INTERNATIONAL SATELLITE COMMUNICATIONS AND THE NEW INFORMATION ORDER: DISTRESSING BROADCASTING SATELLITES

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I. INTRODUCTION

Like the weather, the topic of direct broadcasting by satellite into the home is the subject of a great deal of discussion, but remains something about which one can do very little. In the context of today's discussion of "The New Information Order," DBS might be defined as an acronym representing those Distressing Broadcasting Satellites. The distress, perceived in many nations at various levels of social, economic or technological development, appears to be based in large measure on fear or ignorance. The fear is unfounded. The ignorance is often self-imposed and is politically self-serving. Consequently, the great debate over DBS is a tempest in a vacuum chamber. If the debate is ever concluded, I believe its results will have little direct effect on governments or institutions in the real world of communication and politics.

II. REALITIES OF SATELLITES TECHNOLOGIES, COSTS AND SYSTEMS

International communication by satellite has been a demonstrated reality for twenty years. Since experiments in the early 1960's, the technological feasibility of international satellite communication has been proven. The Early Bird precursor, Syncom,[1] demonstrated the feasibility of the geostationary satellite, which is the mainstay of most major communication satellite systems in operation today. Nationally owned domestic communication satellite systems are operating today in the U.S.S.R., Canada, Indonesia, Japan and the United States.[2] Independent domestic

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1. Syncom II, launched by NASA in 1963, rejected the random orbit satellite configuration then in use and established the absolute preferability of the geostationary orbit for communication satellite purposes. *See* Hinchman, *The Technological Environment for International Communications Law*, in THE INTERNATIONAL LAW OF COMMUNICATIONS, 26 (E. McWhinney ed. 1971).

2. The Canadian Anik system is discussed *infra* at note 5. The U.S. system, COMSAT, was created by Congress in 1962 (Communications Satellite Act of 1962, 47 U.S.C. § 701 (1976)) and is discussed in other parts of this Symposium. The U.S.S.R.'s broadcasting activities are mentioned *infra* at note 13. For a discussion of Japan's use of DBS, *see* Smith

systems are also being planned in countries such as India and Brazil. Other domestic systems, using internationally owned satellites, exist in fifteen or more countries. Jointly owned international satellite systems are operated or planned by Intelsat, Intersputnik, the Arab Satellite Corporation, Inmarsat and the European Broadcasting Union.[3] Surely, others will emerge.

Satellite communication, albeit relatively new, is a well-known and widely practiced technological phenomenon. The technology possesses enormous economic, social and political potential. When and how the technology is used can be important factors that influence: (1) economic growth and development; (2) social awareness and progress; and (3) political unity and stability within a nation, within a region, or among countries with shared economic, political, and ethnic interests.

Before considering why nations have been wrestling for more than a decade with determining a policy toward DBS, some of the technological, economic and practical realities of DBS should be addressed. Broadcast satellites are distinguishable from communication relay satellites in several aspects:[4] (1) broadcasting is a one-way service, requiring large amounts of power on orbit; (2) broadcasting transmitters are large, heavy structures, expensive to place in orbit; and (3) broadcasting requires specialized antennae and uses specially reserved and controlled radio frequencies. Similar in one aspect to communication relay satellites, broadcasting satellites are expensive to manufacture.

Experimental and preoperational broadcasting satellites have been built, orbited and successfully demonstrated.[5] No informed person questions the technological feasibility of DBS. But there are some, including me, who doubt the economic feasibility of DBS systems. The development, construction, launch, operation and control of a single broadcasting satellite today, depending upon satellite size and complexity, would cost a least $100 million and could cost as much as $200 million, just to place the satellite opera-

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and Weigend, *Yuri: The First Dedicated Broadcast Satellite in Japan*, 2 SATELLITE COMMUNICATIONS 23, 29 (1978).

3. For further discussion of operational systems, see Wigand, *Direct Satellite Connection: Definitions and Prospects*, 30 J. COM. 140 (1980).

4. MARTIN, FUTURE DEVELOPMENTS IN TELECOMMUNICATIONS ch. 26 (2d ed. 1977).

5. The Anik system in Canada and SITE (Satellite Instructional Television Experiment) in India are just two examples. *See* Wigand, *supra* note 3; *see also* Grandi and Richeri, *Western Europe: The Development of DBS Systems*, 30 J. COM. 169 (1980).

tionally available, in orbit, with necessary tracking, telemetry and control systems in place.[6] The cost of the earth station complex, which feeds the satellite and the population of receivers (whether individual or community), would be added to the cost of the basic space segment. The production cost of programming to be broadcast through the satellite could be as little as a few thousand dollars an hour for static-type displays of weather, temperature, barometric readings, wind strength and direction, time, or printed news or information formats. Costs could rise to any where from tens of thousands to hundreds of thousands of dollars per hour for dramatic shows, general entertainment, motion pictures, sports events, coverage of natural disasters, important social or political events, or educational programming.[7] An interested student of this subject would do well to study the relevant production costs and associated program quality of several experiments conducted during the 1970's in the United States, Canada, India and Japan, which provide some measure of program production costs.[8] These costs are generally very high.

If the technology exists for the manufacture of broadcasting satellites and no major new technological breakthroughs are required, why aren't there more DBS systems in operation? Two reasons are the high cost and the attendant risk for those who would finance such systems. Another reason is that the satellite requires an audience. There is no substantial population of direct home receivers in any country in the world today. Marketing studies have shown that the cost of a home receiver ranges from $200 to $500 or more, in production runs of 50,000 or 100,000 units.[9] To create a population of one million home receivers, an investment of $200 to $500 million dollars is required for receivers alone. If one million such receivers were in the United States today, they would be serve only a small fraction of the households in our country. A substantial receiver population will require billions

6. Pritchard and Kase, *Getting Set for Direct Broadcast Satellites*, SPECTRUM, April 1981, at 22.

7. *Id.*

8. *See, e.g.*, ISRO: SATELLITE INSTRUCTIONAL TELEVISION EXPERIMENT: TECHNICAL EVALUTATION OF THE GROUND SEGMENT (1977). The total program production costs of this one-year, U.S.-India experiment ran well into the billions of dollars.

9. There are presently several groups, including UPI and SPACE, offering one-meter home dishes within this price range. The costs naturally decrease as quantities produced increase. *See* Sardella and Degnan, *Satellite Broadcasting to Homes*, 5 TELECOMMUNICATIONS POLICY 84, 89 (1981).

of dollars of new investment in receivers or receiver augmentation equipment.

Japan now has a preoperational DBS system;[10] Canada is planning to introduce DBS in the early 1980's;[11] the Comsat Corporation is seeking authority to introduce DBS in the United States;[12] and the government of the U.S.S.R. continually announces plans to provide direct-to-home television[13] (a plan discussed since the mid-1950's), but reliable information on actual systems in the U.S.S.R. is not available. These few systems may be doubled in number by 1990. Systems may be introduced for Australia, Brazil, and one or two more countries; but I am convinced that DBS will be neither attractive nor economically practical in the great majority of countries in the world. When the contributions of DBS technology, potentially consuming billions of dollars, are contrasted to benefits from investments in food and agricultural production, basic education, transportation, power generation and industrial capitalization, most responsible governments will recognize that an investment in DBS in this century is probably a waste of resources.

A handful of large countries that have populations dispersed over large land areas or other geographic features that can be overcome by DBS may experiment and invest.[14] The results of such experiments will not be known for many years, but will probably be mixed results at best. DBS is struggling to obtain acceptance at the national level, and will not be used on a global scale in the near future. Few countries will invest millions or even billions of dollars to broadcast to non-existing receivers.

The capacity of a single geostationary satellite to simultaneously interconnect and broadcast to as much as forty

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10. N. MATTE, SPACE POLICY AND PROGRAMMES TODAY AND TOMORROW: THE VANISHING DUOPOLE 76 (1980).

11. The Anik system development continues. *See* COMMUNICATIONS RESEARCH CENTRE, DEPARTMENT OF COMMUNICATIONS, COMMUNICATIONS SATELLITES: THE CANADIAN EXPERIENCE (1979). In addition, Canada has operational agreements with the European Space Agency (ESA). *See* Bourély, *La Participation due Canada aux Programmes de l'Agence Spatiale Européenne*, 5 ANNALS OF AIR AND SPACE LAW 363 (1980).

12. COMSAT Application, 77 F.C.C.2d 564 (1980).

13. *See, e.g.*, N.Y. Times, July 16, 1976 at 12, col. 5; Mar. 9, 1977, at 12, col. 4.

14. Some nations which have already benefited from even preliminary programs are India (SITE) and Canada. The United States Agency for International Development sponsors a Rural Satellite Program which has more than sixty programs in various stages of planning and/or operation. See Honig, *Some Lessons for the 1999 WARC*, 30 J. COM. 48 (1980).

percent of the earth's surface[15] is not a blessing to the broadcast satellite. Internationally established power flux density limitations on the strength of broadcast satellite radio signals at the earth's surface limit the strength with which radio beams may be emitted from satellites.[16] To conserve power and maintain a reasonably uniform signal strength (picture quality) over a large area, satellite beam shaping with antenna control techniques that are only beginning to be understood and demonstrated are necessary. In fact, the engineer wants to limit, as much as possible, the area to be covered by a satellite broadcast. Separate broadcast beams are used for different time zones, island areas or groups, and separated national territories.[17] These divisions of beams are as essential from an engineering standpoint as they are convenient from an operational standpoint. A great deal remains to be learned about beam shaping and broadcast beam separation. There are also unanswered questions about the picture quality possible in heavy rain, through dense moist clouds, and in other signal propagation configurations.[18] For these reasons experimental and demonstrational systems will continue for some years to come. Such trials will cost hundreds of millions of dollars, independent of the anticipated all-up operational system costs.

Thus, a forthright consideration of the techological, economic and system aspects of DBS does not make an objective observer anxious to seek investment opportunities in DBS. If anything, it makes a wise investor wary, unless exceptional circumstances, present in only a few countries, suggest economic viability.[19]

III. DBS POLICY AND THE ROLE OF THE UNITED NATIONS

If, in fact, there is validity to this pessimistic outlook for the future of "distressing broadcasting satellites," why has there been so much press attention and political attention to the prospects of introducing this technology on a global basis? The answer is, in part, because the concerns predated our understanding of the realities. The notion of television broadcasting by satellite to a na-

15. *See* Wigand, *supra* note 3.

16. MARTIN, *supra* note 4.

17. *Id. See also* Pritchard and Kase, *supra* note 6.

18. MARTIN, *supra* note 4.

19. Such circumstances would include, among others, vastness of distance, sparseness of population, ruggedness of terrain, and absence of existing terrestrial systems.

tional audience was first discussed in a 1945, in letter to an electronic magazine in England from noted science fiction writer Arthur C. Clarke, then an obscure former radar technician.[20] At that time the editors of *Wireless World* were unable to appreciate the author's prescience.

Concepts often outstrip economic and engineering reality. Many fine ideas have fallen under the assault of a structural analysis, a materials stress analysis, an economic analysis, or a system cost/benefit analysis. In the case of DBS, many proponents wanted its socio/political impact to be a global unifier, a social stabilizer, an economic stimulus, and a benefit to mankind. Thus, distressing broadcasting satellities were praised, promoted and tried. The experience gained has tempered much of the enthusiasm about DBS potential, but this experience has not yet and may not ever result in the abandonment of the technology. Because the technology was believed to be so important, and because it does have a potential global impact, the United Nations Committee on the Peaceful Uses of Outer Space became interested and decided to study the subject.

Mindful of the evolving technology, the U.N. Committee, through the General Assembly, formed a special Working Group on Direct Broadcasting Satellites. At the first meeting of that group, in 1969, a very fine, time-proven, and valid assessment was made of the technical and economic aspects of DBS.[21] Then, in four succeeding working group sessions held between 1969 and 1974, the group began the attempt to design a policy framework within which DBS could be established and used.[22]

Opinions of group members varied widely. The U.S.S.R. and its echoes in the United Nations, along with France and many lesser developed countries, contended strongly that the DBS technology was fearsome and threatening to national sovereignty, cultural integrity and economic stability.[23] In 1963, France proposed a ban on broadcasting satellites.[24] In 1972, the U.S.S.R. proposed a

20. Clarke, *Extra-terrestrial Relays: Can Rocket Stations Give Worldwide Radio Coverage?* WIRELESS WORLD, Oct. 1945, at 305.

21. *Report of the Working Group on DBS*, U.N. Doc. A/AC./.105/61 (12 Aug. 1969, 2d Sess.).

22. *Report of the Working Group on DBS*, U.N. Doc. A/AC.105/61 (12 Aug. 1969, 2d Sess.); U.N. Doc. A/AC.105/83 (25 May 1970, 3d Sess.); U.N. Doc. A/AC.105/117 (22 June 1973, 4th Sess.); U.N. Doc. A/AC.105/127 (2 Apr. 1974, 5th Sess.).

23. U.N. Doc. A/AC.105/79 (7 Apr. 1970).

24. Letter from France to Peaceful Uses of Outer Space Committee, U.N. Doc. A/AC.105/c1.WP.7 (20 May, 1963).

treaty to regulate the use of television broadcasting satellites[25] and Argentina followed with elaborate proposals of its own for control and prohibitions of certain uses of such satellites.[26] The United States, caught up in the excitement of the time, proposed a body of principles to guide nations in the use of broadcasting satellites.[27] Canada and Sweden emerged as promoters of rationality and compromise.[28] When the First Committee of the General Assembly recorded a vote on a resolution calling for a study formulation of DBS principles as a step toward an eventual convention to regulate DBS, the United States, denying the need for a convention, found itself on the lonely end of a 102 to 1 vote.[29]

The U.N. Committee on the Peaceful Uses of Outer Space, the Comittee and its suborgans operate by consensus, not by vote. Matters are debated until a clear or substantial consensus emerges and then, absent objection, a decision is made. Surprisingly, during the past seven or eight years, the allegedly isolated United States found it was not alone in its reservations about absolute prohibitions and restrictive controls on the use of DBS. The United Kingdom, Belgium, Japan and, after it became a committee member, the Federal Republic of Germany voiced concerns in opposition to the Soviet, French and Third World proposals.[30] Clearly, no consensus was available; and as of 1981, no consensus on DBS regulation has been reached. There are probably as many explanations for the failure to reach a consensus as there are observers. I will offer my views about why we can reach no consensus and conclude with some modest suggestions of a way out of the current impasse.

IV. THE IRRECONCILABLE VIEWS

In countries where mass media are operated by or are under the control of the government, the media are instruments of the state.[31] The range of control and use of media is widely varied

25. U.S.S.R. Draft Resolution, U.N. Doc. A/C.1/L.605 (12 Oct. 1972).

26. DRAFT CONVENTION ON DIRECT BROADCASTING BY SATELLITE, U.N. Doc. A/AC.105/134 (5 July 1974).

27. United States of America Working Paper, U.N. Doc. A/AC.105/C.2/L.118 (1979).

28. Canada-Sweden Working Papers, U.N. Doc. A/C.105/271, Annex I (15 Feb. 1979).

29. REPORT OF FIRST COMMITTEE, Draft Resolution, U.N. Doc. A/8864 (adopted 9 Nov. 1972).

30. *See* Committee on Peaceful Uses of Outer Space, Verbatim Record of 170th Meeting, U.N. Doc. A/AC.105/P.U. 170-173 (21 June 1977).

31. The list coincides with the list of states demanding establishment of an inter-

among democratic countries: some have stringent controls; others, as in the case of the United States, have only minimal governmental control.[32] Although we tend to declare loudly the United States' committment to freedom of speech and the free flow of information, there are obvious examples of information control. The classification system for security information,[33] various privacy laws protecting certain classes of information from exposure or publication,[34] limitations in law on lewdness, obscenity, racism,[35] "fairness in broadcasting,"[36] and a variety of voluntary codes which limit freedom of advertisers, television producers, motion picture producers are examples. Even industrial secrets are protected by the courts.[37]

Despite the practice of information control that exists to some extent in every country, there is a tendency to characterize various countries as "controlled" or "open." That classification begets debate during which fine and important commonalities are clouded or glossed over. The result is that, ultimately, there are perceptions of irreconcilable positions. I suspect that much of the irreconcilability could be eliminated through frank and unemotional discussion. I believe the main problem in dealing with these issues is the emotional polarization of views and incorrect attributions of positions to various countries, or groups of countries.

Are France and the United States irreconcilably at odds? Can the U.S.S.R. and Western Democracies find no common ground to deal with reasonable program content issues? Is there really no legitimate, legal basis for the U.S. government to consider possible constraints on program content? When is the last time you saw a cigarette advertised on television? Have you even seen an advertisement for beer in which the beer was actually put into the mouth? Have you ever seen a person sitting on a toilet on television? Have you ever witnessed coitus on television? Have you

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national broadcasting code, and includes the Soviet bloc countries and many Third World nations.

32. Great Britain and Canada are among those nations having few restraints on the media.

33. Communications Act of 1934, as amended, 47 U.S.C. §35 (1976).

34. *Id.* at §605.

35. *Id.* at §303.

36. *See* Red Lion Broadcasting Company v. FCC, 395 U.S. 367 (1969), and citations therein.

37. Communications Act *supra* note 33, at §605.

ever seen a Ku Klux Klan rally televised? Is there no censorship in American television?

Objectively considered and unemotionally evaluated, I believe that significant common ground can be found to deal with serious concerns of many countries on important issues of program content control. We don't allow all forms of sex, violence, racial hatred or propagandistic advertising in our country. Why do Americans rigidly insist that Russia, France, Argentina and others must admit unrestricted and uncontrolled program content? I doubt that in the final analysis we want to give foreign governments the very freedoms we demand that they give us.

I don't accept the irreconcilability of national positions on program content issues. I wish the discussions could be depolarized and de-emotionalized. I believe they can be.

V. SOME NEXT STEPS

Up to this point I have said very little about the hero in this story, the International Telecommunication Union (ITU).[38] A strange, unsung, even unsuspected hero, to be sure, but nonetheless, a hero.

A substantial amount of attention of that 154 member-nation international organization has been devoted to the technical and regulatory aspects of distressing broadcasting satellites. The ITU began addressing specific aspects of the broadcasting satellite service a decade ago, and considerable additional study and work has been done on the subject in the intervening years. In 1983, a Regional Administrative Radio Conference will continue that work in Region 2, the Americas.

If all nations now serving on the bloated United Nations Committee on the Peaceful Uses of Outer Space would carefully consider the substance, content and implications of the work of recent years in the ITU concerning broadcasting satellites, undoubtedly a great deal of the apparent distress would dissipate. The U.N. Outer Space Committee's Legal Subcommittee could formulate a practical and generally acceptable code, voluntary in nature but specific in content, that addresses most, if not all, of the concerns of states about television broadcasting program content, possibly

38. *See* Jacobson, *International Institutions for Telecommunications: The ITU's Role*, THE INTERNATIONAL LAW OF COMMUNICATIONS 51 (E. McWhinney ed. 1971).

applicable to terrestrial and space broadcasting. All of the enforcement mechanisms that are needed to give that code effect with regard to satellite broadcasting already exist in ITU regulations.[39] Very little more is needed to solve the DBS problem than some goodwill, creative imagination, and frank discussion. Let's get on with it!

VI. CONCLUSION

As was pointed out at the outset, the conclusion of the DBS policy debate will be of little practical effect. No nation is now known to be contemplating international broadcasting by satellite. I seriously doubt that any nation ever will, except in unique or special circumstances that do not involve practical economics.

Nations now planning to develop and establish national DBS systems will proceed regardless of the state of the debate in the U.N. It would be neater, tidier, more pleasant if the policy debate were to be concluded. I am in favor of early conclusion. But, in the final analysis, states will act in their own interests and will give up sovereign autonomy only very grudgingly. Selected DBS systems will emerge. International broadcasting using satellites is not, in my view, a serious prospect or a serious problem.

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39. International Telecommunications Convention, *done* 25 Oct., 1973, 28 U.S.T. 2495, T.I.A.S. No. 8572.