The 1979 World Administrative Radio Conference: International Negotiations and Canadian Telecommunications Policy

by

Brian Segal, Ph.D.

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Associate Professor of Social Policy, School of Social Work, Carleton University. The author completed this study while on sabbatical and participated in Geneva as an observer on the Canadian delegation to WARC-79. The study was supported by a contract from the Department of Communications, Government of Canada. The author is grateful for the assistance provided by the officers of the International Branch of the Department of Communications. The views expressed in this study are those of the author and do not necessarily represent the views of the Department of Communications.

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Introduction

During the past year, threats to international security and order have increased dramatically. Bipolar tensions, confrontational politics, national passions, North-South differences and revolutionary changes are growing and the prospects for global collaboration are less than optimistic. On the other hand, the desire for self-preservation and the recognition that order in the world community is essential if vital resources are to benefit all mankind have created pressures for co-operation and mutual-problem solving. Equitable and efficient management of the environment, the radio frequency spectrum and resources of the sea is vital to national interests and requires continuous and intensive international activities for collective agreements to emerge that will satisfy domestic requirements and improve the ordered allocation of scarce resources.

The context within which international decision-making occurs is therefore characterized by world tensions at one level and pressures for self-preservation and collective agreement at another. For three months in late 1979, in this atmosphere of conflicting pressures, over 2,000 delegates assembled at a conference in Geneva to establish a new set of world regulations governing the shared use of the radio spectrum and the geostationary satellite orbit. Mankind, unwittingly, is grateful that this conference achieved most of its objectives for if it had failed, the resultant anarchical use of the radio spectrum for broadcasting and communications could have brought unimaginable chaos to the world society. This essay is concerned with an international

domain of decision-making vital to Canadian domestic policy: the field of global communications and the allocation and management of the radio frequency spectrum and the geostationary satellite orbit. In particular, the 1979 World Administrative Radio Conference (WARC-79) will be studied for the purposes of 1) describing and explaining the structure, process and substance of international decision-making in a specialized and highly technical area upon which developed and developing societies are extremely dependent, 2) assessing Canadian participation and interpreting the outcome and likely impact of WARC-79 on Canadian domestic communications policy, 3) providing more insight into the process of international collective bargaining, and 4) suggesting policies for Canada and other developed countries which are required if the spirit of international collective problem-solving is to prevail and dominate the politics of conflict in the 1980s.

2

The Allocation and Management of the Radio Spectrum

The electromagnetic spectrum is a renewable natural resource for wireless communications of all types including television, radio broadcasting, transmission of telephone conversations by microwave radio, satellite communications, radar and for non-communications purposes such as microwave ovens, industrial, scientific and medical equipment using radio energy and so on. The International Telecommunication Union is a specialized UN agency which allocates the spectrum internationally and develops technical regulations and procedures to promote efficient spectrum use and interference-free operation. In Canada, the Department of Communications is responsible for managing and allocating the spectrum. The spectrum is allocated to services such as broadcasting, mobile (land mobile, maritime mobile and aeronautical) and satellite services; alloted to geographic areas or locations and assigned to specific stations.

International and national spectrum allocation and management affect the structure and development of Canada's system of communications. In Canada as in other developed countries, there is much competition between the telecommunications services for spectrum and for the economic and social benefits which depend on this public resource. Broadcasters, amateurs, CB radio operators, taxi operators, police, fire authorities, military operations, etc. compete for spectrum in order to achieve their objectives. National spectrum policy determination involves establishing compromises between conflicting demands and co-ordinating different services to avoid harmful interference. The spectrum is a natural resource,

the use of which generates considerable revenue for the telecommunications industry, although aside from relatively inexpensive licence fees, it is not paid for by users. The use of the spectrum obviously has significant economic benefits and political consequences, for example, for the broadcasting industry. If more stations are assigned frequencies and given licences to operate, advertising revenues and profits may be distributed among more enterprises with a possible reduction in profits to current broadcasters. Clearly, there are economic incentives for broadcasters to oppose the addition of new stations.

To date, the radio spectrum has been capable of meeting expanding demands for frequencies, particularly since technological developments have by and large kept pace with these demands so that more of the spectrum could be exploited and all of it could be used more efficiently. As national and international demand for spectrum increases, it may become more difficult to satisfy all future requirements, particularly if technological improvements do not grow in parallel with demand. In this case, competition for the scarce resource will intensify and result in more complex requirements for spectrum management. Resulting political conflicts may be more difficult to solve.

3

The International Telecommunication Union

WARC-79 was convened by the International Telecommunication Union (ITU) at the request of its member countries in accordance with the Convention of the ITU. The ITU, founded in 1865, is the United Nations specialized agency responsible for telecommunications. Among its many functions, it is concerned with international regulation of telecommunications, the establishment of equipment, operational and tariff standards and practices, the co-ordination, exchange and publication of telecommunications information, the establishment of global or regional agreements to prevent the occurrence of harmful interference, and the promotion of orderly development of national communications systems.

The ITU is comprised of four organs: the General Secretariat, responsible for executive management and technical co-operation; the International Frequency Registration Board (IFRB), responsible for recording of frequency and geostationary satellite assignments, co-ordination procedures and equitable, effective and economical use of the radio frequency spectrum and geostationary orbit; the International Radio Consultative Committee (CCIR), responsible for studying technical and operating questions relating to radiocommunications and for making recommendations; and the International Telegraph and Telephone Consultative Committee (CCITT), responsible for studying technical, operating and tariff questions relating to telegraphy and telephony and for making recommendations.

The regulation of telecommunications is achieved essentially through the work of conferences of the Union. The Plenipotentiary Conference establishes the fundamental treaty relationships and the rights and obligations between members. The

Administrative Conferences complete intergovernmental treaty provisions through administrative regulations, planning and other agreements.

The function of the 1979 World Administrative Radio Conference (WARC-79) was to update and revise as necessary the Radio Regulations of the Union in response to changing global requirements. Since the last general WARC of this type was held in 1959, telecommunications technology has gone through enormous development which has profoundly altered the needs of various radiocommunications services. During this same period, the number of ITU member countries increased from 96 to 154. The growing complexity of telecommunications technology, coupled with more intensive and quantitatively greater competition for scarce frequency allocations, makes it essential that an effective international mechanism exists for countries to express their bargaining positions and negotiate mutually acceptable agreements.

4

Regulatory and Distributive Functions

The ITU, through the work of its conferences, provides an institutionalized process for international negotiation and adjustment to take place through graceful accommodation. Additionally, the ITU incorporates regulatory and distributive functions.[1] The regulatory function involves establishing technical procedures for the co-ordination, notification and recording of frequency and orbital assignments in order to prevent and eliminate harmful interference between radio stations of different countries and to make more efficient use of the radio frequency spectrum and the geostationary satellite orbit. These regulatory procedures constrain the degree of freedom available to member countries for domestic operations, on the one hand, yet provide a protective umbrella for interference-free operation, on the other.

The distributive function of the ITU involves equitable access for all countries to the radio frequency spectrum and the geostationary orbit as well as the distribution of the benefits from the use of the spectrum and orbit among member countries. Not surprisingly, the distributive function generates considerable policy differences and conflict among member countries, particularly as the number and technical competence of competing states increase. For many developed nations, there is a growing reluctance to accept a distributive role if this would tend to constrain domestic flexibility and hinder the further development of technology. There is also question of legitimacy. As many new countries enter the bargaining process, the legitimacy of the regulatory function is strengthened for reasons of self-protection, yet the legitimacy of

the distributive function becomes weaker as nations perceive an exaggerated erosion of sovereignty. The growing realization by governments of this erosion is likely to make them more jealous of their prerogatives, and international agreement on distribution outcomes is likely to become more, rather than less, difficult to achieve.[2]

It is interesting to note that WARC-79 incorporated the regulatory and distributive functions within a multilateral, bilateral and transnational context. While formal sessions and decision-making took place in a multilateral forum, both bilateral and transnational negotiations outside the formal sessions contributed significantly to conference complexities and solutions. Bilateral discussions and negotiation constituted an important element of private diplomacy which permitted compromises to emerge on the stage of public diplomacy. Transnational concerns were those reflected by the 30 international organizations (e.g., International Civil Aviation Organization, International Association of Broadcasters, International Telecommunications Satellite Organization, International Astronomical Union, etc.) at the Conference which represented narrower special interests of constituencies active in most, if not all, countries. Regulatory and distributive pressures, therefore, operated within a number of dimensions, which were at times complementary and at others contradictory.

WARC-79 is but one large step in a continuing progression of international adjustment and change. The medium and long term consequences of WARC-79 can best be understood and predicted if WARC-79 decisions and output are assessed according to both regulatory and distributive criteria. The quality, climate and effectiveness of international communications negotiations in the 80s may depend on increasing the legitimacy of the distributive process at the same time as nations continue to abide by regulatory procedures. Without greater commitment by the developed countries to the developing nations' demands for equitable access to the radio spectrum, conflict and confrontational negotiations may replace collective bargaining in the international communications system.

5

WARC-79: Purposes and Structure

Since the last general WARC in 1959, various specialized Administrative Radio Conferences, each with a limited mandate, amended the 1959 Radio Regulations without a mechanism for integrating decisions. Three WARCs were held to introduce, integrate and plan satellite communications, and two Aeronautical Mobile and two Maritime Mobile Conferences also took place. Some Regional Broadcasting Agreements and Plans were also completed. Furthermore, since 1959, the worldwide growth in telecommunications and their impact on economic, social and cultural development dramatically increased their importance to national and international interests. WARC-79 was not only concerned with integrating past decisions but laying an international framework sufficient to permit the orderly growth of global communications in the next two decades.

The WARC-79 agenda provided for a review of the International Radio Frequency Allocation Table and dealt with allocations to services, for example, Broadcasting, Aeronautical Mobile, Amateur ("Ham Radio"), Fixed (point-to-point), etc. But it did not allot frequencies to countries. As pointed out by Butler, "it set up and revised the international framework for such action to proceed at another point in time in accordance with arrangements worked out at the Conference for bringing services into operation."[3] The Conference agenda also included the review and, where necessary, revision of the procedures for the international co-ordination, notification and recording of frequency assignments, and a review

of the activities of the International Frequency Registration Board (IFRB) with a mandate to revise, where necessary, the provisions relating to its methods of work and international regulations.

Conscious of the complexity and scope of WARC issues, the ITU and its organs took a number of steps to prepare countries, and especially developing nations, for WARC-79. Regional seminars were held in each of the three ITU regions to assist member countries in their understanding of the technical issues and in preparation of their proposals[4] for WARC-79. The IFRB held a seminar on frequency management and the use of the radio frequency spectrum and of the geostationary orbit. As well, the CCIR held an extensive special preparatory meeting 11 months prior to the WARC to prepare technical information likely to be needed by WARC-79 for the use of Administrations, particularly developing countries, in preparing or revising their proposals. The CCIR published a report of this meeting entitled, *Technical Bases for the 1979 World Administrative Radio Conference.*

The preparatory meetings enabled many Administrations to be better prepared for WARC negotiations. As well, both Canada and the U.S. sent their successive draft proposals to all member countries which assisted, particularly developing countries, in understanding the breadth and complexity of the technical issues and in their preparations for the Conference. While extremely useful to both developed and developing countries, as we shall see, the complexity and scope of the Conference itself placed countries with small and technically unsophisticated delegations in a position of disadvantage.

Conference negotiations were conducted through the work of nine Committees which were broken down into approximately 120 working groups. More than 15,000 proposals, which constituted the bargaining positions of member countries and the Conference negotiating framework were submitted for analysis, discussion and negotiation. More than 12,000 of these proposals were concerned with frequency allocations. The proposals were not pre-filtered into varying levels of priority but, rather, each proposal had equal weight, no matter how minor the substance or the issue, and had to be dealt with by the Conference if, as outlined in the ITU Convention, they were presented by an Administration and supported by at least one other Administration. The impact of a proposal on the Conference was affected by the strategy which an Administration used to present it. Since proposals of great significance were considered with those of lesser significance, smaller delegations had difficulty allocating their manpower more selectively to priority issues. As an indicator of the Conference workload, more than 1,500 documents totalling over 5,000 pages were available in three languages and were distributed to each delegate.[5]

Given the large number of working groups and the range of services to be considered in each group (e.g., mobile and fixed

satellite, broadcasting, aeronautical and maritime radionavigation, maritime mobile, amateur, mobile, radioastronomy, etc.), countries required large and technically competent delegations to study, research and analyse proposals and staff the myriad of working groups. Canada's delegation of 40 was just about the suitable size to participate actively in the work of the Conference committees and working groups. Of the 142 countries attending the Conference, 87 had less than 10 delegates, 39 had between 10 and 20 delegates, 8 had between 21 and 30 delegates and 8 had more than 30 delegates.[6] While delegation size cannot be correlated in all cases with impact, the complexity of the Conference structure and the large differentials in delegation size reflect to some extent the disproportionate participation, control and influence of the developed countries in Conference proceedings.

6

Implications of WARC Structure and Delegation Size on the Negotiations

Delegation size is only one factor contributing to the amount and quality of input. The depth and breadth of technical knowledge of the Radio Regulations, the different service technologies and requirements, and the complexity of international frequency matters (e.g., propagation, system technical characteristics, frequency management techniques, space issues) had a major bearing on the ability of a delegation to contribute to all aspects of the work of the Conference.

Obviously, many developing countries were unable to participate actively in debate and negotiation at all working levels. Since preliminary decisions were taken at the working level and then sent forward to Committee and Plenary for amendment and ratification, many delegations were faced with voting on matters only in their final stages rather than participating in the evolution of solutions and compromises. Negotiation is generally viewed as progressing in phases, or stages, over time.[7] The time phase can be extended over years, as in the case of the UN Committee on the Peaceful Uses of Outer Space or SALT, or can be compressed into a shorter, more intense period of 11 weeks, as was the case at WARC. It is generally acknowledged that positions of negotiating countries change as negotiations progress, usually as a result of the availability of better information, technical insights and greater mutual understanding. Changes in substance are often accompanied by changes in negotiating behavior.

Different levels of participation by Administrations in all stages of the negotiating process, and in the changes which

occurred during the WARC process, did tend to create a sense of alienation from the negotiations and suspicions about the substantive changes evolving and the changes in behavior, particularly of those states perceived to be part of a coalition on specific issues. As a result, the spirit and effectiveness of the collective problem-solving and bargaining process were at times weakened. At the WARC, greater rigidity and conflict bargaining during the final approval process to some extent replaced flexibility and collective bargaining in the developmental stages. Further, it may also have contributed to the deferral of highly contentious issues to future negotiations as a defence by developing countries against their vital interests being compromised during negotiations that by their structure were not completely accessible to those states with limited manpower.

7

WARC-79 Prophecies

The prophecies for WARC-79 suggested that world political differences, ideological rhetoric, North-South inequities and increased competition for scarce spectrum would seriously constrain the negotiations and that conflict bargaining would replace traditional collective problem-solving.[8] One particularly significant burden was the "shopping list" of demands established by the sixth meeting of Non-Aligned Countries in Havana in July 1979. WARC-79 was a specific target since it was the first important international conference which followed the Havana Conference. The major issues expected to be of widespread concern and likely to generate sharp differences were essentially of a distribution or allocation nature. The overriding context for potential conflict was the apparent commitment on the part of developing countries to pursue the goals of a New World Information Order. In July 1978, Mastapha Masmoudi, then Tunisia's Secretary of State for Information and a member of UNESCO's MacBride Commission, identified inequities in the allocation of the radio frequency spectrum and stated, "The New World Information Order founded on democratic principles seeks to establish relations of equality in the communications field between developed and developing nations and aims at greater justice and greater balance."[9] While Canada and other developed countries agreed with the need for equitable access to the spectrum and took little exception to the normative principles embodied in the concept of a New World Information Order, they also recognized that differences about how to achieve these objectives might be a source of conflict. Since it appeared to many observers that constraints on national

sovereignty and on the development of technology could result from any compromises which provided for the requirements of developing countries, prophecies of confrontation emerged. The most significant issues included:

1. Equitable access to radio frequency assignments.

Most observers predicted that the "first-come, first-served" principle would be a key issue of debate at WARC. Articles 9 and 9A of the Radio Regulations protect those frequencies recorded in the Master International Frequency Register (maintained by the IFRB) which operate in accordance with the Radio Regulations. This means that frequencies already assigned have *de facto* priority in the process of notification and registration.[10] Since developing countries are rapidly expanding their use of telecommunications, they do not want to be deprived of equal access to radio frequencies because of late arrival, nor do they want to be forced to use more advanced, expensive technology in order to be guaranteed equal access. It was expected that developing countries would try to demand that the WARC establish procedures for frequency assignment on the basis of demographic, economic and social needs. The 1977 Space WARC recommended that a Regional Administrative Radio Conference be held not later than 1982 and that it draw up a detailed plan for the orbit/spectrum resource available for the broadcasting satellite services. This recommendation attempted to define equitable access in the form of a principle. To quote the recommendation stated, "It should be laid down as a matter of principle that each administration in the Region should be guaranteed a minimum number of channels (4) for the operation of the broadcasting-satellite service. Above this minimum, the special characteristics of the countries (size, time zones, language differences, etc.) shall be taken into account."

2. Fixed Satellite Planning

A second issue predicted to cause serious negotiation difficulties at WARC was the likely insistence by the developing countries for a detailed orbital and frequency allotment plan for fixed (point-to-point) satellites similar to that adopted at the 1977 Space WARC for direct broadcast satellites. A detailed allotment plan, from the point of view of developing countries, would protect their future interests since the radio spectrum and geostationary orbit are finite resources which may become inaccessible to them by virtue of the congestion that would result from excessive use by the space powers. They wished to ensure future access and that the rights of those who got there first were not enshrined. As well, they did not wish to be dependent on more complex high technology in order to squeeze into a slot in the future. It was generally accepted that developed countries would be opposed to the detailed *a priori* allotment of frequencies and orbits but would prefer assignment of them according to need.

The Canadian Department of Communications pointed out, "Many nations with sophisticated communications satellites and related hardware and software are opposed to this [orbital allocation plan] because of the possibility that a detailed, inflexible plan could tie up the limited radio spectrum resources and orbital space by giving each country a reserved share even if there is no realistic possibility that such countries will resort to satellite use."[11]

Many other observers from developed states argued that fixed satellite planning could have the effect of freezing the development of technology.

3. Orbit Sovereignty

In 1976, a number of equatorial countries signed the "Bogota Declaration" which maintains that the geostationary orbit (35,787 km above the equator) is within the sovereign boundaries of the country beneath it. It was expected that the issue would be brought up although little support was likely since in 1967 the UN Outer Space Treaty had declared outer space to be the common heritage of all mankind.

8

Pressures for Accommodation

In the opening three days of the Conference, it appeared to many that the worst fears of the prophets would be confirmed. The Conference opening was delayed as the non-aligned and Western nations could not agree on the selection of a chairman. The Havana Communique, released after the meeting of non-aligned countries in July 1979, said it was essential that the Conference chairman come from a non-aligned government. The Western caucus was opposed to the principle of following the Havana Communique but recognized the need for compromise if the conference was to get underway. With Canada playing a moderating role, emphasis was then placed on finding a moderate chairman from a non-aligned country. The conflict ended with the selection of an Argentine, Roberto Sevrini, as chairman.

During these opening negotiations, many were concerned that the near confrontational climate might pervade Conference proceedings and committee work. As it turned out, however, the pressures for accommodation exceeded the potential level of conflict and tension. It may be worthwhile at this point to discuss why there were strong pressures for accommodation even in the face of what appeared, on the surface at least, to be chasms of difference.

The most obvious pressure for conciliation was the mutual requirement for the orderly operation of the spectrum which would permit nations to shape interference-free domestic communications policies. Somewhat less obvious perhaps is that the Radio Regulations, as an international treaty, affirmed the tradition and necessity of ordered global communications. The use of the Regulations currently in force, as the treaty to be changed, reaffirmed

earlier treaties and contributed to the belief that order in global communications was a continuous operating reality and that maintenance of the international regulatory regime was thus a legitimate and necessary objective of domestic communications policy.

The institutionalized bargaining process of the ITU through Administrative Radio Conferences also affirmed that competition for and use of the radio frequency spectrum could be legally defined, regulated and monitored. By all Administrations subscribing to this institutional mechanism for negotiation, it reinforced the idea that change was indeed possible. Another factor contributing to accomodation was the concern of all Administrations about future requirements. Traditionally, countries have tended to delegate authority to international bodies in those areas which least affect their national interests. In the case of telecommunications, those countries with sophisticated communications systems and with vital social and economic interests to protect have allocated considerable regulatory authority to the ITU. The developing countries with rapidly expanding telecommunications networks seek to have equal protection of their services now and in the future through the same mechanism which offered protection to developed nations. In fact, as expanded spectrum use becomes more vital to the national interests of developing nations, one can expect the ITU bargaining process to come under much greater pressure. A compensating factor is that as the telecommunications infrastructure in the developing countries matures, negotiations on technical matters between technicians will overshadow political issues and the search for technical solutions will likely predominate.

In light of these factors, much of the substance and process of WARC-79 was characterized by an unavoidable tension between the goal of increasing access to the spectrum and geostationary orbit, on the one hand, and preserving the ITU system and adherence to the regulations, on the other hand.

A good example of this involves a proposal advanced by Algeria, one of the strongest Third World delegations, on HF (high frequency) fixed (point-to-point) frequencies. The Algerian Administration stated, "The HF bands are of primary importance since they are used to set up national and international direct fixed-type links requiring relatively little investment . . . a considerable number of the links that form part of the backbone of the general network are, and will continue to be, provided in the HF bands. The developed countries . . . possess reliable telecommunication infrastructures based on wideband transmission media (cables, radio-relay links, communication satellites . . . etc.)."[12]

Algeria then proposed that more extensive access to HF bands be reserved for developing countries through a substantial revision of the Radio Regulations. In particular, in order to redress what it saw as an imbalance in the distribution of HF frequencies,

it proposed that for the relevant services (fixed and mobile) the frequencies be divided on a 70-30 per cent basis between developing and developed nations. In principle, the proposal was acceptable to neither Canada nor most developed countries.

Through a process of informal and private diplomacy, Canada joined the United States and other developed countries to point out the technical weaknesses of the proposal but to affirm their willingness and support for the ITU to respond to the present and future telecommunications requirements of developing countries through changes in the Radio Regulations. A resolution was then proposed and accepted which 1) called for an improvement in the accuracy and reliability of the Master International Frequency Register by the removal of unused HF frequency assignments from the Register, thus freeing a potentially large number of frequencies for re-assignment, 2) authorized the IFRB to assist developing countries requesting help to identify new HF frequencies, and 3) provided the authority to the IFRB to identify available frequencies for requesting Administrations.[13]

This compromise as reflected in the Final Acts tacitly provides guaranteed access to HF fixed frequencies to developing countries. The compromise to a potentially explosive issue was arrived at through private diplomacy and, perhaps of greater significance, emerged through the development of technical procedures. In essence, a technical solution satisfied a political problem. There are other examples where technical solutions were arrived at in response to problems which might have produced conflict between countries.

It is important to note that the highly specialized and technical nature of the WARC and the delegations present served to protect the bargaining process from much political rhetoric. Problems which may be described as having political antecedents were transformed into technical and regulatory solutions. Of course, the technical instrumentalities and traditions of ITU work account in large measure for this, although even the ITU could not avoid the disruptive effects of political wrangling if the technical complexity of spectrum management did not insulate domestic bureaucracies from political interference at home.

The spirit of collective problem-solving thus dominated the climate of the WARC, since all nations agreed on its purposes and were prepared to accept its mechanisms for accommodating differences. As Rothwell, writing on the international political system, has affirmed,

> Controversy has been containable within the framework of the organization and there has been no tendency to bolt it or repudiate its decisions... This can be construed as meaning that the conflicts of national interest which produced disagreement were less important to the states concerned than other aspects of national interest which were served through continuing support of the organization.[14]

9

Canadian Preparations for International Negotiations

Domestic bureaucratic structures, national requirements and decision-making processes shape the substantive and bargaining directions of foreign policy. International negotiations on frequency matters, albeit technical, represent an amalgam of the communications foreign policies of concerned states. Access to frequencies directly relates to the use and potential growth of national telecommunications and affects investments in technological development, equipment production and sales, jobs and services available to the public. In Canada, $6.3 billion is expended annually for telecommunications carrier, radio-television and cable services. Almost 130,000 jobs generating $2.4 billion in wages and salaries result from the telecommunications industry. 96.5 per cent of all households have one or more telephones, 98.4 per cent of all households have one or more radios, 97.3 per cent of all households have one or more television sets, and 50 per cent of all households subscribe to cablevision.[15]

Canada's highly developed communications system daily touches the lives of all Canadians and will do so increasingly in the future. Availability of adequate spectrum, free from harmful interference, is vital to Canada's social, economic and cultural interests. Since WARC-79 was to revise, for the first time in 20 years, the rules and regulations for the next 20 years, for the use and sharing of the spectrum, Canadian preparations and involvement in the WARC were of vital importance. Without adequate preparation and involvement, Canada had much to lose. Public disinterest in spectrum matters would no doubt be replaced

by public outcry if the number or operating hours of radio and television stations had to be reduced, if medical and industrial equipment or mobile radios could only be used during certain periods of the day or if radio and television programming was to suffer from harmful interference.

Domestic preparations for international bargaining served a number of interrelated purposes. By extensive review of government (including military) needs and by encouraging input from private and public sectors, the Department of Communications was able to put forward proposals which responded to a broad range of Canadian needs. Early circulation of the successive draft proposals developed by Canada to 154 countries permitted bilateral negotiations and, of equal if not greater importance, affirmed the international recognition of Canada's competence and influence in world communications. The quality of Canadian proposals permitted Canada to play a critical "honest broker" and leadership role at the meetings and increased the Canadian capacity to influence other Administrations.

Canadian preparations for WARC-79 paralleled the complexity of the Conference and the possible consequences for domestic telecommunications policies. Preparations began in 1975 with a federal government Interdepartmental Committee which included staff concerned with spectrum matters from all relevant federal government agencies (External Affairs, Communications, Transport, National Defence, RCMP, CRTC, National Research Council, Energy Mines and Resources, CBC, Teleglobe Canada and Telesat Canada). This group prepared a number of technical studies. The Department of Communications undertook public consultations with the private sector and provincial governments, which included public distribution of three drafts of the Canadian proposals.[16]

10

Canadian Policy Objectives for WARC-79

The Canadian proposals for WARC-79 provide a detailed description of Canadian thinking on all Articles in the Radio Regulations. The proposals did not, however, articulate in any great detail Canadian policies and diplomatic objectives or principles from which negotiating strategies would emerge. This is not to suggest they did not exist. In fact, through discussions with federal officials, it became clear that serious consideration had been given to overall objectives and diplomatic strategy, particularly in light of the potentially explosive issues which threatened to disrupt the traditional harmony of ITU negotiations.

Of course, the primary Canadian objective for WARC-79 was to provide for Canadian social, economic and technical telecommunications requirements, present and future, by securing appropriate modifications to the Radio Regulations to meet these needs. It was in Canada's interest to promote incremental changes in allocations and procedures and to avoid radical or fundamental modifications since these could have disastrous effects on domestic operations and on the telecommunications industry.

In order to preserve options for future requirements and to stimulate technological development, it was in Canada's interest to maintain a certain degree of flexibility for allocations and regulatory procedures. The U.S. was committed to a general principle of flexibility "to ensure that decisions made now will allow for accommodation to changes in social, economic and technical circumstances".[17] While Canada was prepared to promote some flexibility, however, it was not ready to allow for

full flexibility since this would have compromised its desire to protect existing and planned services from harmful interference, particularly from the U.S. in border areas. For example, the U.S. proposed mobile services on a primary basis across the entire UHF television band to accommodate the full potential of future requirements. Allowing U.S. flexibility throughout this band would have made the continued protection of UHF television in Canada much more difficult in terms of the international Radio Regulations.

Canada, as well, recognized the importance of maintaining an ordered global communications system and wished to promote the development of modern telecommunications worldwide and the furtherance of international trade in communications systems and services. Further, the Department of Communications, the Department of External Affairs and the Canadian International Development Agency were sensitive to the aspirations of the developing countries and saw it as important to promote international development, co-operation and modernization which are highly dependent on modern and efficient communications. To this end, it was a Canadian policy to seek out fair compromises which satisfied the essential requirements of both developing and developed nations. Canadian proposals for WARC-79 embodied this policy through seeking changes in international allocations and frequency management procedures which would respond to the needs of developing nations without undermining Canadian interests.

11

Canadian Proposals, Outcomes and Implications

The Canadian proposals attempted to take into account present and future domestic communications requirements and were also designed to be as compatible as practicable with the proposals of other countries while providing sufficient latitude to meet demands for equitable access within a modified regulatory regime.

While there were Canadian proposals to improve the efficiency of all aspects of the operation of the Radio Regulations, the main proposals on frequency allocations sought to secure additional spectrum for the mobile communications service, for standard AM broadcasting, for shortwave broadcasting, for space radiocommunications by satellite and for amateur services.

Chart I provides a summary of the major proposals, outcomes and implications of WARC-79 decisions on bilateral and multilateral international negotiations. Rather than undertaking an analysis of all of the major Canadian proposals and WARC negotiations associated with these proposals, two key subjects will be singled out for more detailed analysis: space systems and guaranteed access. These two subjects have been chosen for a number of reasons. Both highlight the role played by Canada in the negotiations and provide a basis for understanding future problems which the ITU community will need to resolve in the 80s if North-South conflict is to be avoided. The space systems issue not only highlights multilateral and transnational matters but also provides insight into Canada-U.S. bilateral negotiations.

Before proceeding to this discussion, a brief view of other

major points summarized on the Chart is warranted. In the UHF portion of the spectrum, the U.S., in the interests of "flexibility", wished to add allocations to the fixed and land mobile services throughout virtually the entire UHF television band (channels 14 to 83 inclusive). Consistent with recent domestic policy, Canada wanted to confine mobile operations in this band to channels 70 to 83. The U.S. proposal was successfully opposed by Canada with the support of several Latin American countries. If the U.S. had been successful, it would have been permitted in the future to decide unilaterally to begin operating fixed or mobile stations on a primary basis in the frequency band reserved for television broadcasting in Canada, subject only to not causing harmful interference to operating television stations. In accordance with the new international Radio Regulations, the U.S. will be able to introduce fixed and mobile stations on a primary basis only if it obtains Canada's agreement. The U.S., however, took a reservation through a final protocol on this issue which could imply that it may decide to operate fixed and mobile stations in the band allocated for broadcasting in Region 2. Such operation on a primary basis without the agreement of concerned Administrations would, however, be clearly in violation of the Radio Regulations.

WARC-79, as part of the general revision of the Radio Regulations, identified the need for several future specific administrative radio conferences. Planned worldwide conferences include a General Mobile Conference, a Space Conference and an HF Broadcasting Conference, a Conference for Planning the Broadcasting Satellite Service and a Conference for Planning the Extended AM Broadcasting Band.

As a result of WARC-79, Canadian domestic policy for the use of the radio spectrum must be reviewed in the light of allocation decisions taken at the WARC and certain changes in the Canadian domestic table of frequency allocations will have to be made. As well, a review must be undertaken of all Canada-U.S. telecommunications agreements dealing with the co-ordinated use of radio frequencies in border areas. Specifically, the 1962 Canada-U.S. Agreement for the Co-ordination of Frequencies above 30 MHz must be renegotiated. One of the most significant outcomes of WARC-79 was the deferral of many substantive issues to future conferences to be held in the 1980s and early in the 1990s. Due to the federal government practice of conducting extensive public consultations in preparation for such conferences, machinery will undoubtedly be put in place to begin preparation early in the 80s.

12

Space Systems

Canada was the third nation in the world to develop and orbit its own satellite and the first to establish its own geosynchronous satellite communications system. Canada has been successful with eight scientific and communications satellites and has applied space technology to serve enormous telecommunications requirements. The Canadian domestic satellite communications system operated by Telesat Canada provides for communications needs in northern areas and the opportunity for augmenting and introducing new applications of broadcasting, telephone and telegraph services. Canadian government space expenditures in 1978/79 were $95.7 million and, if all planned projects are implemented, will reach $180 million (1980 dollars) by 1984/85.[18] Canada thus has vital interests to protect to ensure the continued development of its space communications capability.

The use of the geostationary orbit and claims for guaranteed equitable access to the orbit by developing countries were potential sources of conflict at WARC-79. Further, differing proposals by Canada and the U.S. for spectrum allocations in the vicinity of 12 GHz created an area of considerable difference and tension between the two countries prior to and at WARC-79.[19]

The history of this problem goes back to the 1977 ITU WARC for planning the 12 GHz Broadcasting-Satellite Service (BSS). At this conference, detailed planning was delayed for North and South America (involving alloting specific orbital locations and frequencies to countries) until a Regional Administrative Radio Conference (RARC) which is to be held in 1983. The rest of the

world, however, agreed upon a detailed plan at the 1977 WARC. Until the regional conference, certain interim measures were adopted. After considerable debate, the Canada-Brazil position was adopted as essentially a compromise between those who strongly advocated detailed planning at the 77 WARC (e.g., Cuba, Venezuela, Mexico, etc.) and the U.S. which claimed that detailed planning was unnecessary and inefficient. The U.S., while firmly opposed to detailed planning at the 77 WARC, was also unhappy with some of the features of the measures eventually adopted (for one reason, since they embody the right of the receiving state to "agree" to transmissions and, for another reason, since it was not clear whether only the Broadcasting-Satellite Service would be planned in 1983) and, to date, has not ratified the Final Acts.

Much of the difficulty faced by Region 2 (the Americas) countries at the 77 WARC was due to the fact that the 11.7 to 12.2 GHz band in Region 2 is shared on an equal primary basis between the Broadcasting-Satellite Service (BSS) and the Fixed-Satellite Service (FSS) and, yet, the 77 Conference was only competent to plan one of the space services (the BSS). To give greater flexibility to the 83 RARC, Canada, in proposals submitted to WARC-79, proposed that the band for the BSS be extended by 300 MHz, i.e., up to 12.5 GHz. Until late 1978, the U.S. had a similar proposal to that of Canada.

In early 1979, the U.S. decided to propose a major change in the allocations in the vicinity of 12 GHz. Briefly, this involved leaving the FSS in the 11.7 to 12.2 GHz band and moving the BSS out of the 11.7 to 12.2 GHz band and placing it in the 12.2 to 12.7 GHz frequency band which it would share with the terrestrial fixed and broadcasting (up to 12.5 GHz) services. (This sharing would have seriously penalized the BSS.) The motivation for such a proposal was as follows: The U.S. was keenly interested in accommodating the ambitious current and future plans for U.S. fixed satellites in the 11.7-12.2 GHz band. Furthermore, there was a real fear in the U.S. that the 1983 RARC would perform detailed planning of not only the BSS but also the FSS since, as mentioned above, these services now share the same frequency band. The U.S. is firmly opposed to such planning for the FSS. Its opposition to such planning for the FSS is much greater than its reluctance to plan the BSS since, unlike the situation in Canada, until recently there had not been a keen interest in the U.S. in direct-to-home satellite broadcasting. It should be noted too that the U.S. "open skies" policy is resulting in a large number of 12 GHz fixed satellite systems being planned and there was concern in the U.S. that there would not be enough orbital positions to satisfy this demand.

Canada could not accept the U.S. proposal since it could have restricted the future viability of "direct broadcast" satellites by not permiting the use of "hybrid" satellites in which one transponder could alternate between the "fixed" or "direct broadcast" modes. Prior to WARC-79, it appeared that Colombia, Brazil and

Chile supported the U.S. proposals and Venezuela, Argentina, Mexico and Cuba would support the Canadian proposals.

Although Canada wished to resolve the differences, it was faced with the problem of balancing domestic interests with a desire to establish an allocation table which the U.S. would agree to. From the Canadian point of view, success at WARC was not only a matter of gaining more votes but securing an agreement which all signatories would follow.

The U.S. was also under pressure to compromise since a stalemate on the 12 GHz issue would have preserved the somewhat ambiguous decision of the 1977 Space WARC to plan both the Fixed-Satellite Service and Broadcasting-Satellite Service. The stage was set for a compromise since both Canada and the U.S. wished to maximize present and future freedom of action and minimize restraints on such action. When conflict exists on issues vital to national interests, it is natural to expect influence and counter-influence attempts to dominate multilateral negotiations. Canada and the U.S. had engaged prior to the WARC in a number of bilateral negotiations to resolve the differences in their positions, but with no success. At WARC-79, both countries held private bilateral discussions with Latin American delegations to secure understanding and support for their respective proposals. Canada, which for the last three years had developed a high profile and close working relationship with Latin American countries, found that these efforts to secure common ground and collective understanding had borne fruit particularly, although not exclusively, on the 12 GHz issue. The potential stalemate at WARC-79 was a result of neither Canada nor the U.S. having sufficient support independently to resolve the issue to their total satisfaction. By the same token, the U.S. could not isolate Canada on this issue or vice-versa.

The Latin Americans were also concerned with finding a compromise which would satisfy their own differences as well as those of the U.S. and Canada. The compromise, as it relates to the Fixed and Broadcasting-Satellite Services, which resulted from behind-the-scenes private diplomacy within Region 2, was that the lower end of the 12 GHz band (11.7-12.1 GHz) would be allocated to the Fixed-Satellite Service, a middle portion (12.1-12.3 GHz) would be allocated to both Fixed-Satellite Service and Broadcasting-Satellite Service and the upper end of the 12 GHz band (12.3-12.7) would be allocated to the Broadcasting-Satellite Services. A "footnote" to the allocation table allows Broadcasting-Satellite operations in the lower band (11.7-12.1 GHz) provided that such transmissions do not exceed a power limit which is similar to the power of Canada's announced Anik C satellite. The operation of the Fixed-Satellite Service is also allowed in the upper band provided that such transmissions exceed a certain power limit. Another footnote permits the additional use of broadcasting satellite allotments in the upper band for fixed satellite operation.

The WARC-79 decision provides the mandate for the 1983 Region 2 RARC to develop a detailed plan for the BSS in the band 12.3-12.7 GHz plus the upper portion of the 12.1-12.3 GHz band. The compromise reached at WARC-79 should provide all Region 2 Administrations with adequate frequency and orbital resources and operational flexibility to meet future requirements in this band. Once Region 2 countries agreed to the compromise, the regional solidarity which emerged enabled Region 2 to stave off attacks on the compromise by certain Region 1 countries concerned with possible interregional impacts.

The 12 GHz negotiations, while separate, were part of the broader subject of orbital and frequency planning for certain space services and demands for guaranteed equitable access to the geostationary orbit.

13

Equitable Access

The use of the geostationary orbit and the planning of space services were the subject of much discussion and negotiation at WARC-79. A number of countries (India, China, Iraq, Afghanistan) proposed that a future WARC be convened to plan the Fixed-Satellite Service in all bands devoted to this service so as to guarantee equitable access for all countries to the geostationary orbit and to the necessary frequencies. The proposals ranged from ambitious to moderate, with Iraq calling for planning of all space services in all bands, India proposing that the Fixed-Satellite Service, including earth-to-space feeder links to the Broadcasting-Satellite Service be planned in the entire 4 to 6 GHz and 11 to 14 GHz bands, and the U.S.S.R., as a space power interested in only minimal planning, proposing that planning be confined to the Broadcasting-Satellite Service feeder links.

All of the proposals calling for planning agreed that planning meant a detailed plan of orbital positions and frequency allotments to countries independent of their capacity to make use of the resources now or in the foreseeable future. These proposals were based on the assumption that the geostationary orbit was rapidly filling up and that the current Radio Regulations, characterized by the "first-come, first-served" principle, would prevent developing countries from gaining access to the geostationary orbit in the future.

As indicated earlier, the developed countries argued that improvements in the regulatory procedures, along with more flexible approaches to planning, could be developed to meet the

goal of guaranteeing equitable access to all countries at the same time as permitting the continued development of technology to improve the efficient use of the geostationary orbit and the spectrum. Developing countries saw planning as the means to achieve equitable access, whereas the developed countries saw improvements in technology or changes in procedures as the instrument for achieving this objective.

The differing views of developed and developing states on this issue were based on fundamental differences about what is just and possible now and in the future. It was even difficult for each side to define the nature of the disagreement since what was obvious to the developed countries was problematic to the developing countries, and vice-versa. Under these circumstances, the symbolic aspects of access to the spectrum tended to overshadow the technical reality.

The equitable access debate, however, did not disrupt Conference negotiations as predicted. A compromise was reached which enabled all concerned Administrations to claim some success. The Canadian delegation formally initiated the search for a compromise by submitting a proposal to the Conference calling for technical co-ordination procedures and greater involvement of the IFRB to guarantee equitable access, as an alternative to orbital planning. The developing countries recognized the attempt by Canada to respond to their concerns, yet considered that the guarantees in the proposals were not strong enough and could at some point in the future be open to interpretation and possible circumvention. The developing countries wished to avoid being dependent on the developed world to supply the technology which would be necessary in the future for them to have guaranteed access. Such access, they felt, should be guaranteed as a right and should not require the most advanced technology for that right to become a reality.

After lengthy debate and considerable private diplomacy, a resolution was adopted to hold a Space WARC not later than 1984 to guarantee, in practice for all countries, equitable access to the geostationary-satellite orbit and the frequency bands allocated to space services."[20] The Conference will take place in two sessions. The first will decide which space services and frequency bands should be planned and will establish the principles, technical parameters and criteria for planning. During the first session, alternative approaches to planning which would also guarantee equitable access will be considered. The second session, to be held within 18 months after the first, will implement the decisions taken at the first session.

The wording of the Resolution was broad enough to permit varied interpretations depending on particular national interests. Those countries wishing detailed orbital planning could claim the Resolution responded to their requirements. Those which favored improvements in the Regulations and a broad range of planning

possibilities could also claim that the Resolution coincided with their aspirations. In fact, the compromise served a number of purposes. It was important to the success of the WARC since the issue did not bog down the negotiations and permitted problems of a less controversial nature to be solved. At the same time, it bought time for all Administrations to reconsider their fundamental differences and evolve domestic policy changes which would allow more flexibility in future negotiations. For example, if the U.S. were to modify its "open skies" policy, this would no doubt increase its flexibility at the Space WARC. In the five years between WARC-79 and the 1984 Space WARC, technological changes may occur which could demonstrate more empirically that variations to strict orbital planning would indeed guarantee access.

The U.S. delegation made a statement on the compromise resolution which essentially reinforced the Western position that the planning mandate of the Space WARC was very wide in scope, including "a broad range of possibilities ranging from detailed orbit frequency assignment plans to more dynamic planning approaches that will provide access to the orbit/spectrum in an equitable manner as the real requirements of Administrations arise."[21] The statement went on to indicate that technological advances would expand orbit spectrum capacity to accommodate future requirements and that orbital planning would freeze technology, create unused orbital/spectrum resources and reduce global and regional flexibility.

It is worth noting that the compromise more than likely only defers the conflicts to a later period, unless of course more flexibility in negotiating positions emerges over the next five years.

14

Communications Foreign Policies for the Future

The avoidance of serious international disharmony in international communications negotiations in 1979 may be more difficult to maintain through the 1980s and into the 1990s. As telecommunications become increasingly fundamental to the national interests of developing countries, global competition for orbital and spectrum resources will become more intense. At the same time, interdependence between the communications systems of countries and the increase in mutual problems will create an even greater need for multilateral negotiations. Global and regional interdependence does not necessarily create unity. Indeed, it could increase the potential for conflict as developing countries become more conscious of their requirements and worried about the economic costs required in the future to access the spectrum. The technology gap could revive old fears of colonialism, with dependence on high technology creating a sense of technological colonization.

It is understandable that countries will fear changes which at first sight are contrary to their interests. Changes which are feared and resisted, however, are often those which have sufficient momentum to occur anyway and, when they do take place, have consequences which are less problematic than what was expected. The international system, with a large number of young countries, has a momentum which is difficult to resist and which cannot continue to be easily deflected. What appears to be more essential is that changes occur with the slightest possible risk to the order of the international telecommunications environment. The rapid

growth and worldwide diffusion of technological change and its application to all aspects of life, coupled with the rising expectations of people in all countries to secure material well-being, make it certain that international order will remain at risk if the distribution of the benefits of technological resources is not continuously reflected in international decision-making.[22]

Whether these conditions will lead to collective solutions, or to conflicts, depends on a number of variables. The most obvious are the foreign policies adopted by states to serve their interests. Domestic policies which fail to recognize legitimate demands of other states, or which provide for little or no flexibility for delegations in the conduct of negotiations will no doubt magnify the potential for global conflict in communications as in other areas.

Domestic policies are, however, formulated by political and bureaucratic processes within each country and policies based primarily on technical considerations will only evolve if a suitable infrastructure exists. Coplin astutely points out that specialization and technical competence of bureaucracies can insulate the specialized foreign policy decision-maker from blatant political control and can protect "potentially collective problem-solving relationships from the impact of domestic politics".[23] This assessment no doubt holds true for many developing countries, although insulation from national political debate diminishes as economic dependence on telecommunications services and commerce increases. In the U.S., for example, Congressional debate and interest group pressures place significant constraints on foreign policymakers. As most developed countries' telecommunications systems are state-owned, such pressure politics are less pronounced. Canada, with a mix of public and private sector telecommunications and with less of a stake in international commercial marketing than the U.S., is at this time somewhat less susceptible to the type of political influence which would constrain its flexibility in the international arena.

Notwithstanding variations in domestic political influence patterns, there is a strong argument for the need of developing countries to strengthen their technical infrastructure and increase their frequency management capacities. Not only would this pave the way for international collective bargaining to be dominated by technical rather than ideological or political discussions, but it would also stimulate more efficient orbit/spectrum utilization. Indeed, the developing countries recognized this requirement, as reflected in the resolution put forward at WARC-79 by Algeria and approved by the Conference, which calls for the CCIR and the IFRB to convene meetings on frequency management with Administrations of developing and developed countries to design standard structures for the establishment and operation of radio frequency management units.[24] As well, the Resolution urges that ITU resources be made available to advance frequency management

capabilities of developing states. For the spirit of this Resolution to be implemented, the support and resources of developed countries must be brought to bear. This will require the development and elaboration of domestic policies to support the improvement of frequency management capabilities of developing countries. The elaboration of domestic policies is, in the long run, in the interests of the developed countries as it will serve to maximize collective bargaining on a technical level, minimize the potential for conflict and maintain stability and order in global communications.

The distributive function may also call for restructuring global decision-making into more manageable regionalized units which would be in a better position to develop a distributive capacity in the future. The next decade will see the 80 or so developing countries engage in tougher international bargaining for spectrum/orbit, and the capacity of the ITU to conduct global allocations will be strained. WARC-79 adopted a resolution to study the implications of establishing a separate region (which would be the ITU's fourth region) for Africa. As well, more regional conferences are planned for the 1980s. Canada and other member countries will have to examine the opportunities and challenges involved in moving to regional spectrum management for those frequency bands amenable to regional decision-making. Although implications for the ITU structure and regional planning are enormous, regional decision-making must be studied as it may be an instrument for more equitable and efficient spectrum allocation and utilization.

15

Conclusion

WARC-79 demonstrated that the spirit of international co-operation in communications continues to be strong and overshadows forces of polarization and disharmony. The ITU, from its technical perspective, continues to regulate and distribute the spectrum/orbit and, in so doing, reaches technical consensus on many issues which have significant political, legal and cultural consequences. At times, such decisions may rule out desirable options for international and regional co-operation.[25] The technical basis for such decisions may result in a lack of consideration of their impact on domestic options and may be out of step with work progressing in other UN agencies, such as UNESCO and the UN Committee on the Peaceful Uses of Outer Space. Stronger linkages are warranted between member states' requirements and participation in the various international fora concerned about communications.

For further international harmony to prevail, domestic bureaucracies in developing countries must be permitted the same insulation from visible political and rhetorical debate as commonly exists in most developed states. One way of achieving this is for developed countries to assist in the development of more effective frequency management in developing countries through the ITU, bilateral or other multilateral programs. A further benefit of such assistance would be a strengthening of technical negotiation capabilities which could result in minimizing ideological and political differences. Increased technical capacity of developing countries may, in turn, place pressures on global decision-making and, thus,

more study of regional institutional mechanisms for bargaining should be undertaken.

16

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2. *Ibid.*
3. Richard E. Butler, "Introductory Paper on the Role of the World Administrative Radio Conferences (WARCs)" given at Pacific Telecommunications Conference, Honolulu, January 1980.
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Table I

Communication Bands and Current Frequency Uses	Frequency Range	Major Canadian Proposals
VLF (Very Low Frequency). Very long range, point-to-point (more than 1000) miles) and radionavigation	3 to 30 kHz	
LF (Low Frequency). Medium-to-long range, air and maritime navigation	30 to 300 kHz	
MF (Medium Frequency). AM broadcasting, aeronautical and maritime mobile, international distress, amateur, aeronautical and maritime navigation	300 to 3000 kHz	Canada wanted additional broadcasting spectrum.
HF (High Frequency). International (shortwave) broadcasting, aeronautical and maritime mobile, amateur, space research, radio astronomy, General Radio Service (CB)	3 to 30 MHz	Canada wanted to increase by 40 per cent the frequency bands allocated to shortwave broadcasting including more effective coverage of northern Quebec, southern Baffin Island and the James Bay area.
VHF (Very High Frequency). FM broadcasting, VHF television, amateur, land mobile, space tracking and telemetry, radar and radio astronomy	30 to 300 MHz	Canada proposed an extension of the aeronautical band in accordance with domestic and international requirements of ICAO.
UHF (Ultra High Frequency). UHF television, land mobile, microwave relay, space research, weather satellite, worldwide aeronautical radionavigation	300 to 3000 MHz	Canada wanted to add an allocation to the mobile service in television channels 70 to 83 for transportation, police, fire, shipping, etc. Also wanted allocations for low capacity multipurpose mobile satellites.

*The ITU is divided into 3 Regions. Region 1 is Europe and Africa, Region 2, the Americas (North, South, Central and Caribbean), Region 3, Asia and Australia.

Conference Outcomes	Bilateral and Multilateral Implications
Table of Frequency Allocations extended down to 9 kHz from 10 kHz	
Lower frequency limit of primary broadcasting extended from 535 to 525 kHz; upper extended from 1605 to 1705 kHz. This will provide Canada with more broadcasting spectrum to be phased in by the late 1980s. However, redesigned home and automobile radio receivers will be required.	Requires co-ordination with U.S. and a planning conference in Region 2.*
Total expansion of 830 kHz or a 40 per cent increase. A phase-in of new allocations will occur. Canada's ability to serve the North improved; however, Canada must protect services in shared band.	Requires co-ordination with Region 2 and with some countries in Region 1.
Existing upper limit of aeronautical mobile band was extended from 136 to 137 MHz.	Co-ordination of new systems by ICAO.
Table of Frequency Allocations by and large reflects Canadian proposals.	Canada/USA negotiations may be required.

Communication Bands and Current Frequency Uses	Frequency Range	Major Canadian Proposals
SHF (Super High Frequency). Microwave relay, common carrier and broadcasting satellites, amateur, radio astronomy	3 to 30 GHz	Canada wanted to ensure that frequency allocations in the 12 GHz band would be available for the future development and operation of Canadian communications satellites whether for broadcasting, fixed (point-to-point) or hybrid (combining both applications).
EHF (Extra High Frequency). Broadcasting satellites, amateur, microwave relay, radar, space research	30 to 300 GHz	

Conference Outcomes	Bilateral and Multilateral Implications
Compromise reached at WARC-79. a) The frequency band 11.7 to 12.7 GHz will be divided primarily between the fixed-satellite and broadcasting-satellite services. b) Provisions were made for hybrid (multipurpose) Fixed and Broadcasting Satellites (like Anik C) to operate in the entire 11.7 to 12.7 GHz band as envisaged by Canada prior to the WARC. c) A commitment to plan only the Broadcasting Satellite Service at the 1983 Regional Conference and to co-ordinate the Fixed Satellite Service by means of standard co-ordination procedures.	The 12 GHz broadcasting satellite service will be planned at a Region 2 Conference to be held in 1983.