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World Administrative Radio Conference

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A Review of WARC-79 and Its Implications for the Development of Satellite Communications Services

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The World Administrative Radio Conference (WARC), which ended on Thursday, December 6, 1979, drew representatives from 142 nations. The meeting, convened by the International Telecommunications Union (ITU—a 114 year old organization, now part of the United Nations), met to examine and if necessary, redesign existing international regulations controlling the use of the broadcast spectrum.¹ Most of the information disseminated to the United States from outside its borders travels across this broadcast spectrum. It is the mechanism used in transmitting radio, television, satellite, and telephone signals.

WARC-79 may not have been the most important international event of the decade.² However, the issues presented and the policies adopted by WARC-79 represent a significant microcosm of contemporary international dialogue, and reflect the methods most often used to address a vast variety of global problems. This discussion examines a few of the major events surrounding the eleven week conference held in Geneva, analyzes the resolutions adopted by the ITU membership (particularly those related to satellite broadcasting), and presents specific recommendations designed to assure the less developed countries (LDCs) "equitable access" to the broadcast spectrum and the multiple facilities that relate to its use.

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1. The broadcast spectrum is divided into the various services that use the airwaves for communications (i.e., radio, TV, satellite). The number of desired users for certain frequencies or channels may be far greater than the spectrum space available; therefore, a limitation may be imposed on the number of users of certain frequency ranges. This fact is particularly relevant to satellite broadcasting, which must occupy a large portion of spectrum space in the super high frequency bands for optimal transmission quality. Hudson, *WARC 79: Implications for Development Communications*, 29 J. COM. 179 (1979). See Pool, *The Problems of WARC: The U.S. Faces WARC*, 29 J. COM. 197 (1979); White, *Uprooting the Squatters*, 34 FOREIGN POLICY 148 (1979).

2. Rutkowski, *WARC-79: A Study in Contemporary International Relations*, manuscript prepared for presentation before Face to Face, Carnegie Endowment for International Peace/American Foreign Service Association, Washington, D.C. (January 1980).

BRIEF OVERVIEW OF WARC-79 AND PRIOR DEVELOPMENTS

Despite predictions by the U.S. delegation, WARC-79 was not a purely technical conference.³ It was, by definition, a gathering of the nations of the world to review and agree upon arrangements for regulating dozens of international electronic media services. WARC-79 was significant in that it commanded considerably more attention and had more authority than most of the recent ITU conferences.⁴ Many pressures for substantial change were evident, but for the most part, these pressures were deferred as developing countries voiced a particular interest in exploring a variety of new regulatory alternatives. The Conference involved economic, judicial, institutional, social, technical, and political concerns.⁵ The relative proportion of each dimension varied over the eleven weeks, although issues with significant political overtones surfaced consistently throughout the Conference.⁶

Previous WARCs (1959 and 1947) have been little more than friendly meetings to decide who controls radio services and where these services will be placed in the broadcast radio spectrum.⁷ This year, for the first time, the less developed countries held a voting majority of the nations attending WARC.

The ITU has changed considerably since the last general WARC in 1959. Nearly half of the nations attending this year's conference did not exist twenty years ago. In 1959, only one independent African nation—Ghana—belonged to the ITU. Today, Africa has forty-eight independent nations, the majority of which are ITU members.⁸ The Third World and other less developed member nations of the ITU believe that WARC-79 provided an opportunity to ensure their

3. *Id.* at 3.

4. *Final Report and Order*, FCC, Docket No. 20271 (January 1979). *Brown, New Nations Creating Static on the World's Radio Dials*, N.Y. Times, Sept. 23, 1979, § E, at 8, col. 1.

5. Hart, *U.S. Faces Vital Battle Over Allocation of Airwaves*, Denver Post, Nov. 4, 1979, Perspective §, at 24. Honig, *Lessons For the 1999 WARC*, 30 J. Com. — (1980).

6. Kramer, *Airwaves Conference Transmits Message: The Resource Will be Shared*, Washington Post, Dec. 9, 1979, § F, at 1, col. 4.

7. Clippinger, *The Hidden Agenda: The U.S. Faces WARC*, 29 J. Com. 197 (1979). WARC '79 had a broader agenda, more proposals, more participants, and a shorter time to accomplish its work than either of the two previous general world conferences.

8. Hart, *supra* note 5, at 24. See also White, *supra* note 1, at 149-50.

position in the international communications arena and begin the creation of "a new world information order."

The Political Issue: Access to the Broadcast Spectrum and the Geostationary Orbit

The ITU has historically assigned frequencies to spectrum users on a first-come, first-served basis.⁹ The United States and most other developed countries consider this principle basically fair and sound because they have an ever-growing need for spectrum space.

The world powers (defined in terms of gross national product) presently dominate the use of telecommunications systems. The United States, the Soviet Union, and five other highly developed nations regulate nearly all of the electronic media because the citizens of these countries own ninety percent of the broadcasting industry through direct investment. The United States and the Soviet Union, the two most technologically developed countries, account for fifteen percent of the world population and use fifty percent of the world broadcast spectrum.¹⁰ At the other extreme, developing nations account for seventy-five percent of the world population and only seven percent of the world's telephones; the rural areas of poorer nations have less than one telephone per one hundred people.¹¹

The communications gap between the advanced and developing nations results not only from limited spectrum resources, but also from a lack of money and trained telecommunications personnel to plan, implement, and operate communications systems.¹² Fearful that the gap will widen even faster with the introduction of new technologies, particularly satellite broadcasting, newly independent nations are calling for increased technical assistance and procedures to assure them

9. See Note, *The Role of the International Telecommunications Union for the Promotion of Peace Through Communications Satellites*, 4 CASE W. RES. J. INT'L L. 61 (1971); T. LAY & H. TAUBENFELD, *THE LAW RELATING TO ACTIVITIES IN OUTER SPACE* 107-11 (1970).

10. Porat, *Communication Policy in an Information Society*, in COMMUNICATIONS FOR TOMORROW, POLICY PERSPECTIVE FOR THE 1980'S (1978).

11. ACADEMY FOR EDUCATIONAL DEVELOPMENT, *WARC 79: Development Communications Strategies*, A REPORT TO USAID 7 (1979) (copies available at 1414 22nd Street, N.W., Washington, D.C.). See also Kamman, *Towards An American Agenda For The New World Order of Communications* (December 1979) (unpublished report available from Arthur D. Little, Inc., Cambridge, MA).

12. Allen, *Comments on the Development of an AID Response to the U.S. Position at WARC* (1979) (copies available from Old Dominion University, Norfolk, Virginia).

“equitable access” to the frequency spectrum and the geostationary orbit.¹³

Pre-Conference Maneuvers

Several small incidents, occurring before the formal start of the Conference, fostered a mood of confrontation, but none was as significant as the selection of the Conference chairman.¹⁴ Before the start of the Conference, the United States and other industrialized countries met to nominate their own candidate for Conference chairman. This was nothing new, as developed nations had used the identical procedure at dozens of similar conferences¹⁵ for the last seventy-five years. In light of the U.S. delegation’s insistence on approaching the issues presented on a purely “technical” basis, however, the tactic seemed ironic. Indeed, the U.S. delegation approached WARC in such a technical fashion that they arrived in Geneva with their first order of business being the political appointment of the Conference chair.¹⁶

This time, however, like the developed countries, the LDCs held a pre-WARC convention where they decided to nominate their own chairman. During the first week of the Conference, the LDCs proposed one of their most articulate and capable leaders and lobbied vigorously on his behalf.¹⁷

13. Radio waves travel in a straight line, and after a relatively short distance, the curvature of the earth interferes with the quality of broadcast transmissions. This creates a potential problem regarding the placement and arc segmentation of satellites in orbit.

Ideally, telecommunication satellites should be positioned in space to travel in an orbit directly above the equator at speeds synchronized with the earth’s rotation for the maximum “footprint” (coverage) and optimal quality reception. The arc over the equator, directly north or south of the area to be served, is considered the most desirable. Satellites positioned in such a manner are referred to as “geostationary satellites” because they appear to occupy fixed positions relative to the surface of the earth. As few as three satellites, properly spaced, can cover the entire surface of the earth, exclusive of the extreme northern and southern latitudes. See A. BELENERIK & S. ROBB, *BROADCASTING VIA SATELLITE, LEGAL AND BUSINESS CONSIDERATIONS* (1979); Schuyten, *Poorer Nations Challenge U.S.*, N.Y. Times, Aug. 30, 1979, § D, at 1, col. 2. See discussion of “equitable access” principal *infra*.

14. Rutkowski, *supra* note 2; see also Honig, *supra* note 5.

15. *Id.*

16. White, *The World Administrative Radio Conference—1979, Reviewing the Past with an Eye on the Future*, manuscript prepared for presentation to Face to Face, Carnegie Endowment for International Peace/American Foreign Service Association, Washington, D.C. (January 1980).

17. Kramer, *Radio Spectrum the Next Arena For Nonaligned Nation’s Challenge*, Washington Post, Sept. 23, 1979, § F, at 1, col. 1.

The industrialized countries (mainly the United States and Great Britain) refused to accept the LDCs' candidate. After a one week stalemate that delayed the opening of the Conference, agreement was finally reached on a compromise chairman.¹⁸ Although the developed countries had a basis for concern that the LDC candidate might take the plenary meetings in unwanted directions, the atmosphere of hostility engendered by their adamant opposition was difficult to justify, particularly in light of the "apolitical" posture of most of their delegations.

The developed countries were successful in limiting the opportunities for additional heated political debate by dividing the general body into a number of special "working groups," thereby diffusing the strength of the LDCs, which outnumber the developed countries three to one under the ITU's democratic one country, one vote system.¹⁹ During the last half of the Conference, however, the LDCs mobilized again and began to press their concerns for some assurance that frequency space be reserved for their future development and that the ITU provide economic and technical assistance to them.²⁰ Following the leadership of Algeria²¹ and Yugoslavia, a significant number of the LDCs articulated their support for the establishment of a preferential system of frequency allocations in the high frequency (HF) bands of the spectrum.²²

WARC and NIEO: Preferential Treatment for Developing Countries

Preferential treatment for LDCs is not a new concept in international law. The United Nations General Assembly passed a

18. The delegates finally agreed to select Roberto Severini, a delegate from Argentina, as the WARC-79 Chairman.

19. Although some developing nations sent a large number of delegates to WARC, many could not afford to send enough delegates to participate equitably in all of the subcommittees, working groups, and subworking groups. Of the 142 countries attending WARC-79, 102 were "developing nations" (72%), but only 857 (51%) of the 1684 delegates were from Third World countries. See Honig, *supra* note 5, at 15.

20. *Push Is On At WARC For Reserved Satellite Slots*, BROADCASTING, Nov. 12, 1979, at 24.

21. See ALC/1219/38 & 68, Algerian Proposals for the Work of the Conference, WARC-79 Doc. No. 119 (June 18, 1979).

22. The United States and other technologically developed countries now boast of a political and technical victory because they managed to postpone the final decision regarding a set-aside policy for frequency space and orbital slot for satellites until a series of conferences, scheduled to convene in 1981 and extend through 1999, take place. See discussion *infra*.

declaration on the establishment of a New International Economic Order (NIEO) "to eliminate the gap between economic and social development for future generations."²³ The principles following this broad declaration included a call for "[p]referential and non-reciprocal treatment for developing countries, wherever feasible, in all fields of international economic cooperation."²⁴

The 1973 ITU Plenipotentiary Conference was held one year after the NIEO Declaration was adopted by the United Nations. The statements made, votes taken, and principles approved at that conference made it clear that the developing countries were unified in their effort to implant the underlying norms of the NIEO—equity and preferential treatment—in the ITU.

At the second plenary meeting, many countries introduced statements that would influence the basic purpose and future direction of the Union. A delegate from the Ivory Coast, acting as a chief spokesman on what developing countries "expect from the ITU," said:

In our (Third World) opinion, the ITU should be in a position to act as arbitrator and coordinator at the world-wide level. The new countries too often find themselves defenseless before the technological power of the well-endowed countries. It would be erroneous to fall into the trap of accepting a fallacious principle of reciprocity. . . . Accordingly, the Union should be given the means of ensuring the fair distribution of such limited resources as the frequency spectrum or the geostationary orbit, to avoid a situation in which the first-come rich countries would monopolize the best services. The IFRB must be enabled to control frequency utilization.²⁵

The Plenipotentiary Conference produced a new ITU Convention that contained provisions supporting the initiative to establish a new international order in telecommunications. The 1973 Conference also developed the ITU's first "equitable access" provision for the allocation of the frequency spectrum and geostationary orbit:

23. Rutkowski, *The Evolving Legal Dimensions of the New International Order: Preferential Treatment for Certain Countries in Determining Telecommunications Rights* (1979) (unpublished report, available from Mr. Rutkowski at the FCC, 1919 M Street, N.W., Washington, D.C.).

24. U.N.G.A. Res. 3201, at para. 4(a) (S-IV) of May 1, 1974 (adopted without objection). See U.N.G.A. Official Records 29th Plenary Meeting, 2 (para 18).

25. Summary Record of the Second Plenary Meeting, ITU Plenipot. Conf. Doc. 99 at 17 (Annex 4) (1973).

In using bands for space radio services members shall bear in mind that radio frequencies and the geostationary orbit . . . must be used efficiently and economically so that countries or groups of countries may have *equitable access* to both. . . . (emphasis added)²⁶

Although the term "equitable access" has not been specifically defined, it reappears in the Final Acts of the 1979 WARC.²⁷ Most observers see the language as supporting affirmative efforts by the ITU to foster the telecommunications development of the LDCs.²⁸

An important norm was introduced by Mexico in the 1973 Conference document and incorporated as an opinion at the Convention. It had been ". . . drawn up in a spirit of cordiality with a view to ensuring that allowance was made in telecommunication agreements between stronger and weaker countries for the latter's lack of bargaining power."²⁹ As adopted by the Conference, the norm reads as follows:

[D]eveloped countries should take into account the requests for favourable treatment made by developing countries in service, commercial or other relations in telecommunications, thus helping to achieve the desired economic equilibrium conducive to a relaxation of present world tensions.

The "new order" provision that proved the most contentious was an Algerian proposal, presented during the course of the eighteenth session, that proposed to give the International Frequency Registration Board (IFRB) the authority to implement the norms set forth above.³⁰ The proposal was made to add "equitable" to the words

26. Art. 33.2 (para. 131), 1973 ITU Convention (Malaga-Torremolinos), Wallenstein, *Int'l Telecommunications Agreements* (1979).

27. See discussion of the technical assistance for LDCs' resolution passed during WARC-79 *infra*.

28. *Why the Sky Didn't Fall at WARC*, BROADCASTING, Dec. 17, 1979, at 44-54.

29. Minutes of the Twenty-fifth Plenary Meeting, ITU Plenipot. Conf. Doc. 445, at 11 (para. 6.1) (Jan. 1974). See Mexico, More Favorable Treatment, ITU Plenipot. Conf. Doc. 166 (1973).

30. A good case can be made for the proposition that the IFRB already has the implicit authority to make frequency assignments on a preferential basis utilizing the "equitable access" norm. See D. LEIVE, INTERNATIONAL TELECOMMUNICATIONS AND INTERNATIONAL LAW: REGULATION OF THE RADIO SPECTRUM 283-301 (1970). See also Jacobson, *International Institutions for Telecommunications: The ITU's Role in GLOBAL COMMUNICATIONS IN THE SPACE AGE: TOWARDS A NEW ITU 64* (1972); Wallenstein, *Make Room in Space: Harmony*

“effective and economical” as factors the Board must consider when making decisions about the use of the geostationary orbit. Several countries objected to the introduction of the term “equitable.” The assertion was made that “[t]he Board could not act as a judge of equity. . . .”³¹ Despite the opposition, a vote was called on the matter, and the proposal was adopted by a 65 to 43 majority. Specifically, the provision, as it is now found in the Convention documents, reads:

The essential duties of the International Frequency Registration Board shall be . . . to furnish advice to Members . . . with a view to the *equitable*, effective and economical use of the geostationary satellite orbit. . . . (emphasis added)³²

Thus, since 1973, the Supreme Organ of the Union has recognized that the IFRB can act in accordance with equity principles in assigning frequency space in the broadcast spectrum. Sufficient normative provisions were introduced into the ITU Convention in 1973 to provide ample basis for future administrative conferences to adopt similar regulatory provisions. The purpose of such provisions was to implement a plan of action for preferential and nonreciprocal treatment for a certain class of countries in appropriate administrative matters before the ITU.

Following the 1973 Plenipotentiary Conference, the most significant ITU conference that addressed the status of LDCs in the telecommunications field was the special WARC on broadcast satellites held in 1977.

1977 World Administrative Radio Conference on Broadcast Satellites (WARC-BS)

The 1977 World Administrative Radio Conference on Broadcast Satellites (WARC-BS) was one of a series of international regulatory conferences held under the auspices of the International Telecommunications Union. The ITU holds meetings every few years to discuss and implement, or redefine, existing international broadcasting regulations. Such conferences can be held on either a world or a regional

and Dissonance in International Telecommunications pt. 2, 40 TELECOMMUNICATIONS JOURNAL 101-02 (1978).

31. See Minutes of the Eighteenth Plenary Meeting, ITU Plenipot. Doc. 438, at 4 (paras. 3.11, 3.12) (1974).

32. Art. 10.3c (para. 67), 1973 ITU Convention (Malago-Torremolinos), Wallenstein, *Int'l Telecommunications Agreements* (1979).

basis. There are three ITU regions:³³ the Western Hemisphere constitutes Region II.

The world administrative conferences cover either general issues, treating all services and frequency bands, or specialized issues, dealing with one or a specified number of services and frequencies. The WARC-BS was a specialized world conference dealing with broadcasting satellite services and the related services that share that portion of the 12-GHz band.³⁴ Although WARC-BS was a world conference, there was no emerging consensus as the delegates for different regions arrived at different conclusions.

The agreement and resolutions of the Conference affecting the development of satellite broadcasting, in short, included a comprehensive plan, designed by the ITU Regions I and III, that set aside or reserved individual channels (sometimes called frequencies) and specific orbital locations for satellite coverage of prescribed services at geographical areas on the ground. This plan marked a contrast to the traditional practice in the fixed satellite service (FSS), where the choice of orbital locations and frequencies used within the allocated band were made on a first-come, first-served basis.³⁵

The agreements reached at the 1977 Conference could influence the adoption of a similarly structured plan for other services and bands throughout the entire international broadcast spectrum. This would mean a grave modification in the current structure of international broadcasting, and create a more ordered and regulated use of the orbit and the spectrum than has ever been developed in the 114 year history of the ITU.

Sharing a frequency band among different regions of the world may be a comparatively easy task if the broadcast systems within the frequency have similar technical characteristics. However, allocations

33. Africa and Europe comprise ITU Region I, the Western Hemisphere makes up Region II, and the Soviet Union and Asia comprise Region III. There was some debate at WARC-79 by a number of the Third World countries concerning the creation of a fourth ITU Region comprising the African continent. The idea failed, however, for lack of a unified majority in support of the modification.

34. Gould and Reinhart, *The 1977 WARC on Broadcasting Satellites: Spectrum Management Aspects and Implications*, IEEE TRANSACTIONS ON ELECTROMAGNETIC COMPATIBILITY, Vol. EMC-19, No. 3, 171-78 (1977).

35. Goldberg, *International Telecommunications Regulation*, in COMMUNICATIONS FOR TOMORROW, POLICY PERSPECTIVE FOR THE 1980's 157 (1978).

in the same band, as well as in adjacent areas of the same frequencies band, with the vastly different characteristics and wide geographical coverage typical of broadcast satellite systems, often encounter extremely difficult sharing problems. There are a number of general aspects of frequency sharing. Whichever type of sharing is used, however, the basic objective is the same: to keep mutual interference at a minimum acceptable level on all links, in all systems, and in all services to which the band is allocated.³⁶

The plan adopted by Region II outlined a scheme for the development of broadcast satellite systems, but was approved only on an interim basis. The final agreement governing the use of the broadcast satellite services in Region II is scheduled to be promulgated no later than 1984.

Before the 1984 regional planning conference, the ITU will regard all broadcast satellite systems as experimental; all are without international recognition or protection.³⁷ The Final Acts of the 1977 Conference set forth the following principles to be applied by the ITU in assigning frequencies and orbital slots both on an interim and permanent basis in Region II: (1) equality for allocating services in the Region; (2) equal rights for services in various areas of the frequency; (3) recognition of national requirements; (4) equitable rights of access to geostationary orbital spectrum resources; (5) a flexible planning approach; (6) efficient use of the geostationary orbit and the broadcast spectrum; (7) consultation among administrations; and (8) individual lines of reception.³⁸

Position of the United States Delegation to WARC-79

As outlined by Glen O. Robinson, chairman of the American delegation, the U.S. position at WARC-79 was based on the following principles,³⁹ many of which conflict directly with principles adopted by Region II at the 1977 WARC-BS:

36. A. CHAYES, J. FAWCETT, M. ITO & A. KISS, *SATELLITE BROADCASTING* (1973).

37. Gould and Reinhart, *supra* note 34, at 172-74.

38. Final Acts of World Administrative Radio Conference for Broadcast Satellites, United Nations, International Telecommunications Union (ITU) (1977).

39. Final Report and Order, Federal Communications Commission, Doc. No. 20271, 70 F.C.C. 2d 1193 (Jan. 1979). Branscomb, *Waves of the Future: Making WARC Work*, 3 FOREIGN POLICY 139 (1979).

Flexible frequency allocation. The official U.S. position at WARC called for "a flexible procedure for assignments on the broadcast spectrum." The goal was to leave adequate frequency space for new and more sophisticated technologies to develop. The United States opposed either advanced planning of an International Table of Allocations or orbital slot assignments in the Western Hemisphere.

Maximum sharing of frequencies. This would permit more efficient spectral use by accommodating both new and old technologies on the same band (ultra high frequencies [UHF-TV] with land mobile services, for example).

Maximum international accommodation and cooperation. Insofar as possible, all of the telecommunications needs of the various countries should be met. If the first-come, first-served principle must bend, however, the United States favored a position consistent with meeting present needs rather than allocations that would reserve frequencies for the LDCs when they could use them.

The United States delegation to WARC-79 believes a substantial portion of the U.S. interests were met during the eleven week conference.⁴⁰ This statement of U.S. achievement may be true of some of the broadcast services, but it is not an accurate description of the resolution of concerns dealing with satellite communications because most of those issues remain undecided.

REVIEW OF THE SPECIFIC ACTS ADOPTED AT WARC-79 DEALING WITH SATELLITE COMMUNICATIONS SERVICES

The industrialized world's rapid increase in telecommunications facilities has presented a growing need for more spectrum space, especially for satellite services. Meanwhile, the developing countries, seeing a direct correlation between telecommunications facilities and economic development, have demanded a substantial share of the spectrum, whether or not they are now able to use it. Thus, the competing concerns between the haves and the have-nots gave rise to sharp controversy throughout the Conference.

40. See United States Department of State, World Administrative Radio Conference, Summary Report No. 9 (1979) (copies available from Dept. of State, Washington, D.C. 20520).

During WARC-79, the United States sought to accommodate its need for increased radio frequencies for fixed satellite services for domestic and international use. The U.S. delegation opposed fixed satellite service accommodations that would come at the expense of other services (i.e., direct broadcast satellite service) as proposed by many other administrations. The United States offered to separate fixed and broadcast service within the high frequency portion of the spectrum, thus maximizing the potential for separate development of both services.

The U.S. objectives were achieved, though not without considerable debate. The allocations were made in the existing fixed satellite bands consistent with the United States proposal.⁴¹

As with the fixed satellite services, the assignment of feeder links was an issue of sharp concern. The United States objected to sharing in this band because of worldwide use of the mobile services. The U.S. delegation was reasonably satisfied, however, with a compromise that provided for the use of several bands for link-ups at the option of individual countries. In achieving this compromise, the United States recognized the unique ability of individual countries to influence and govern their use of the international spectrum.⁴² Recognition of this principle may establish a significant precedent that could be used by LDCs in future conferences in their effort to reserve orbital slots for broadcast satellite services.

Fixed Satellite and Broadcast Satellite Services in the 12 GHz Band

The delegates to the World Administrative Radio Conference adopted a significant change in the frequency allocations in the 12 GHz band for ITU Region II. Since 1971, both fixed (point-to-point) satellite and broadcast (multipoint) satellite services have shared the same frequency band, 11.7-12.2 GHz. Since 1977, the use of this band has been subject to constraints of the arc segmentation of the geostationary orbit which resulted in severe limitations of the number of orbital positions available for either service.⁴³

Third World pressure for change in this area was evident in the claims of some equatorial nations, led by Columbia, that their

41. Final Acts of World Administrative Radio Conference, United Nations, International Telecommunications Union (ITU), Radio Regulations, Annex 1 (Geneva 1979) (copies available at U.S. Dept. of State *supra*).

42. WARC Summary Report No. 9, *supra* note 40, at 8.

43. See discussion of WARC-BS 1977 *supra*.

sovereign territorial rights include the authority to govern the geostationary orbital slots above their countries. Developed nations have not taken such claims seriously, however, because worldwide aviation and space exploration have remained feasible only because vertical claims to air space have been historically ignored.⁴⁴

The decision by WARC-79 to alleviate separate frequency bands, and to assign fixed and broadcast services individual frequencies, eliminates the need for stringent arc segmentation and permits both fixed and broadcast satellites to be located across the full visible arc of the geostationary orbit.⁴⁵ This decision not only increases the number of available orbital positions, but also provides important flexibility for individual countries to place their satellites in an orbital position that is technically and economically most efficient for serving their particular territories.

The Federal Communications Commission (FCC) has pointed out that WARC-79 did not reach the final decisions regarding the allocation of the entire 12 GHz band. Many aspects were left for final resolution at the 1984 Region II broadcasting satellite planning conference. The mandate of the 1984 Region II conference will be to develop a detailed plan for the broadcast satellite service and the upper portion of the 12 GHz band. The conference will divide the 12.1-12.3 GHz segment between the broadcast and the fixed satellite service. The FCC will have to evaluate this situation with respect to any fixed or broadcasting satellite stations it may authorize to operate in this sub-band between now and the 1984 conference. The FCC recognizes that it may be in the best interest of the United States to develop a domestic broadcast satellite system between now and 1984 to establish "squatters' rights" for the scarce and increasingly desirable orbital slots necessary for satellite service.⁴⁶

44. S. BROWN, N. CORNELL, L. FABIAN, E. WEISS, REGIMES FOR THE OCEAN, OUTER SPACE AND WEATHER 176-86 (1977).

45. See WARC Summary Report No. 9, *supra* note 40, at 7-8.

46. The most controversial project on the horizon at the FCC that deals with satellite communications is the domestic direct to home satellite system (DBS) proposed by Sears and the Communications Satellite Corporation (COMSAT). Traditional satellite communications utilizes local distributors and cable companies as an intermediate link between the satellite and home receiver. The Sears/COMSAT system would revolutionize subscription television service by enabling individual homes to receive a four channel transmission directly via satellite.

Under the "first come, first served" system, the ITU and IFRB will likely show a preference for the maintenance of existing satellites. Therefore, despite the interim nature of all broadcast satellites launched in Region II before the

RESOLUTIONS TO PROVIDE FINANCIAL AND TECHNICAL ASSISTANCE TO
PROMOTE THE LDCs' TELECOMMUNICATIONS ADVANCEMENT

The ITU provides technical assistance in spectrum management through its administrative arm, the IFRB.⁴⁷ The ITU has not yet been specifically authorized to assist the LDCs meet the enormous costs involved in designing and implementing a telecommunications revolution.

Developing countries have compelling reasons to want access to the spectrum and communications technology. In the past decade, there have been many efforts to harness the power of communications technology for education and social programs: to upgrade the quality of instruction; to reach pre-school and out-of-school children; and to teach the basic survival skills in health, nutrition, and agriculture to adults, particularly those living in rural areas.⁴⁸ The efforts of the Third World have failed, not only because of the lack of spectral resources (for this is mainly a futuristic concern), but rather because of limited financial resources.

Third World nations arrived at WARC-79 knowing that, despite passage of the Tunisian resolution at the UNESCO conference in 1976 that called for financial assistance to develop Third World media, almost nothing had since happened.⁴⁹ The LDCs came to WARC with specific ideas for the creation of a funding mechanism and left with little more than another oral and moral commitment.

The majority of countries attending WARC-79 did endorse Resolution CX, "Relating to the Role of Telecommunications in Integrated Rural Development,"⁵⁰ that urged "member governments to strengthen

upcoming 1984 conference, it may be within the United States' best interest to expeditiously proceed with the creation of a domestic DBS system. For a discussion of DBS, see *Symposium on Direct Broadcast Satellites*, 30 J. COM. — (1980). See also Smith, Yuri: *The First Dedicated Broadcast Satellite in Japan*, *SATELLITE COMMUNICATIONS*, July 1978, at 23-29.

47. See D. LEIVE, *INTERNATIONAL TELECOMMUNICATIONS AND INTERNATIONAL LAW* 283-301 (recommending an evolutionary approach to increasing the powers and improve the procedures of the IFRB). See also Jacobson, *supra* note 30, at 57-67; Wallenstein, *International Telecommunications, Where Cooperation Is The Message*, 39 *TELECOMMUNICATIONS J.* 367 (1972).

48. ACADEMY FOR EDUCATIONAL DEVELOPMENT, *WARC 79: Development Communications Strategies*, A REPORT TO USAID, *supra* note 11, at 6.

49. Since 1976, UNESCO has only appropriated \$60,000 to the improvement of rural media services. Righter, *Improving Global News Flow*, *ATLAS WORLD PRESS REVIEW* 25-27 (April 1979).

50. Draft Resolution CX, World Admin. Radio Conf., Doc. No. 936, Geneva, December 3, 1979. See WARC Summary Report No. 9, *supra* note 40, at 13.

their technical cooperation efforts to serve the rural communities, bearing in mind the existing inadequacies in the resources of various developing countries." Although the U.S. delegation gave considerable verbal support to the CX Resolution, not a single communications aid package has been publicly announced since the conclusion of WARC-79. Indeed, if the U.S. track record for honoring grant resolutions is any indication for the future conduct of the U.S. State Department, the Third World countries have little on which to base favorable expectations.⁵¹ The United States committed itself to providing some financial resources at the 1978 UNESCO Conference, but has been delinquent in honoring the commitment. The uncertainty of assistance from the United States made it difficult for many smaller countries to support key U.S. proposals presented at WARC.⁵²

In a number of resolutions, the ITU authorized support services to be provided by the IFRB to "those administrations of a country in need of special assistance." Assistance can come in the preparation of studies and proposals in cases where the LDC needs an additional frequency assignment within a specific portion of the radio spectrum. The Board, "using such means at its disposal as are appropriate in the circumstances," may also help countries comply with the decisions made at WARC-79 that require a reassigning of frequencies and services.

Although resolutions like Resolution CX are beneficial to the technological development of LDCs, they will not suffice as a mechanism that ensures "equitable access." A system must be developed to generate revenue to finance telecommunications projects in the developing world.

SPECTRUM USE FEES

The official U.S. position at WARC-79 called for "a flexible procedure for assignments on a broadcast spectrum," rather than a

51. State Department officials often rebut this statement by offering statistics concerning USAID's activity in the telecommunications development area. Although it is true that eighteen innovative satellite projects aimed at a rural telecom development were started, the fact remains that only one of the eighteen has made a successful transition to "operational" status, and fifteen of the eighteen have been completely terminated. See Address Delivered by the Observer For WHO, Minutes of the Second Plenary Meeting, World Administrative Radio Conference, Doc. No. 778, Annex 3, Geneva (November 20, 1979).

52. Non-Aligned States Plan Joint Strategy in World Airwave Battle, Nairobi: African Press Service, July 16, 1979.

reservation of frequencies for individual nations.⁵³ The United States, however, may be required to adopt alternative positions at the upcoming Region II meeting to create an equitable and efficient spectrum policy should the developing nations, which hold a preponderance of decisionmaking weight, insist upon adopting the spectrum set-aside position that they advocated at the 1977 WARC-BS.

A most convincing compromise position that will likely satisfy the needs of developing countries, without wasting the precious frequency space needed by the advanced countries, is the creation of a spectrum tax or use charge. Eleanor Steinberg and Joseph Yager, in their recent publication, *New Means of Financing International Needs*, have suggested the development of a tax system for "international commons." According to the book, published by the Brookings Institute, "a good case can be made for taxing the users of scarce resources outside national jurisdictions. In a sense, the use of the broadcast spectrum represents a windfall because its users pay nothing for something that clearly has an economic value."⁵⁴

Dwight Allen, a legal consultant to the Agency for International Development (AID), also believes the spectrum use fee is an important and useful concept. According to Allen, "there are a variety of systems which would validate the principle that the frequency spectrum is a public resource for the benefit of everyone and that those using the resource, particularly with a profit motive, should have an obligation to pay for it."⁵⁵

Such a tax, based on the actual amount of spectrum used, would be feasible for a number of reasons. First, it would provide Third World nations with security for future development under a pre-

53. Final Report and Order, Federal Communications Commission, Docket No. 20271, 70 F.C.C. 2d 1193 (January 1979). See Testimony of Glen O. Robinson, Chairman, United States Delegation to WARC 1979, before the Subcommittee on Space Science and Applications, Committee on Science and Technology, U.S. House of Representatives (September 1979).

54. E. STEINBERG AND J. YAGER, *NEW MEANS OF FINANCING INTERNATIONAL NEEDS* 26-30 (1978).

55. Allen, *supra* note 12, at 4. The Public Interest Satellite Association (PISA) has, on numerous occasions, raised concerns about the expenditure of public tax revenue to construct communications satellites. According to PISA, over eighty billion tax dollars have been spent for satellite systems, none of which specifically provide for public access. A. BELENDERIK & S. ROBB, *BROADCASTING VIA SATELLITE, LEGAL AND BUSINESS CONSIDERATIONS* 83-84 (1979). There are two alternatives to this dilemma that are consistent with sound public policy; satellite communications corporations should be required to provide "public access" or they should pay for their use of the spectrum—a finite public resource.

assigned slot system, but would not waste spectrum space. Those Third World nations that are not yet technically able to use the satellite portion of the spectrum could "rent" their space to those nations which have such capability. This would supply frequency space to the developed nations and the international communications corporations that desperately need it, and at the same time, provide the developing nations with a source of revenue that could be used to foster their telecommunications advancement.⁵⁶

A spectrum tax similar to the one proposed here was used by the FCC from 1963-1976 as a mechanism to encourage domestic radio and television broadcasters to use the spectrum more efficiently.⁵⁷ Under the current first-come, first-served system of the ITU, the international broadcasters have no incentive to use the spectrum more efficiently. They tend to exploit its use and try to restrict newcomers in order to maintain their oligopoly and eliminate possible frequency interference.

According to recent economic statistics,⁵⁸ it is evident that most international communications companies could easily afford a reasonable tax rate based on spectrum use. For example, in 1977, American Telephone and Telegraph's (AT&T) gross revenues were more than \$36 million. Indeed, if AT&T were ranked as a nation that year, its wealth would have surpassed the gross national product of South Africa (\$35 million) and 117 of the 145 nations of the United

56. The idea of a spectrum tax or use fee has met with increasing support. See Brown, et al., *supra* note 44, at 194-96 (also supporting a "use fee" for the allocation of positions within the geostationary orbit; most of the arguments relevant to a fee for frequency allocations are also applicable to orbit allocations). See also Honig, *supra* note 5, at 15 (the funds gathered from the "spectrum charge" could be used for the establishment of an ITU trust fund for spectrum reallocation and communications development in the LDCs). See also Belenderik & Robb, *supra* note 55, at 89 (Instead of permitting the slots to stand vacant, the developed countries of the world could be allowed to "rent" the space from LDCs until such time as it can be utilized by the "owner" countries. In addition, an agreement could be reached whereby a country renting a slot would have to provide "access" and free several transponders for use by the underdeveloped countries).

57. See *National Cable Television Ass'n, Inc. v. United States*, 415 U.S. 336 (1974); Coase, *The Federal Communications Commission*, 2 J. OF L. AND ECON. 1 (1959); DeVany, *A Property System for Market Allocation of the Electronic Spectrum: A Legal-Economic-Engineering Study*, 21 STAN. L. REV. 1499 (1969); Johnson, *Towers of Babel: The Chaos in Radio Spectrum Utilization and Allocation*, 34 LAW AND CONTEMPORARY PROBLEMS 505 (1969). See also *NCTA v. FCC*, 39 R.R.2d 355 (1976).

58. See *BUSINESS WEEK*, Mar. 1978.

Nations.⁵⁹ Profits are increasing: in 1979, AT&T made over 650 million dollars, the largest annual profit figure ever achieved by a corporation in U.S. history.

CONCLUSION

The recently completed WARC-79 has been viewed by the FCC as "a substantial success for the United States." According to the Commission:

[W]e (the United States) did not achieve all of our objectives, and many issues were deferred—either for further study by subcommittees of the ITU, or for consideration by subsequent conferences; however, it is clear that the fears of impending disaster expressed by many prior to the conference were not justified.

The FCC is quick to point out, however, that considering the expansive international communications activity planned for the coming decade, neither the nation nor the Commission can afford to rest on the achievement to date.⁶⁰

Clearly, the issues present at WARC 1979 will only become more complex and politically stimulating in the years to come. According to the FCC's Foreign Affairs Chief, Kalmann Schaefer, "there are twenty-one major international radio conferences scheduled over the next six years. One of the conferences, a 1984 meeting designed to plan for outer space communications service, will impact seriously on the communications service and will be offered in the late 1980's."⁶¹ There were a few unfortunate political skirmishes, he said, but the "effectiveness of the ITU was not compromised."

Implicit in all ITU documents is the concept that the radio spectrum is globally-owned. Like the oceans, the airwaves are physically scarce natural resources that must be shared to maximize the interests of all countries.⁶²

Historically, a broadcaster or a country needing a frequency simply established squatter's rights by taking over a frequency allocated to the particular purpose and keeping it indefinitely. This first-come, first-served system has been challenged, but for the most

59. Porat, *supra* note 10, at 26. See also Kamman, *supra* note 11, at 3.

60. Kramer, *FCC Radio Report*, Washington Post, Jan. 10, 1980, § F, at 2, col. 3.

61. *Id.*

62. See Brown, et al., *supra* note 44, at 180-81 n.5. See also Kramer, *supra* note 6.

part, it is still operative for international communications systems. Until the 1977 WARC-BS, there had been no effort to allocate frequencies either equitably or according to sovereign rights; however, this system of allocation seems to be the trend for the future.

Although WARC provided a monumental debate regarding the future of telecommunications, it did not dispose of the issues regarding satellite service regulations. The United States and other international communications conglomerates must consider new positions—for the 1984 conference and other future conferences—that they can live with for decades to come. One such position is a spectrum tax imposed on international broadcasters who have traditionally gained a windfall profit from their use of the airways—a universal but limited natural resource. Such a tax system would reduce the current information imbalance, not by inhibiting the communications capacity of some, but by increasing the communications capacity of all.