotentiary Conference to consider the Committee's Report.

The Committee's Report was duly issued by 1 January 1969, and in February, 1969, the United States convened the first Plenipotentiary Conference. The attendance at that first session demonstrates the success and influence of INTELSAT: representation from sixty seven of its then sixty eight members and more than twenty observer countries, as well as delegations from the United Nations and the ITU.

Among the issues discussed by the Conference were those of structure (the number, composition, and respective functions of the various organs of INTELSAT), scope of authorized activities, eligibility for membership, financial and management arrangements, procurement policy, and rights and obligations of members with respect to separate systems. Others included legal personality, privileges and immunities, and settlement of disputes.

The Plenipotentiary Conference, upon its conclusion in March, established a Preparatory Committee to continue discussions and prepare a report containing draft provisions for the agreement establishing definitive arrangements for INTELSAT. The Preparatory Committee met in June, September and again in November. Much work has been accomplished in these sessions, and it is expected that the Report will be in final form for consideration by the next session of the Plenipotentiary Conference, scheduled for February, 1970.

There is a consensus that there should be provision for representation by all governments and signatories either in a single Assembly or two Assemblies (one of governments; one of signatories). The functions to be given to such an Assembly or Assemblies will be resolved once this issue has been settled.

In regard to the governing body (the successor to the Interim

Communications Satellite Committee), it is generally agreed that it should be composed of representatives of signatories, be of limited size (approximately 20 members), and have responsibilities similar to those of the Committee under the Interim Arrangements.

No consensus has yet emerged on management arrangements. Some members favor immediate establishment of an international staff headed by a Director General to perform all management functions. Others favor internationalizing certain administrative, financial, and legal functions at the outset of the definitive arrangements, with the technical and operational functions being performed by a contract manager for a number of years, pending a thorough study by the governing body of alternative management arrangements, after which final arrangements would be instituted.

As to legal questions, there is agreement that INTELSAT should have legal personality, with the power to contract, institute legal proceedings, and own property. However, solutions to questions such as entry into force, buy-out of INTELSAT members not acceding to the definitive arrangements, settlement of disputes, privileges and immunities, and amendment of the definitive arrangements still require further consideration.

As lawyers we are all interested in what can be learned from the INTELSAT experience. Does it have further application? The writer believes it does, and therein lies its rather special interest to the legal profession. Primarily, the INTELSAT experience has potential application to other situations where the law must keep abreast of technology, and where law makers will be obliged to see that this occurs lest mankind not benefit from new scientific and engineering advances.

No mention has been made until now of the Supplementary Agreement on Arbitration, since it is not an operational agreement and is used only in the event of a dispute among the signatories. Fortunately, it has not been necessary to resort to its procedures. However, for the practising lawyer who deals with international commercial relations, this is an important document, differing from comparable agreements in several respects.

Under the Supplementary Agreement, the Committee appoints seven individuals to a panel from which the presidents of arbitral tribunals are to be selected. The Committee's appointments are made from a list of legal experts nominated by the signatories to the Special Agreement. The appointed individuals serve two-year terms, but may be reappointed.

The Committee is instructed to ensure that the panel's composition is drawn "from the various legal systems as they are represented among the signatories." Members of the panel are to be appointed by unanimous agreement, if possible. If, however, unanimity can not be achieved, the appointments are made by weighted voting in accordance with the voting procedures established in the Interim Agreement. The signatories have agreed that, once selected by the Committee, any of the seven may act as the president of a three-member arbitral tribunal and thus potentially be the deciding arbitrator.

At its forty-third meeting in October, 1969, the Committee appointed seven individuals to a panel from which presidents of arbitral tribunals are to be selected:

Mr. George W. Ball (United States)
Dr. Aldo Armando Cocca (Argentina)
Mr. Jens Evensen (Norway)
Mr. Mohammed-Salah Mohammedi (Algeria)
Mr. Raimundo Perez-Hernandez y Moreno (Spain)
Mr. Radhakrishna Ramani (Malaysia)
Mr. Hisao Yanai (Japan)

The seven members of the panel will choose one of their own members as their Chairman.

The arbitration procedure is straightforward. The plaintiff and respondent each nominate an individual to the three-member arbitral tribunal at the time the dispute is submitted to arbitration. If the respondent fails to make a designation, the Chairman of the panel will make a designation from among the nominees submitted to the Committee for election to the panel. The individuals representing the plaintiff and respondent, respectively, then select the president of the tribunal from among the members of the panel appointed by the Committee. If no agreement can be reached, the Chairman of the panel designates one of the panel to serve as president of the tribunal.

Beyond the arbitration aspects, the INTELSAT experience may have other applications. INTELSAT is a cooperative venture among seventy nations that has successfully met the tasks assigned to it. It has been able to do this because political considerations, though never forgotten, have been deemphasized. Members are concerned primarily with the continued provision of communications facilities on a reliable and efficient basis. The INTELSAT structure is geared to this concern.

But, because all or most legal problems concerning space telecommunications have not been settled, I should like to raise a few questions, the answers to which must be found in the near future if new developments in communications technology are to be applied for man's benefit.

Some of the legal problems will arise because of the increasingly close advent of satellites for direct broadcasting. I should point out that, while certain problems discussed below are unique to this technical breakthrough, others, such as use of the radio-frequency spectrum and orbital space, are not and will arise as more and larger satellites are established, serving greater numbers of ground stations.

If direct broadcasting from satellites is to be undertaken successfully and managed so that its use is beneficial rather than potentially harmful, a legal framework should be established prior to the introduction of such satellites. Steps have already been taken in this direction both by UNESCO and by the United Nations Committee on the Peaceful Uses of Outer Space when it established a Working Group on the subject.

In simple terms, broadcast satellites may be of two types: distributional and direct. Distributional satellites would transmit programs from ground terminal to satellite to many ground terminals. The India-NASA educational satellite project is an example of the use to which such a distributive satellite system could be put. Using the NASA ATS-F satellite, India plans to broadcast educational and developmental programs into community TV receiving stations in approximately 5,000 villages.

The second type would be capable of transmitting signals from a satellite directly to home receivers, without the need for re-transmission from a receiving station. Enormous problems will ensue if an orderly framework has not been developed by the time such satellites are introduced.

One of the first problems to be resolved in the area of satellite broadcasting concerns the transmission signal. Technically, there is as yet no effective way of narrowing the signal that can be transmitted by satellites to contain and direct it effectively within the boundaries of only one nation or a group of nations. The problem becomes particularly acute when the countries concerned are small and possess irregular boundaries. That means that there will be an overlap into countries which may not wish their populations to receive them. The multiplicity of legal-political problems is apparent.

Some attempts have been made already to meet the challenges and

problems posed by broadcast satellites. It was suggested by France at the meeting of the Working Group on Direct Broadcasting held in Geneva this summer that a good conduct code be established which would include bans on propaganda likely to impair the maintenance of international or domestic peace, on interference in the internal affairs of foreign states, and on objectionable broadcasts likely to disturb the balance of cultures or to violate human rights and fundamental freedoms. At the same meeting, Australia suggested that efforts be directed towards the preparation of a basic code of program standards for international transmissions, which would include such things as the advertising content of programs.

Some Latin Americans have suggested another means of preparing for direct broadcasting. The Center of Audiovisual Instruction via Satellites has begun to explore the potential application of broadcast satellites to the needs of the developing countries. It has begun to investigate the possibilities of pooling resources — financial, program production, equipment and receivers, and of organizing program production and program distribution of materials of value to Latin American countries.

These approaches to one of the problems presented by direct broadcast satellites are already being seriously considered. Will these kinds of approaches facilitate the development of the satellite for broadcast or hinder it? The law makers will have to consider such proposals as they attempt to resolve the problems.

A second problem to be resolved in the area of satellite broadcasting concerns protection of the "bundle of rights" contained in such broadcasts. It may be desired by the transmitting country or by the artists involved that a program not be picked up or that it be picked up subject to certain conditions. For example, presumably many of the programs beamed via direct broadcast satellites would be in the entertainment category — plays, movies, live sports telecasts. Current copyright and neighboring right laws and conventions may not be adequate to cover programs sent via satellite.

The European Agreement on the Protection of Television Broadcasts, opened for signature by members of the Council of Europe on June 22, 1960, may present a useful precedent for resolution of space age copyright problems. By the terms of this agreement, protection is conferred on the televised broadcast itself, as distinguished from the content of the broadcast, thus facilitating the exchange of television programs between European countries. Protection of the broadcast is in addition to protection of the rights in the content of the broadcast and includes both the visual and the sound elements.

Another concern with broadcast satellites relates to the "freedom of access" not only to direct broadcasts from satellites but also to any broadcasts via satellite. With the development of satellite communications, international communication is capable of flowing more freely than ever before. Should men be allowed to obstruct this new resource and develop unwarranted control and censorship?

The lawmakers must now begin formulating a legal framework so that this does not occur and that a relatively free flow of information of all kinds among countries is facilitated. An awareness and responsiveness to the technology by the lawmakers is essential for the creation of a proper framework within which direct broadcast satellites may be developed. And, any legal structure must be flexible enough to allow for new technological developments.

As noted before, certain problems will arise in any event, particularly with respect to the already crowded frequency spectrum.

Frequency allocation is a problem that has become more acute as space communications have developed. The extra bandwidth for space communications required by the increasingly complicated messages, such as weather photos, and by the use of frequency modulation for better reception have posed additional complications. The ITU, as previously indicated, has already begun to develop many important rules and procedures in this area, and the arrangements it has evolved facilitate frequency coordination.

Presently, all frequencies to be used for satellites (communication, navigation, meteorological, scientific, and experimental) must be registered with the International Frequency Registration Board of the ITU. INTELSAT registers the frequencies of its satellites with the IFRB in compliance with ITU requirements well in advance of all satellite launchings.

Synchronous satellites appear to be stationary because they move at the same speed as the earth is rotating, approximately 22,300 miles above the earth's surface at the equator. These satellites may share the same frequency bands and be located near each other in the orbital arc. However, this situation raises the possibility of radio-frequency interference between satellites, and this possibility will be the major factor in determining their minimum orbital separation. Consequently, proper international coordination is essential if interference is to be avoided. It should be noted that physical interference such as collision is considered highly improbable.

The precedent for coordination of separate satellite systems with the INTELSAT system was set by presentation of information by the French and German administrations on their experimental communications satellite program, Symphony. They invited comments of the Committee to their respective administrations on the choice of frequencies being considered for the Symphony satellites.

More significantly, the Canadian Government followed this precedent for coordination and presented the plans for its proposed operational domestic system to the Committee. Early in 1968 the Canadian Government made known to the Committee its intention to implement its proposed system in a manner fully consistent with its international obligations, including those derived from its adherence to the Interim Agreement. It also stated that it would engage in suitable informal international coordination to achieve the maximum measure of cooperation and compatibility with other systems. In keeping with these intentions, the Canadians issued a report to the Committee which provided information on general system configuration and technical characteristics of the space segment and the earth stations.

As a result of this report, the Committee decided that the Manager, the Committee's Advisory Subcommittee on Technical Matters, and the Canadian administration should continue to analyze in close cooperation the possibility of harmful interference and endeavor to resolve any problems or conflicts. On the basis of such analysis and recommendation by its technical subcommittee, the Committee determined earlier this year that the Canadian domestic system was technically compatible with the present and planned INTELSAT system, that no harmful interference was expected to occur, and that no further consideration or action was required.

The Committee has developed practices with respect to coordination of members' separate satellite systems with the INTELSAT system. The practice evolved thus far could form a useful beginning for reciprocal coordination.

The thoughts expressed above should convey a feeling for some of the problems, both those in the future and those of more immediate concern, associated with an advanced technology and the role of the lawyers in ensuring that an effective legal framework is provided within which the technology can develop.

To what other new areas and new technologies can this experience be applied? Evolution of a legal structure for the investigation, exploration, and possible exploitation of the resources of the seabed and the

oceans is now being considered and discussed. Likewise, legal forms for possible commercial exploitation of outer space resources will be of great importance as technology makes such possibilities a reality. If the exploitation and use of these now hidden and untapped resources is to proceed in a peaceful and orderly fashion for the benefit of all mankind, the lawmakers must devise effective legal frameworks responsive to both the politics and the technology connected with the particular resource in question. Given the inclination of lawyers to base new legal orders on those already in existence, what better experience is there on which to base future action than the successful INTELSAT experience?