No. 99

International Flow of Information: A Global Report and Analysis

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99 Internation[illegible] Flow of Information: A Global Report and Analysis

No. 99

International Flow of Information: A Global Report and Analysis

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Preface

Unesco, which has long devoted itself to communication matters, has concerned itself particularly with the flow of information and the development of certain mass media. Communication has increasingly become a highly complex socio-cultural phenomenon affecting a wide range of activities in all countries and is inseparable from political, social, economic, cultural, scientific, educational and technological developments in all nations.

Unesco's Approved Programme and Budget for 1981-1983 provided for a study "on the present characteristics of the international flow of information : the main currents to be found within it, its nature, purposes, form and effects and the scope and influence of the messages conveyed".

In 1982, Unesco therefore commissioned the present study which synthesizes the results of existing research on all aspects of the international flow of information, and reflects the situation at the beginning of the 1980s with regard to this flow.

The author, Dr. Hamid Mowlana, who is Director of International Communication Studies at the American University, Washington D.C., has been a keen observer of international communication issues for many years. He has brought to this study a particularly wide-ranging perspective which englobes the more traditional areas of research, such as news flow, as well as the most recent developments related to direct broadcast satellites and trans-border data flow.

The author is responsible for the choice and presentation of the facts contained in this publication and for the opinions expressed therein which do not necessarily represent the views of Unesco.

Acknowledgements

In the preparation of this volume, I have been assisted by a great many people and organizations in numerous ways. Thanking these individuals and institutions separately would take several pages. I hope the following few words will suffice to show my appreciation of their assistance. Of particular help were K.E. Eapen (University of Kerala, India); George Gerbner (University of Pennsylvania, United States); Karl Erik Rosengren (University of Lund, Sweden); Tamàs Szecskö (Mass Communication Research Centre of Hungarian Radio and Television, Hungary); and Frank Ugboajah (University of Lagos, Nigeria) who read and reviewed the manuscript, making many valuable comments and suggestions. Every effort was made to incorporate their suggestions into the study. However, any weaknesses of this report are my own, and none of the reviewers bears any responsibility for my views or conclusions. The responsibility for the entire text rests solely with me, and whatever error it may contain is mine alone.

I also wish to express gratitude for research, writing and editorial assistance provided in the early stages of the study to Ibrahim Al-Muhanna (Saudi Arabia), Narendranath Chitty (Sri Lanka), Marwah Daud (Indonesia), Suzanne G. Douglas (United States), Sharon Fisher (United States), Leonor Guisti (Venezuela), Peter J. Harmon (United States), Mamoru Ohara (Japan), Shari M. Sachs (United States), Mariangela Tesi (Venezuela), and Tensie H. Whelan (United States); and particularly to Laurie J. Wilson (United States), an unfailingly helpful assistant, who collaborated closely on this project as it progressed from beginning to end. I am further indebted to the members of the 1983 Colloquium on International Communication, School of International Service, The American University, Washington, D.C., for asking many stimulating questions and making helpful suggestions.

Lastly, this volume would not have been possible without the initiative and support of Unesco. I thank my confrères in the Communication Sector for their co-operation and for giving me the opportunity to undertake this study.

Although the preceding list is by no means complete, I am very grateful to all the colleagues, friends and institutions who contributed to this study by their generous offerings of time, knowledge and material.

Hamid Mowlana

Contents

CHAPTER ONE

Introduction: Framework of Analysis

> One of man's earliest preoccupations has been to increase the impact, diversity and intelligibility of his messages while simultaneously developing his capacity to intercept and decipher them. Throughout history, human beings have sought to improve their ability to receive and assimilate information about their surroundings and at the same time to increase the speed, clarity and variety of their own methods for transmission of information.
>
> International Commission for the study of Communication Problems, *Many Voices One World* (1980), p.3.

There has been an astonishing growth in research and writing on the international flow of information during the last decade. Among the factors responsible for the increased study and research in this field are the following :

1. the development of modern information and communication technologies, and their use and impact on the nature, volume and content of information and communication ;
2. the increased awareness on the part of nation states, institutions, groups and individuals of the importance of the flow of information, and the existing imbalances and their consequences and impact on the national and international decision-making processes (day-to-day and long-term), as well as on the individual and private lives of people around the world ;
3. the growing number of international and transnational actors involved in almost all aspects of the international flow of information ; the political, social and economic ramifications of this phenomenon, particularly as related to trade, marketing, education and culture have also been of singular importance ;
4. the growing interest in comparative, cross-cultural studies as well as public opinion and image research, which has been accompanied by increasingly refined investigatory tools and improved means of collecting, sorting, retrieving and sharing data ;
5. and more specifically, the debate generated by the New International Economic Order and a new world information and communication order in the 1970s, the Unesco declarations and activities on information flow and communication policies and the ensuing discussions over the relationship between the economic and communication aspects of the world's resources have been particularly significant.

As the supply of information is increasing at an extraordinary rate, both internationally and domestically, information and equal access to it are seen as vehicles for reducing dependency in economic, political and cultural relations. In a broad sense, the study of the international flow of information is another approach to the study of international relations. Consequently, it should include not only the flow of information and messages through technological channels and the conventional media, but must also take into account the totality and diversity of both channels and messages transferring information across national boundaries. Such an approach would include the study of messages flowing through channels which are oriented towards human movements as well as scientific and artistic pursuits.

Therefore, a more realistic and comprehensive analysis of the international flow of information should include the examination of a variety of economic, political and cultural activities as shown in Figure 1.

However, no study has been carried out which includes or integrates all these dimensions into a more rigorous analysis. Historically, study of the international flow of information has examined the international political aspects of flow, as well as the news dimension. In the last two decades it has broadened to include technological, cultural and economic factors. In light of this, we should expand our concept of the international flow of information beyond the narrow scope of the mass media and the growing number of technological channels, and include as well as integrate all the fundamental areas of information flow.

The task, of course, is not an easy one, and at present it may be wise to limit our ambitions. The primary emphasis should be placed on an introduction to the activities which have focused on the phenome-

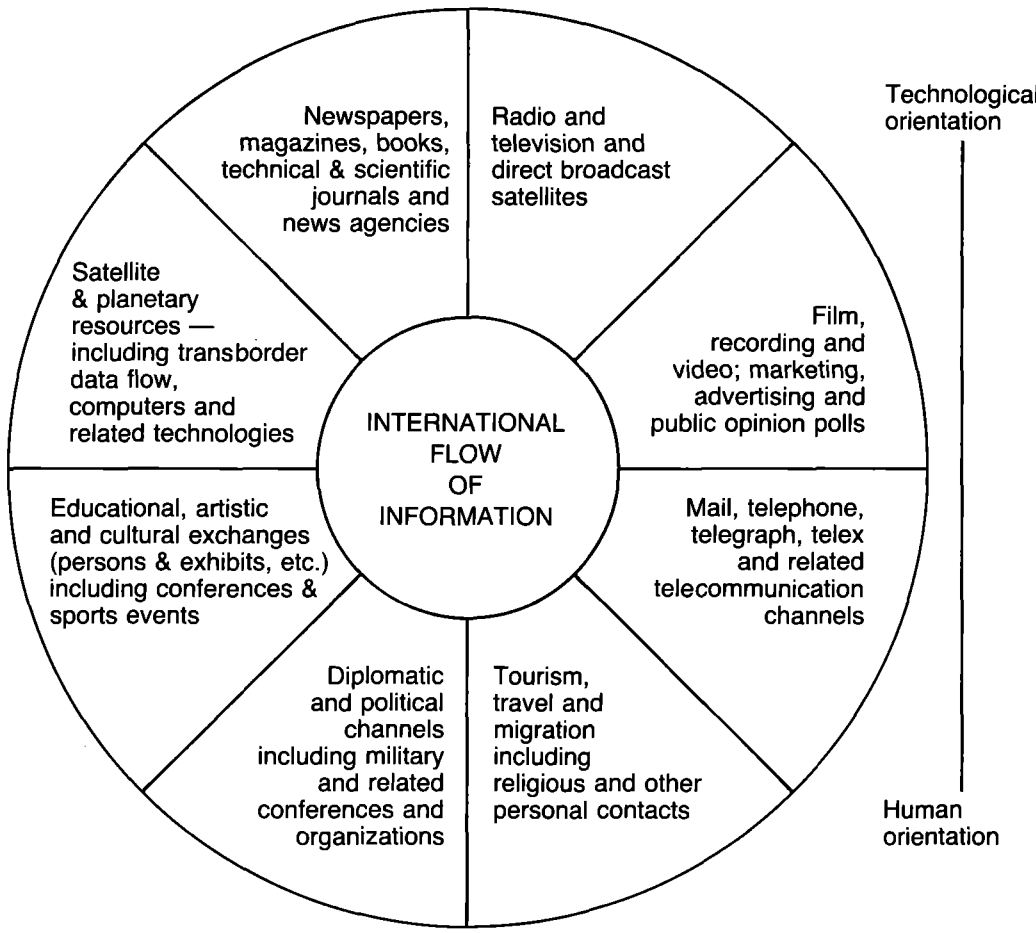

FIGURE 1

Channels and types of international flow of information

The technological and human orientations should be thought of as complementary, interrelated and adaptive.

non of the international flow of information, with the hope that the enlarged vision will stimulate research into the less conventional areas and encourage integration of the diverse aspects of the study of information flow.

The purpose and limitations of this study

The purpose of this report is to synthesize the relevant research already undertaken by different institutions and organizations on all aspects of the international flow of information, with special emphasis on the mass media and transborder data flow. However, the attention of the reader is drawn to the existing research and literature in the following diverse areas of the international flow of information : tourism ; international conferences and exchanges of scientific information ; and the flow of educational, political and economic materials and personnel across national boundaries.

The study will reflect the situation with regard to international flow of information in the early 1980s and will be carried out on the basis of a methodology to be used in future for an evaluation of related developments. A further goal of the study is to analyse political, cultural, economic, technological, legal and professional practices affecting the international flow of information. It will identify, in particular, the nature of obstacles arising at the different stages of production and dissemination.

International flow of information is defined here as the movement of messages across national boundaries between and among two or more national and cultural systems. A definition of international flow of information should combine both a national and international dimension. It is a term used to describe a field of inquiry and research that consists of the transfer of messages in the form of information and data through individuals, groups, governments and technologies as well as the study of the institutions responsible for promoting and inhibiting such messages among and between nations, peoples and cultures. It entails an analysis of the channels and institutions of communication, but more importantly, it involves examination of the mutually shared meanings which make communication possible. Therefore, the examination of the international flow of information should include both the content, volume and direction of information as well as the economic, political, cultural, legal, and technological factors responsible for its initiation and diffusion [1].

To date, studies on international flow of information have been far from systematic. The diversity of sectors (public, private and academic) interested in flow, and the myriad reasons and purposes motivating study have precluded meaningful co-ordination. This same barrier to co-ordination, however, is a powerful justification for combining efforts to produce a maximum amount of quality data. Unesco's recent efforts to encourage and facilitate research co-operation in this area are significant since they demonstrate recognition of the need to co-ordinate research in the hope of building a coherent body of knowledge.

There have been several major barriers to co-ordination of research in flow studies. Firstly, the arenas or sectors in which flow studies are sponsored are highly diverse. Studies are undertaken in education, private industry, government and even in international arenas. Each sector has specific motivations for the study of flow and these motivations may be different from those of other sectors. Furthermore, those interested in flow in any one sector may be unaware of the interests and efforts of those in other sectors.

Secondly, the diversity of the types of international information flow has been a factor in the somewhat fragmented nature of flow studies. Studies have concentrated on such widely different topics as the flow of broadcast news, the structure of news agencies, distribution of educational material, transborder and planetary data, as well as such specialized areas as tourism, international law and international education. At first glance the topics may seen unrelated, but if considered within the larger framework of information flow, the interrelationships become apparent. Such relationships and convergence could have significant impact on the assumptions, conduct and conclusions of further research.

Thirdly, even within specific topic areas of flow, there has been little co-ordination of research on the variables involved in the entire process. Consequently, in any given area, examination of one variable may exclude other important variables. For example, few studies have ever considered both the intra- and extra-media variables in the flow of news, although the interrelationships of these two sets of variables may seem obvious.

The fourth barrier to co-operation is the polarity of the two dimensions of flow - human and technological - which has, in part, precluded mutual coordination of research. The modern and technical aspects of communication have received predominant attention at the expense of the human dimension. In short, technological variables have at times dominated research efforts to the detriment of cultural and social variables, which should be considered concurrently. Human and social usages have not been given as much attention as the technological and economic utilities, nor have they been integrated to show a more realistic picture of the international flow of information.

Finally, the absence of a clear and comprehensive definition of the phenomena of flow has made it difficult to identify scholars whose works are applicable. Often researchers may not recognize that they are orchestrating "flow studies" because boundaries in the form of definition of component parts, aspects, and the process have not been set.

Perspectives on the study of flow

Because of its epistemological orientation, the study of the international flow of information, like any other area of inquiry in social science and policy studies, has been the object of a scholarly and professional debate. It is not the purpose of this report to discuss, in thorough manner, the criticisms levelled at the "objective/subjective dimension" of the conduct of inquiry ; this type of question has recently generated an interesting debate within the international communication community and several essays have appeared covering precisely this question. Nevertheless, it is important to underline that the literature on international flow of information also exhibits different epistemological and methodological approaches ranging from "positivism/anti-positivism", "determinism/voluntarism", "nomothetic/ideographic", as well as the assumptive frameworks about the nature of society ranging from "status quo/radical change", "consensus/domination", "solidarity/emancipation" and "actuality/potentiality" [2]. Given the nature and sociology of international flow of information research over the past decade, however, there is a general consensus that the once dominant positivism/empiricism research has been supplemented by a good deal of critical theory and analysis. Consequently, the approaches to the conduct of inquiry in this field have become comparatively more diverse and multi-dimensional.

Owing to these varied epistemological orientations, several important perspectives have been developed on the international flow of information. It should

be noted that none of those to be discussed is necessarily identified with a particular epistemological point of view. Rather, careful scrutiny of the literature shows that a given perspective might be shared by different philosophical schools of thought though they may differ as to methods of investigation and analysis.

International communication in general and information flow in particular, like other areas of inquiry in the social sciences, largely acquire their legitimacy and consistency from the perspectives and methods of analysis used by those who study the subject. The following classification presents the major perspectives covering the broad area of the international flow of information. It should be noted, however, that the perspectives identified here are by no means mutually exclusive [3].

1. **International relations and systems perspective.** A number of information flow studies are designed to test some aspect of international relations theories and phenomena. Within this category we find the studies dealing with theories of imperialism, integration, conflict and co-operation, and the general hypotheses aiming at image and perception among and between nations. For example, international flow of news has been analysed in the discussion of imperialism and centre-periphery dimensions of international relations, as has the flow of telecommunications data such as the mail and telephone in testing the level of regional and international integration.

2. **Communication and development perspective.** This approach undertakes the study of international information flow from the perspective of both national and international developmental policies and theories. It examines both a nation's internal and external communication systems as well as its political, economic, social and cultural development in a national, regional and international context. This category also includes studies on the balance and imbalance of information flow and the direction and pattern of flow, which at times are related to such factors as ideology, ethnocentricity, commercialism or proximity. Here the emphasis has been on the content, volume and frequencies of communication in general and the message in particular. This perspective has come into prominence since the 1960s.

3. **Institutional and commercial perspective.** A large group of flow studies examines international actors and the impact of political and persuasive messages on the behaviour of individuals and nations. This perspective includes propaganda and policy studies for a variety of purposes such as conflict management, domination and commercial promotion, as well as stereotyping or image manipulation and control. Additionally, research regarding the effectiveness of the role of actors and institutions - governmental and nongovernmental - and its importance and impact with regard to the international flow of information are included in this perspective. The major emphasis is on content analysis, audience research, readership surveys, and public opinion polls. This perspective, which flourished during the 1940s and the 1950s, continues to influence many flow studies at present.

4. **Political economy and structural perspective.** This perspective approaches the study of international information flow on the basis of national and international communication structures, as well as the political economy of information. Such research is concerned with the elements of and factors influencing the process of international flow, including gatekeepers and gateproducers, as well as the technological and human dimensions and formal and informal institutional structures of both production and distribution aspects of the process of international information flow. This has been a growing line of enquiry since the 1970s.

5. **Technical and legal perspective.** This approach is a combination of the very new and the very old in that these aspects, which have been of concern to scholars for decades, are rapidly revolutionizing the international information system. Studies in this area include the following : technology as well as the techniques of international information gathering and processing ; national and international regulations and standards of information industries as well as of flow, and the resulting issues ; and the technical aspects of transferring data, information and messages across national boundaries or from point to point. Studies from this perspective are expected to increase in the coming years as a result of the rapid development of satellites and computers, the growing power and importance of transnational organizations, and the priority being given by regional and international organizations to the complex problems of technology, information and services.

Problems of measurement

Most studies on information flow have been simply the measurement of repetitive events, wherein the researchers have been concerned at the outset with statistical analyses of messages rather than the individual message itself. Quantitative measurement of information flow has been made either as volume or frequency per unit time, as a proportion of some total volume of messages, or as a proportion of the time or facilities involved in dealing with messages. Other dimensions of volume might include the speed with which messages are transmitted as well as the fidelity with which their format and content are preserved in the transmission process. They could also include media units as well as the number of both senders and recipients of communication.

Taking the process of information flow to the international communication level, we should be interested in the simplest ratio of output to intake of communication between and among countries and peoples. This would imply that we should not only measure how much and what kind of information a country or an organization or system is transmitting, but also how much and what kind of information - both quantitatively and qualitatively - it is receiving from other countries and systems as well [4].

When hard data are available, the intake-output ratio can tell us a good deal about the two-way flow of information. For example, the number of American foreign correspondents around the world fell from 563 in 1969 to 435 in 1975 [5], while the number of foreign correspondents representing other countries in the United States had increased from about 200 in 1954 to 835 in 1975 [6].

The ratio of intra-boundary processes in a given country to cross-boundary processes among and between several countries, originating or terminating in that same country, would be another basic operational measure. Local to non-local news or mail, non-local to foreign news or mail, and domestic versus foreign news and mail are examples of measurement ratios in this category. Inside-outside ratios of information flow can explain the "national" and "international" dimensions of such activities as science, education, student exchanges and the directions in which they might be changing.

It should be noted that these measurements are quantitative in nature ; qualitative measurements

are more difficult to determine in the context of the international flow of information. Although several attempts have been made to carry out research, the result has been far from satisfactory owing to methodological and cultural diversity.

Until recently, studies on the flow of information were concerned primarily with the examination of channels and content, leaving both ends of the process - the source and the destination - untouched. Serious efforts are now underway to examine the source of the process, to discover the new actors, and to analyse the gateproducers as well as the message producers. Similar attempts are being made to study precisely who makes what use of which kind of information, and how the information is finally delivered and absorbed by the audience. For example, there is growing awareness among researchers that the global diffusion of news and information involves factors other than those that are usually inferred from its distribution. Because of these factors, the lack of systematic research into the present state of knowledge in the international flow of information is so fragmented that no full-scale investigation has shown the possible effects of international information systems on international policies, politics and economics.

A framework for the study of flow

Elsewhere, I have emphasized a need for a shift in emphasis in the analysis of communication systems from an exclusive concern with the source and content of messages to analysis of the message distribution process [7]. Control of the distribution process is the most important index to the way in which power is distributed in a communication system, which may be the global community, a country, or some smaller political unit. The flow of information in the international system, when the above distinction is made, may then be represented in rudimentary terms as in Figure 2.

The growth of communication technology, the expanding national and international market, and the creation of institutional policies and regulations all have made the distribution stage the most important sequence in the chains of communication systems. Emphasis upon the distribution stage affords an immediate advantage in analysing the message-sending activities of national actors. Unless a nation has control over the entire distribution process, its messages may be ineffectual. Certainly, the most ingeniously designed message, if it goes nowhere, will have no effect.

A further elaboration of the process of information distribution in the international system is provided in Figure 3, wherein a technology axis is added to the communication axis. Figure 3, representing the international flow of information, now properly depicts the pivotal role played by communications technology in the international communication process. Between the formation and distribution of messages stands the means of distribution : communication technology, which is itself divisible into two components. These components are the communication hardware which is the actual physical carrier of messages (such as satellites, broadcasting and receiving equipment, and microwave relay stations) and the communication software which is, in the broadest sense, the know-how and means of utilizing the hardware (such as programme production, content, manpower skills and education).

The distinction between the two components of communication technology - hardware and software - to which Figure 3 draws attention, is an important one, but one which is frequently ignored. Even when the importance of control over technology is recognized, it is often assumed that ownership of the actual physical components of the system is sufficient to confer control over them. But just as the ability to form messages by itself affords no guarantee that those messages will be disseminated, neither is control of communications hardware alone sufficient to ensure the distribution of one's intended message. Absolute sovereignty in the formation and distribution of messages is ensured only when a nation controls both the hardware channels through which the messages are sent and the necessary know-how to programme its messages for effective distribution.

Thus, the entire process of international flow of information can be illustrated by looking at the quadrants created by the communication and technology axes. The implications of this model become clear when the diagram is seen as representing the components of control and autonomy in a communication system, and when intra-media and extra-media variables are added to the stages of production and distribution separately [8]. In the absence of a single actor controlling all four components, effective control of a system will fall to the possessors of certain of the components before others. For example, a country may have the most sophisticated television broadcasting apparatus imaginable and the technical know-how to disseminate messages through it, but unless this country is also producing its own messages in terms of programmes, contents, marketing and research and development (the lower right and left portions of the communication-technology cycle), its dependency on the outside system increases. In terms of flow studies and investigation, clearer national, regional, international and global pictures will emerge if a given process of flow is examined in terms of each quadrant against the variables indicated.

A few examples will illustrate the utility of this framework of analysis employing the variable of control [9]. In the production and distribution stages of a given international flow, the control aspect is, by far, one of the most significant variables in its complexity and measurement. Control over the system may take many forms ; it comes from within the structure of a given media system, and is also exerted from without. Some controls are actual (i.e. formal and legal), others are perceived (i.e. informal and based on unwritten but understood rules and regulations). Thus, the variable of control can be further subdivided into four distinct categories : 1) actual internal control ; 2) perceived internal control ; 3) actual external control ; and 4) perceived external control.

Further examples may be given in examining the variables of ownership and capital. It has been shown that "such politico-economic factors as size of population, GNP and international trade data can explain between one and two thirds of variations in international political news" [10]. Although economic indicators are indispensable to international flow of information, they alone cannot measure some of the very important aspects of societal and developmental dimensions of the flow. Strong arguments have been made to include culture as an important if not - in the opinion of some writers - the ultimate factor influencing the relationship between objective and subjective social indicators.

Recognizing the delineation of three major types of potential actors in the process of international flow of information (Figure 4), each section of this study has been organized around the following themes :

1. Types of international flow of information
2. Actors in the international flow of information
3. Factors influencing the flow
4. Directions and patterns of the flow
5. Impact and effects of the flow
6. Assumptions and theories underlying flow research and the flow itself

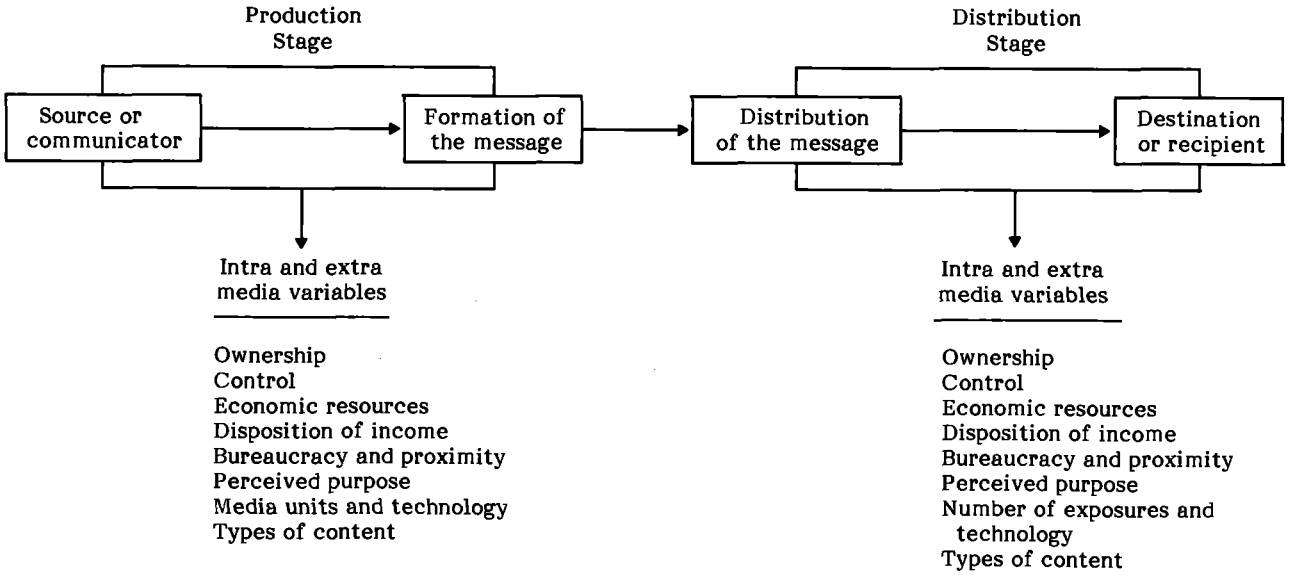

FIGURE 2

The two stages of information flow

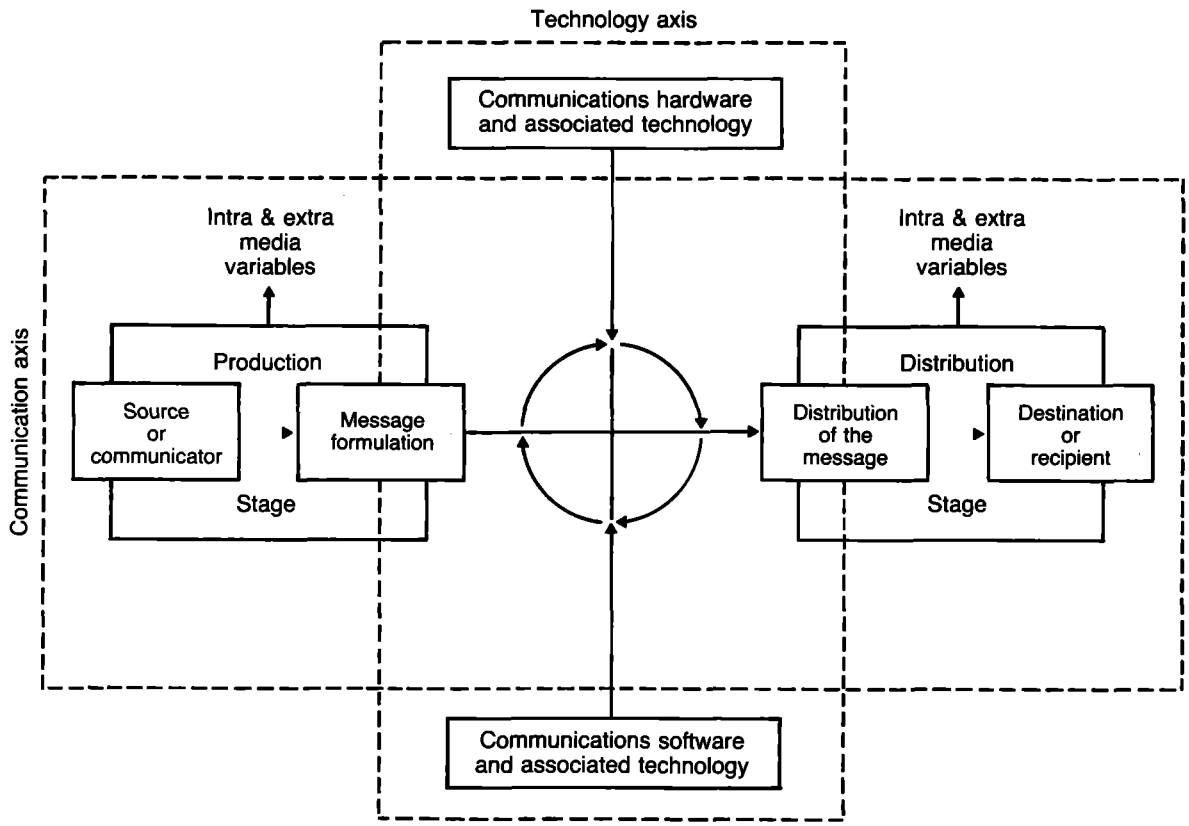

FIGURE 3

International flow of information model

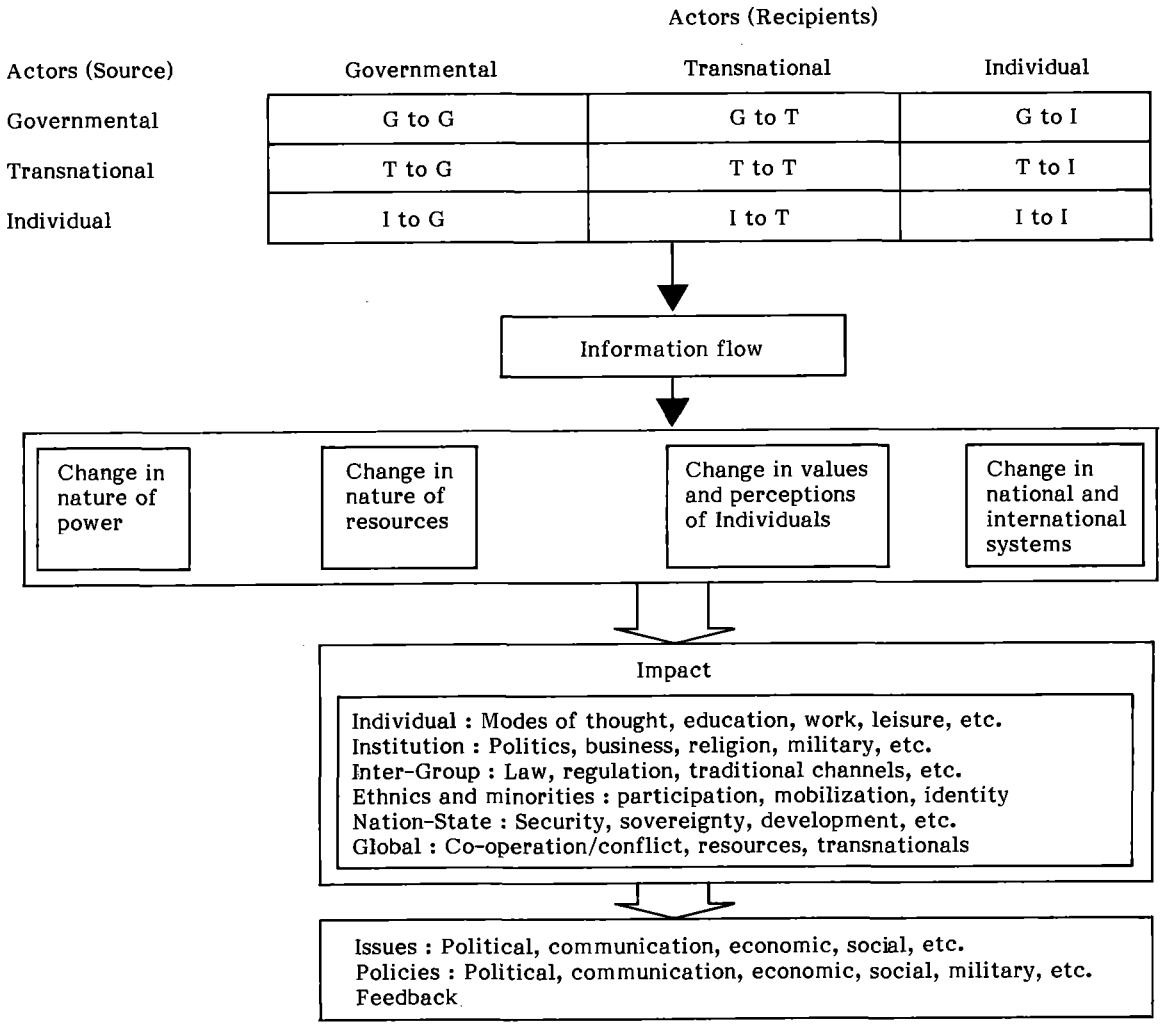

FIGURE 4

Types and impacts of international flow of information

7. Content of the flow
8. Case studies and research contributions

It is also important to stress that some of the graphics and tables presented in this study are not intended to provide an overview or synthesis of a global nature. Data of this kind and scope are simply not available. Rather, country and regional illustrations are presented (based on the best and latest data available) in an attempt to show a selective mapping which endeavours to approach some of the key topics from different angles in such a way as to help the reader make a more comprehensive and interrelated assessment. To that end, various other sources external to the study have been drawn upon also, where they may help to clarify the discussion of major themes.

FOOTNOTES

Chapter One

1. Hamid Mowlana, "Communication in Intercultural and International Relations : Toward a New Framework", *Cultures*, Unesco, Paris, 1984 (forthcoming).
2. Karl Erik Rosengren, "Communication Research : One Paradigm, Or Four ?", Department of Sociology, University of Lund, Lund, Sweden, November 1982, p.2. To be published in E.M. Rogers and F. Balle (eds.), *Mass Communication Research in the United States and Europe*, Norwood, N.J., Ablex Publishing Corporation, 1983.
3. Research and bibliographical references for these perspectives are provided in the following chapters. For studies dealing with international flow of news, see Hamid Mowlana (ed.), *International Flow of News : An Annotated Bibliography*, Paris, Unesco, 1985.
4. Karl W. Deutsch, "Shifts in the Balance of Communication Flows : A Problem of Measurement in International Relations", *Public Opinion Quarterly*, XX:1, Spring 1956, p.146.
5. Ralph Kliesch, "A Vanishing Species : The American Newsmen Abroad", *Overseas Press Club Directory*, New York, 1975, p.17.
6. Hamid Mowlana, "Who Covers America ?", *Journal of Communication*, 25:3, Summer 1975, pp. 86-91. According to Karl W. Deutsch (4), "All foreign newspapers and news agencies together maintained in 1954 only about two hundred regular full-time correspondents in the United States." p.147.
7. Hamid Mowlana, "A Paradigm for Source Analysis in Events Data Research : Mass Media and the Problems of Validity", *International Interactions*, 2:1, 1975, pp. 33-44 ; and Hamid Mowlana, "A Paradigm for Comparative Mass Media Analysis", in Heinz-Dietrich Fischer and John C. Merrill (eds.), *International and Intercultural Communication*, New York, Hastings, 1976, pp. 474-484.
8. Hamid Mowlana, "Political and Social Implications of Communication Satellite Applications in Developed and Developing Countries", in Joseph N. Pelton and Marcellus S. Snow (eds.), *Economic and Policy Problems in Satellite Communications*, New York, Praeger, 1977, pp. 124-142 ; also in Brent D. Ruben (ed.), *Communication Yearbook I*, New Brunswick, N.J., Transaction Books, 1977, pp. 427-438.
9. Control and other variables have been elaborated on in Hamid Mowlana (7).
10. Karl Erik Rosengren, *op. cit.*, p.11.

CHAPTER TWO

News and Views

There has been a nearly geometric progression in the study of news flow across national boundaries during the 1970s and the early 1980s [1]. In the twelve years since the first appearance of my bibliography on International Communication, major changes have occurred in the field. At the end of the 1960s there were only a handful of studies dealing with the actual flow of international news. Research in the broad category of the international flow of information totalled no more than 318 publications between 1850 and 1969 [2]. Whereas the early studies dealt with a single communication system or a single country, the recent trend is towards comparative studies of geographical, regional and international systems [3].

For the purpose of this report, current research and studies on the international flow of news, including the most recent bibliographical collections by Unesco, were analysed. The 447 different studies dealing with the flow of news which were examined also included computer listings of sources in the United States Library of Congress, various papers presented at international and regional conferences, and books and journal articles covering the period from 1973 through the early part of 1983. In addition, a few earlier studies were included because of their methodological, geographical and topical contributions. Of the total works examined for this report, 221 were published in 84 different journals, 80 are unpublished manuscripts presented at conferences and meetings, 110 are books and 36 are studies which were published as monographs or occasional papers. A good number of these studies were dated 1978, the year of the Twentieth Session of the General Conference of Unesco, held in Paris, at which the Declaration concerning the Mass Media was adopted *.

Looking at the distribution of studies regionally, the regions that were most often the focus of research and analysis were Asia, Latin America and North America. This was due in part to the work of several institutions involved in communication studies, mainly, the Asian Mass Communication Research and Information Centre in Singapore, the Latin American Institution for Transnational Studies in Mexico City, and the East-West Communication Institute in Honolulu, Hawaii. For the first time in the history of international communication, a substantial number of these studies have been carried out by "Third World" scholars. Whereas previous studies concerning the flow of news were conducted by North American and European individuals and institutions, the great bulk of inquiries at present are associated with the scholars from Latin America, Asia and the Middle East. This promises to be the beginning of a major breakthrough in international communication, for if it continues, it will help to bring some balance to the unbalanced state of communication research.

Methodological and conceptual issues

The primary sources of information about the pattern of international news flow are content analyses of mass media and sample surveys which provide data on the amount of foreign news and the criculation of domestic news outside national boundaries based on the characteristics of the units sampled. Until recently, data of this type were available for only a few industrialized nations, and generalizations about patterns of distribution of news were therefore based on very limited information. The situation has changed considerably during the last ten years, especially since a new world information and communication order became a major item of debate in Unesco and other international, regional and national fora. Since then, many surveys, reports and articles have been published in both the developed and the developing countries and are increasingly being used in discussions and analyses of international communication issues.

Unfortunately, the increase in data availability has not been accompanied by an adequate improvement in theoretical, methodological or even statistical quality. In many cases, the growing interest in the subject has simply led to a proliferation of crude estimates of news distribution and dissemination for various regions and countries around the world based on data sources which may be "the best available" but are simply not good enough. A comprehensive review of these problems is beyond the scope of this introductory chapter, but some indication of their importance can be obtained by considering the following major sources of problems.

First, for obvious reasons, the definition of news used in many studies falls short of the comprehensive and universally accepted definition. In fact, there is some doubt whether or not one can arrive at a definition of what constitutes news which will be acceptable to all.

Second, even if the news concept is "properly" defined, it may be difficult to measure in practice. Very different problems arise at the two ends of the communication process, i.e. the source and the desti-

* The full title of this Declaration is as follows: Declaration on Fundamental Principles concerning the Contribution of the Mass Media to Strengthening Peace and International Understanding, to the Promotion of Human Rights and to Countering Racialism, Apartheid and Incitement to War.

nation. The process of news diffusion is indeed very complex. For example, the simple measurement of news originating in a given international or national news agency, or the simple measurement of the content of news in a given newspaper or medium might not be an accurate description of the flow of news in a country, a system, or among the population or decision makers at large. Assuming that the social structure of a given system or country acts to impede or facilitate the rate of news diffusion, the study of norms, social status, and patterns of reading or listening or information seeking becomes imperative. It is necessary to study the hierarchy of the political, social, economic and cultural systems influencing the decisions and behaviour of individual recipients and groups. Clearly, in addition to power elites, a score of other social, cultural and economic forces serve as gatekeepers in controlling the flow of news at all stages of formation, production, distribution and diffusion.

Another related problem is that of accuracy in estimating the distribution of news among the population from the observed distribution in sample surveys or content analysis. The accuracy of sample estimates depends on a number of factors involving the size of the sample and its representativeness. Many available news flow studies are derived from samples that are statistically inadequate in these respects, resulting in sample estimates that are not only biased but have a substantial degree of variance.

Thirdly, one must deal with the question of quantity versus quality in news reporting and dissemination. Unless some criteria are defined in designing a study to investigate the nature and quality of what is being reported and distributed, the studies of flow of international news will be measured only on the basis of quantity and volume, with less or no attention being paid to the qualitative and relevant nature of what is being measured. Of course, the latter evaluation is a difficult task indeed and requires a totally different method of analysis and measurement. These limitations present a familiar dilemma in empirical and critical analysis.

Most often, the definition of news fail to make an important distinction, namely that between news and reported news. The tendency seems to be to take of news as a finished product. Hence the familiar cliché that news "is the account of an event, not the event itself", and that "what the reporter writes is news".

Furthermore, there are limitations within the concepts employed in measuring the flow of news. A classic example is the concept of gatekeeping. We know that in any man-made flow process an item does not move through a channel by itself, but is moved directly or indirectly by an individual, an institution, and a set of social, political, economic and cultural factors. Therefore, gatekeeping analyses of the flow of world news are directed towards those forces which initiate the flow. However, before we examine the factors affecting the gatekeeper's function, fundamental questions arise : Who are the gatemakers or gate producers ? What are the characteristics and nature of the news channels ? What are the roles of individuals, institutions, nation-states and technologies in producing and creating news communication channels in the first place ? The traditional gatekeeping studies have not dealt with these basic questions.

The concept of gatekeeping was taken from the work of Kurt Lewin in psychology. Communication research has employed this concept to test social norms and social controls in media channels without asking the basic structural questions to determine the political, economic, cultural and technological forces creating the gates themselves. It should be kept in mind that Lewin was a psychologist interested in small group interactions and not a political economist analysing the structural changes of the system. Interestingly enough, Lewin's concept, as applied in communication research, has been a dominant factor for so long that its limitations have gone virtually unchallenged.

Current lines of inquiry

As research on the international flow of news has expanded during the last ten years, with its most dramatic growth taking place in the early 1980s, it has been accompanied by several new lines of inquiry. Given the five general perspectives of studies on the international flow of information outlined previously, and looking at the literature on news flow specifically, we can identify the following lines of inquiry which characterize the present state of research on the flow of news : (1) studies dealing with the actual flow and content of news, and (2) studies concerning factors determining the flow of news. In turn, we can observe several lines of inquiry within each category.

The first category - actual flow and content of news - can be further divided into four distinct lines of investigation. The first line of investigation examines the flow and content of news from one country to another, or on a comparative basis, it examines the direction and the amount of flow within a region or at the international level. Many of the early studies of news flow by scholars in the United States, and much of the research currently being carried out in other parts of the world, would fall into this category [4]. When such studies were initiated, they dealt with the flow of news between the East and the West. After the debate on a new world information and communication order became the focus of analysis, a North-South perspective dominated the research agenda. This tradition has been primarily concerned with assessing the balances and imbalances in the flow of news, the different categories and the nature of news content, and the emphasis given to coverage of various events.

The second line of analysis is characterized by many studies on the role of "centre-periphery" and the "dominance-dependency" model. It has formed a core of analysis for many European and Latin American scholars, and is used as a framework for many other flow researchers. Foundations for such types of dependency studies have developed separately in the United States, in the Scadinavian countries, and in the Middle East. For example, one researcher has explicitly linked communication and culture concepts in his analysis of the "structure of imperialism" [5].

A third line of inquiry focuses on the meaning and the qualitative nature of news by examining the images and perceptions contained in the content [6]. The Unesco "Foreign Images" content study, for example, is in this tradition and offers important insights into the flow of news.

The final approach, which has been used by a major cross-section of scholars studying foreign policy and international systems, is commonly called "events-interaction analysis". The aim of this method is to interpret the "interaction" of nations or actors as reflected by the analysis of "events" or news data. In many of these analyses the *New York Times* and the *Times* of London have been used as the sources of data, and their pattern of international news reporting has been the basis of "co-operation and conflict" analysis [7].

Almost all of the research in the above four lines of inquiry is conducted in the traditional style of content analysis of news : what is printed or broadcast, what is carried by the news agencies, who is supplying the news, what countries are reported, and the news pattern.

The second category of studies - factors determining the news flow - follows two lines of investigation :

studies dealing with the media factors influencing the flow of news [8] and those examining extra-media factors determining the content and news flow [9]. These two lines of inquiry, concentrating on the political economy of news flow, as well as structural, cultural, social and ideological factors, have been widely used during the last five years. Many studies have attempted to evaluate the flow of news in relation to "news bias", "accuracy" and time. Others have concentrated on the structural analysis of institutions, actors and bureaucracies involved in the production and distribution of news. There are numerous examples of such studies, which have examined the following factors : the role of transnational actors in the flow of news ; the location and movement of foreign correspondents around the world ; the cultural, ideological, legal, as well as technological factors determining the flow of news and its content. Although some content-analysis techniques have been employed in these studies, the researchers have used multiple sources of data of an aggregate nature and survey analysis.

The direction of flow

Studies investigating the direction of news flow have hypothesized three distinct patterns. First is the "centre-periphery" pattern exemplified in the work of Johan Galtung in his analysis of the structural theory of imperialism. Here the world is divided into two parts : the "centre" or dominant communities, and the "periphery" or dependent areas. He relates these theoretical constructs to communication and cultural interaction and points to vertical interaction as the major factor in the inequality of nations, a division reinforced by "feudal networks of international communication" dominated by nations in the "centre".

Galtung's hypothesis can be summarized in four statements characterizing international news :

1. There is a preponderance of "centre" news events reported in the world press systems.
2. There is a much larger discrepancy in the news exchange ratios of "centre" and "periphery" nations than in the exchange ratios of "centre" nations.
3. "Centre" news occupies a larger proportion of the foreign news content in the media of "periphery" nations than the "periphery" news occupies in the "centre" nations.
4. There is relatively little or no flow of news among "periphery" nations, especially across colonial-based bloc borders [10].

Several research efforts undertaken to test Galtung's "centre-periphery" hypothesis have concluded that the pattern is indeed a feudal one. The "periphery" nations, however, while contributing to diplomatic entropy, have not moved significantly towards class confrontation patterns [11]. Buijtenhuijs and Baesjou concluded from their study of two African newspapers that, contrary to Galtung's assertion, there is a news flow across bloc borders in Africa ; however, they reaffirmed the dominance of "centre" news agencies in the news of the two African countries served by the newspapers examined [12]. Further confirmation of Galtung's hypothesis is provided in the content analysis study of Australian mass media performed by McKenzie and Overton in 1981, which concluded that the pattern of international news flow to and from Australia has remained largely colonial, with traditional news sources still prevailing [13].

The second pattern is based on the hypothesis that news flow from developed (North) to developing (South) countries follows a vertical direction. Horizontal flows do exist within the North and within the South, though there is significantly less volume of flow within the latter. While there exists a good deal of news flow from South to North, its volume is unsubstantial in comparison with the flow from North to South. In addition, within the North-South pattern, a direction termed "round flow" can be identified in which news gathered in the South by northern correspondents is transmitted to the North for processing and editing before its eventual return to the media in the South.

Several researchers have targeted North-South flow patterns, among them Reyes Matta, whose 1975 study of Latin American newspapers revealed that the flow from the North dominated foreign news in Latin America, though its proportion was somewhat less than had been shown in a 1960 study conducted by the International Centre for Higher Studies in Journalism for Latin America (CIESPAL) [14]. A 1974 study had concluded that news from Latin America and Africa was poorly represented in Australian newspapers. In contrast, Gunaratne's 1979 study of the two major Australian dailies showed a marked difference in their coverages of Third World news : one showed decreasing coverage of development news while the other had an increase of such coverage [15]. However, as late as 1977 the study of news flow in nine Arab countries demonstrated the dominant presence of South-South flow within that region [16].

Kaplan's study of the media in the United States noted an insufficiency in the amount, scope and type of news disseminated, particularly in the coverage of the developing world [17]. It concluded that the major news agencies of the developed world (AP, UPI, AFP, Reuter and TASS) cover the news which they perceive as interesting to their home publics. In the case of newspapers in the United States, this interest was correlated with wealth, elitism and the political potency of the readers [18].

The third pattern is a triangular flow which divides the North into East and West, connecting each to the South. In one of the most geographically comprehensive studies, Gerbner and Marvanyi concluded that in foreign news, East and West first cover their respective geopolitical areas as well as East-West relations, whereas Third World media in general devote the greatest proportion of foreign news coverage to the North - meaning both the East and the West. Additionally, Gerbner and Marvanyi found that Western Europe is the most frequently reported region around the globe, and that the socialist nations receive little coverage in the Western press. Two-thirds of the content in the United States press system, for example, dealt with Western Europe, South Asia, the Far East, North America and the Middle East. The Soviet press gave priority to Eastern Europe, followed by North America. Eastern Europe ranked its own region and Western Europe high in coverage, while it had relatively less reporting on the Soviet Union than the other press systems. In the Third World press, the Soviet Union received the greatest coverage, which contrasted with the low coverage it received from other press systems in the study. The authors suggested that "the process of reciprocal information may be out of joint" [19].

More recently, a study by Stevenson and Cole concluded that "regional proximity is clearly the dominant characteristic of foreign news" and that Western Europe and North America are the most widely covered areas in the world media while Eastern Europe and developing regions have the least visibility [20].

News agencies and news exchange

A major aspect of the international flow of news is the functioning of wire services or news agencies. Perhaps because of the relative invisibility of their functioning, this aspect received little attention from researchers in communication until the 1960s. In the

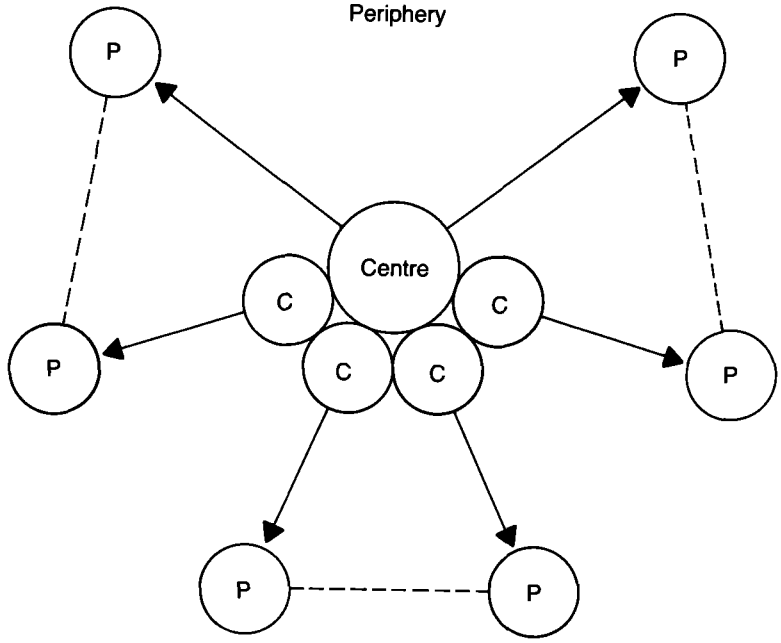

FIGURE 5
Centre-periphery flow

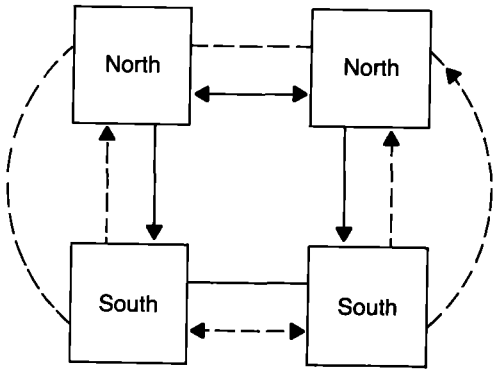

FIGURE 6
North-South flow

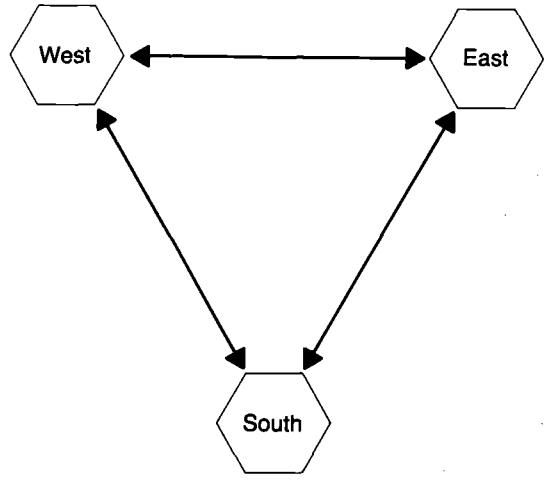

FIGURE 7
Triangle flow

Three Patterns of International News Flow

late 1960s and especially during the 1970s, however, research on the news agencies and their role in the international flow of information experienced a tremendous growth in the writings of communication scholars. There was also a significant increase during this period in studies based on the ownership and the organization of the "big four" agencies. These studies represented the majority of the research in the preceding decade.

At the end of the 1970s and the beginning of the 1980s, the euphoria of the initial flourish of research was calmed, and scholars began to be more involved in detailed quantitative studies and less in analytical essays. Consequently, the scope of the news agencies' research was broadened. The present scenario tends to be focused on three main actors in the field : (1) world agencies (the "big four") and the multinational enterprises collecting and disseminating news all over the globe ; (2) national agencies responsible for the circulation of news inside a country and domestic news abroad ; and (3) regional agencies and their arrangements for co-operation in information exchange to increase the role of the Third World in the international flow of news.

Among the world news agencies, there are actually five which have a particularly important role in the international flow of news : Agence France Presse (France), Associated Press (United States), Reuter (United Kingdom), TASS (USSR) and United Press International (United States). While the "big four" news agencies, AFP, AP, Reuter and UPI, are the dominant sources of foreign news for most countries in North America, Western Europe, Asia, Africa and Latin America, the TASS news agency seems to be a major source of news for most of the socialist countries in Eastern Europe and elsewhere.

Recent studies on news agencies indicate little or no change in the total production of these major agencies since the late 1970s. Compared with these major transnational news agencies, the amount of news distributed by national or regional news agencies is still low, though there is evidence that the quantity of news input-output of national and some regional agencies is steadily increasing. The total amount of news provided by the four major agencies is 32,850,000 words daily (AP 17,000,000 ; UPI 11,000,000 ; AFP 3,350,000 ; and Reuter 1,500,000), while the combined production of the Deutsche Press Agenture (DPA), of the Federal Republic of Germany (115,000), the Italian Agenzia Nazionale Stampa Associata (ANSA) (300,000), the Spanish Agencia EFE (500,000), the Telegrafska Agencija Nova Jugoslavija (Tanjug) of Yugoslavia (75,000) and InterPress Service * (IPS) (100,000) is only 1,090,000 words daily.

The extent of media dependency on the world agencies has been documented in several academic and professional studies over the past twenty years. This dependency takes a variety of forms, the most visible being the quantitative extent to which media around the world depend on world agencies, not only for general world news, but for news of their own geopolitical regions as well.

As early as the 1960s, an analysis of coverage of three international crises in four Norwegian newspapers showed that 87 per cent of the analysed news items came from the "big four" agencies [21]. A content analysis of the most important papers in India, Kenya, Lebanon, Japan and Norway, in monthly periods of 1961 and 1968, demonstrated that at least half of the international news items were from the same four news agencies [22]. Over a decade later, an analysis of the Third World news coverage of fourteen Asian newspapers in 1977 concluded that more than three-quarters of all non-local Third World news came from the big world agencies [23]. One year later, in 1978, study of reciprocal coverage of the United States and Canada showed that the world agencies accounted for over 70 per cent of American news in Canadian newspapers [24]. A similar pattern was discerned in Latin America where Fernando Reyes Matta's analysis of 16 dailies in 14 Latin American countries found that 80 per cent of foreign news came from the "big four" news agencies [25].

The major agencies not only supply conventional news and features, but broadcast television material to their clients as well. For example, UPI and Reuter, through their involvement in UPITN and VISNEWS, provide international news film for television. Thus the potential total dependency of some countries on print and film from these agencies is even higher. Although there is little empirical data to document world-wide dependency of this nature, a study by Peter Golding and Phillip Elliot analysing Nigerian broadcast media in 1977 showed that the combined input of Reuter, AP, AFP and VISNEWS as sources of foreign stories amounted to 85 per cent of total foreign news [26].

However, the two most recent studies in this area are more interesting both in terms of the sampling and the somewhat contradictory conclusions. The first study conducted by Schramm and Atwood traces the flow of Third World news from its origin to the items taken up and reprinted by newspapers and then to the readers themselves. In this study, which was conducted in December 1977 but published in 1981, they analysed news content of nineteen Asian daily newspapers in eight different languages, four international news agencies (AP, UPI, Reuter and Agence France Presse) and the New China news agency wire services delivered to Asian clients. The major conclusions of this study are as follows : the circulation of news in the Third World cannot be understood entirely in terms of the international news agencies ; international news agencies are probably doing a better job quantitatively than qualitatively, and the quality and quantity of news in the Third World is very much related to each country's own national agencies [27].

Three weaknesses in this study make the conclusion tentative. The first difficulty arises from the fact that the readership survey in the Schramm-Atwood study is limited to only one newspaper in the Philippines. The second weakness is that in many of the Third World countries, owing to limited resources as well as the lack of telecommunication infrastructure, the governments are very much involved in the process of news flow into and out of the country. Schramm and Atwood's conclusion does not account for this fact. The third point to be kept in mind is the very definition of news and the utility of applying Western news values to judge the flow and content of news in Asian newspapers. The authors, aware of this last weakness and admitting the difficulties observed in qualitative measurement, suggest that a detailed content analysis should be undertaken jointly by Asian and Western journalists.

The second study, published in 1983, updates an earlier project carried out by Wilhoit and Weaver in 1979. It examines foreign news coverage and two United States wire services, tracing the flow of foreign news from these two wires into a random sample of eleven small dailies in Indiana. The major focus of this study is comparative. The baseline wire service data compiled in the authors' earlier study is compared with similar samples gathered two years later. This study replicates the earlier content analysis that was based on a coding protocol developed by the Unesco/IAMCR research group. According to the authors, separate measures of conflict news, developed in a

* See page 24 for further information on the origins and aims of this agency.

doctoral research seminar, and an intensive study of newspaper use of wire news add important new dimension to this work [28].

The study concludes that "the frequency of coverage of major world hemispheres of geo-political-economic similarity - in this case, North and South divisions of more or less developed nations - appear to shift from year to year, with relative parity of coverage likely over the long term. News from 'official' government and military sources dominate news from all world areas." The authors observe that "one begins with a relatively rich mixture of news ... even including news that may be classified as development coverage ... and ends with a very scanty, violence and conflict-laced portrayal of the world in smaller newspapers ... The tendency of wire services to give more frequent coverage to news of conflict in developing nations was enhanced by the even greater proportionate use of such dispatches by the newspapers." [29] Thus their findings suggest an intensifying focus on Third World violent conflict. Their concluding remarks take on the news values where the Schramm-Atwood study left off : "Regardless of the reasons for the differential treatment of less developed and more developing countries as one moves down the news 'funnel', the results reported here strongly emphasize the need to reassess basic news values if U.S. newspaper readers in small-to-medium-size communities are to get a picture of the world that is less incomplete and distorted." [30]

Recently, national agencies have been examined as an important intermediary factor in the control and distribution of news, supplementing the recognized function of the "big four" [31]. In spite of their acknowledged role as significant actors, few data have been collected about them, just as very little research has been done on the importance of regional agencies as an alternative mode for sharing information among regions and countries of developing areas. Nevertheless, it is apparent that national and regional agencies will be the subjects of future research since such inquiry is necessary to measure the effect and impact of news agencies on those levels on the content and direction of international news flow.

The studies that have been conducted on the national news agencies between the mid 1950s and the late 1970s show three basic results : (1) their remarkable dependence on world news agencies for foreign news ; (2) their direct and integral role in the dissemination of local news within a country ; and (3) their increasing participation in the output of "Third World news" by the world news agencies.

National agencies have their own qualitative and quantitative selection practices in domestic markets and it is through the national agencies that the world news services are distributed to the media. A study of the Canadian national agency, Canadian Press, showed that the influence exerted by world agencies was not as great as CP's influence in setting the international discussion agenda of its customers. Furthermore, although the world news agencies dominate the world inputs, they have no direct control over the selective or quantitative gatekeeping practices employed by national agencies to fashion the world picture. According to this study, world agencies do not dominate world image-making because selective and quantitative control is firmly in the hands of national news agencies [32].

At the end of the 1970s and the beginning of the 1980s, more attention was given to the study of national news agencies. Most of the research undertaken at this point has dealt with organization and ownership systems. There are three types of ownership system within the existing national news agencies : (1) government-owned and subsidized, representing about 43 per cent of the total national news agencies in the world ; (2) media or cooperatively owned, accounting for 31 per cent of the total ; and (3) mixed enterprises (government and media-owned), comprising 27 per cent. According to the latest statistics, governments have shares in about 73 per cent of the total national news agencies around the world.

Few systematic studies are available on the flow of news by regional agencies. The only major writings on regional news agencies are papers on the subject prepared for the International Commission for the Study of Communication Problems (MacBride Report) in the late 1970s, the works published by Oliver Boyd-Barret and Gertrude Robinson in the early 1980s, and a few monographs issued by the Friedrick-Ebert-Stiftung Foundation on television news exchange in 1979 and 1981 [33]. Most publications in this area tend to be descriptive in nature and include workshop reports, resolutions and recommendations. Boyd-Barret's work treats regional agencies in the context of international news agencies, their forms of organization and their positions in their respective countries, and their role in agenda-setting and gatekeeping functions. Robinson's analysis examines the theoretical and methodological aspects of news flow, with particular attention paid to Canada, the United States and Yugoslavia. She argues for the value of an organizational, systems-level perspective in gatekeeping studies and for the value of an institutional systems perspective in understanding international news flow.

The most important development in the field of regional news agencies and news exchange occurred in 1979-1983 in two areas : the first was the actual development of regional news agencies, and the second was improved technical and professional co-operation between and among the various news and broadcasting associations and unions in Asia, Africa and Latin America. Such arrangements were made according to geographical, economic, political and even religious bases. They included improved co-operation between Arab and Asian television news services, new projects by the Asian Pacific Broadcasting Union (ABU) for the exchange of television news in various regions in Asia, and inauguration of the Asian-Pacific News Network (ANN) by the Organization of Asian News Agencies (OANA) for the distribution of news from Tokyo, Manila, Jakarta, New Delhi and Moscow. Inter Press Service, which was founded in 1964 by a group of Latin American and European journalists, represents a specifically Third World perspective. It has established several co-operative arrangements from its headquarters in Rome and Panama, including an exchange of material with the newly created Interlink Press Service which uses IPS information for distribution in the United States [34].

Other important efforts include the establishment of the Caribbean News Agency (CANA), the PanAfrican News Agency (PANA), the Latin American Regional Agency (LATIN), and the very recent creation of the OPEC news agency in Vienna by its member nations.

The content and image studies

Although several studies have targeted the content aspect of international news, few have focused specifically on this question. And those that have done so generally present qualitative rather than quantitative assessments of content. The studies in this area attempt to show the imperfections of current world news flows and demonstrate five shortcomings of world news.

The first is that international news is "Western-centric" since the sources of news, even in most of the Third World, are Western news agencies and wire services.

The second point, as illustrated by several recent studies, is that the Third World coverage that does

exist focuses on negative or "bad" news - catastrophies, violence and corruption, rather than on "developmental" news or education information. Further, the research conducted by Stevenson and Cole revealed that negative news is not only predominant in Western media, but in the Third World media as well, a conclusion also drawn by Ume-Nwagbo in his 1982 study of African newspapers.

Third, international news tends to be shallow and oversimplified in that it concentrates on political leanings of governments rather than on accurate and comprehensive coverage of conflicts affecting nations and people. Fourth, international news concentrates on the elite rather than on the masses. Finally, research shows that the emphasis of international news is on events rather than on factors leading to and causing events.

Image studies constitute another area of research to be discussed here. Such work is usually done in conjunction with content analyses that attempt to analyse the type of images portrayed in the flow of news and editorial material through newspapers, magazines, and in some cases radio and television. They also pay implicit and explicit attention to the probable impact of the quality and quantity of flow on national and international images.

One of the most recent studies relating the flow of news to national and international images was the joint International Association for Mass Communication Research/Unesco project *. This project was premised on the assumed importance of the news media in determining public images of, and attitudes towards, the foreign. Although this unique international comparative research project was able to provide an updated inventory of international news presentation, it was less successful in measuring the images portrayed in international news reporting. The project examined news presentation in both the press and broadcast media and included national media systems from all regions of the world. Quantitative data were gathered by thirteen participating teams using a formal coding instrument designed to measure rough volume and present the overall structure of international news reporting. The news itself and a straightforward frequency count were the units of analysis. The results showed the dominance of political news in international news reporting and the prominence of regionalism [35].

While some studies analyse the non-advertising content of the media as the source of their data, others concentrate on specific editorial content such as "editorial page" material, which refers to the editorials that take a position or stand on behalf of the medium under examination or on behalf of a given individual, institution or country. Still others concentrate on such special contents as "comics", "letters-to-the-editor", sports, or financial and economic items.

For example, a study designed by Clark and Mowlana, examining specific editorial material in the press, demonstrated how the world view of a nation's political élite - in this case Iran's pre-revolutionary political élite's view of Western Europe - can in turn determine its own self image. The authors' contention was that a study of policy articulation and images through the media can provide a valuable framework for understanding national development. The study was conducted four years before the Iranian revolution and was carried out on the basis of the observation that policy articulation during the reign of the Shah occurred through a limited number of communication channels, one of which was the national newspaper *Keyhan*. Editorials and policy statements were divided into two time periods, pre- and post-OPEC oil price escalation, and then keyed to eighteen selected variables, ranging from power to revolution and culture, regarding Iran's perception of five countries in Western Europe and Iranian-European relations. By comparing the dominant perceptions and images of both time periods, the authors hoped to show how changes in perceptions and policy objectives correlate with a changing self image reflected in the media. The most important trend in the two periods under consideration (1970 and 1974) was Iran's admiration of technological expertise and its downplay of domestic cultural, religious and nationalistic elements. The study concluded that the political élite of the time viewed "the importance of technology as inherently good because it can be naturalized into the developmental scheme in a way that ideological and political institutions cannot." [36]

In another analysis made in 1974 - five years prior to the Iranian revolution - Mowlana contrasted and checked such images against the background of news and symbols generated by the mosque, the bazaar and other traditional channels of communication in Iran, and concluded that religious and theological discourse still may be used to foster revolution and force an unpopular government out of power [37]. Indeed, the Iranian masses made little use of the conventional big media channels such as newspapers and television, but through a combination of traditional channels of news and modern small media, such as tape recorders and cassettes, obtained their information and accomplished the 1978-79 Iranian revolution [38].

Since the Iranian revolution, a considerable number of articles, essays and in some cases empirical data, have appeared examining the flow of news and images across national boundaries and the role played by the media in the subsequent United States-Iranian conflict. Thus far, evidence has been gathered in the following areas: the crucial role played by the transnational media in the process of legitimization, the weakness of the media in interpreting events in light of cultural and religious factors [39], the importance of prior patterns of information in understanding the current development of the world, the importance of geopolitical and economic interests in dissemination of news and information, the role of international telecommunication in conflict and crisis reporting, and the commercial and political nature of the media [40]. Furthermore, research on the flow of information about the Iranian revolution and other international and national crises demonstrates that a distinction must be made between the volume and effectiveness of information flow since information can flow at a high volume and at the same time suffer reduction in quality through physical and cultural distortion [41].

The study of the content and images contained in newspapers, magazines and news agency files is far from being systematic. While the earlier studies dealt with political and ideological coverage of news and editorials, the relationship between content and the ideological orientation of the audience and the editors, the proportionate allocation of space dedicated to different subjects and the images formed by national and international political leaders [42], the current trend is towards the study of specific issues and the images of particular segments of the population such as minorities and women.

One category of content studies which holds particular promise for future research endeavours is concerned with the much debated issue of cultural identity. Of the kinds of studies examined for this report, it has also been the least scrutinized this far. Unlike studies of news or editorial page material, those that fall into this category are not concerned with the political underpinnings of news content and editorials. Rather, they analytically explore non-news

* This study, entitled "Foreign News in the Media" (Reports and Papers in the Mass Communication Series) is now in print.

material which is more culture-bound and which therefore can provide evidence of the distinction between cultures and of the need to retain the uniqueness of separate cultures in a particular atmosphere.

For example, a study conducted by Beniger and Westney examines Japanese and United States graphics as a reflection of a newspaper's social role. A comparison between the uses and styles of the graphics of *The New York Times* and the *Asahi Shimbun* led the authors to conclude that organizational, cultural and social factors are responsible for the observable differences. For instance, the social role of *The New York Times* as reporter versus the *Asahi*'s traditional role as educator is aptly displayed in the visual and contextual differences in the graphics of each newspaper. *The New York Times*' graphics tend to be of a statistical nature and are relegated to the economics and business sections. In contrast, the *Asahi* responds to the Japanese familiarity with the visual conveyance of meaning and a relatively sophisticated eye by providing a graphic style that contains flowing lines and less formalized construction [43].

One can only speculate why there are so few studies dealing with specific content of newspapers and magazines and so many general studies on non-advertising material of the press and wire services. In electronic and audio-visual media, especially those which reach large audiences, such as television and radio, there appear to be two divergent strains of research, one dealing with "news" and the other with "cultural" or "entertainment" programming. Perhaps this is the result of the myopic assumptions of some researchers whereby print media are viewed as the dominant news sources while other media are seen as having more important cultural implications. Thus empirical studies concerned with what is termed "non-news" do not abound in the study of newspapers and magazines.

On the content and flow of magazines

There are approximately 38,000 magazines published around the world. Newsmagazines as a group have the largest international distribution and United States newsmagazines, in particular, enjoy the largest international circulation. Consequently, a great bulk of writings and studies done on the flow, content and operations of magazines have dealt primarily with United States periodicals that have world-wide circulation and are transnational in nature.

Reader's Digest, the magazine with the highest world-wide circulation [44] (31,684,023), is discussed by several authors including Armand Mattelart who reports that the local content of this magazine in the less developed countries is only 10-20 per cent while in the more developed countries it can reach as high as 50 per cent [45]. *National Geographic* also has enjoyed a fair amount of attention from media scholars, among them Tom Buckley and Herbert Schiller [46]. Both authors conclude that the coverage of this magazine is one of concealment and omission. The magazine is conservative, "pro-status quo" and "militaristic". It is claimed that it appeals to middle America and its illusions, but does not help to provide a true understanding of the Third World. The operations of *Time* and *Newsweek*, as well as their editorial policy vis-à-vis the international edition, have also been the subject of several analytical studies [47]. Since 1973, *Time* has engaged in a limited decentralization of its content in Europe but it maintains vertical control in the United States. *Newsweek*'s international edition, on the other hand, can have content that differs up to 50 per cent from its American edition [48].

Specialized business, political and economic magazines such as *The Economist* and *Business Week* are extremely important to the international flow of information, especially among decision-makers and élites [49]. Although there are some early descriptive studies of their activities internationally, no systematic or comprehensive studies are available on their contents, operations and utilization beyond the traditional readership survey and readers' interest. Another thriving international magazine market is the "entertainment", "consumer" and popular science magazines. Recent writings on the influx of foreign, especially American magazines in Japan and Mexico indicate a growing demand for editorial and financial control over imported publications [50]. For example, Japanese publishers not only press for greater financial control of imported American popular science magazines, but insist that only 50 per cent of the content of such magazines be of original American copy [51]. Similarly, a study of the Mexican edition of *Cosmopolitan* shows relatively more traditional coverage compatible with local cultures and tastes [52].

While most studies have examined American magazines, a few have looked at other magazines with international distribution. One such article, by Karen F. Djani, discusses *Howa*, a magazine for Arab women [53]. *Howa* has an international market in the Middle East and an approximate circulation of 200,000. The magazine focuses on problems of working women and homemakers. Efforts are made to preserve *Howa*'s cultural identity : Westernization is avoided. Recent studies also show a good deal of concentration of newly published ethnic magazines in such metropolitan centres as London, Paris, New York and Washington. These magazines, often published by immigrant or exiled groups, focus on political, social and economic affairs, and some have a wide regional or international circulation.

In an expanding world-wide market not only are the industrialized countries of the North searching for readership and joint ventures in the South among the less industrialized regions of the world, but they are also engaged in fierce competition among themselves in Europe and North America. The entrance of Thomson Organization Ltd., a leading Canadian publishing firm, into the United States market has been most noticeable during the last several years [54]. Thomson now owns thirty-seven American magazines worth $ 250 million and plans to invest more on consolidating its position in the United States. European publishers are also entering the American market. For example, Bruner Jahr International of the Federal Republic of Germany is the parent of Geo and *Parents* magazines ; the first has been highly successful. Another European publishing firm has purchased the rights to *Look* and plans to bring it back on the market [55].

In addition, several studies have examined the state of the domestic magazine industries in various countries such as Italy, the Federal Republic of Germany and the Philippines. In many cases, the domestic products are heavily influenced by their American counterparts and in some cases are affiliated with them [56].

Research into the content and coverage of magazines with regional and international circulation is spotty and, at times, scarce [57]. Such content analyses have ranged from examining the image of Latin America and the Soviet Union in ten American magazines in the 1960s to the coverage of Asia by leading American news magazines in the early 1970s. Similar studies have dealt with Africa in the early 1980s. In a world where readership, the market and international affairs are changing rapidly, the findings of these studies tend to be partial, tentative and inconclusive. However, a few general observations can be made : the tone of most of these magazines tends to be patronizing ; the emphasis is often on negative elements such as conflict and violence ; there is a tendency to neglect domestic development of various countries unless

it has some implications on the foreign policy of the country in which the magazine is published, and international coverage tends to focus on political/governmental topics and crisis/trivia stories.

One of the most recent studies of content is Pratt's analysis of the differences between the images of Africa projected by American "news" (*Time, Newsweek, U.S. News and World Report*) and "opinion" (*The Nation, The New Republic, The National Review*) magazines. However, Pratt's study shows more similarities than differences between the two categories of publication and even between "opinion" magazines on different ends of the political spectrum. The "opinion" magazines have a slightly higher number of stories on Africa than do "news" magazines, but both devote less than four per cent of the total editorial space to this region. All the magazines portrayed Africa as "politically gullible, naïve and immature but also as a continent whose course of action is precariously dependent on the Big Powers." The image of the conflict-ridden continent is clear, while coverage of geography and typology are virtually ignored ; coverage of coups, public executions and of countries in trouble spots were highlighted [58].

In another recent study of the coverage of foreign affairs by American "élite and mass periodicals", Bledsoe and his colleagues reported that Europe receives the most coverage, although Asia was important in the early 1970s. South America is virtually ignored and emphasis is on trouble spots rather than overview stories. They conclude that there is a "general orientation towards political events and actors to the virtual exclusion of more fundamental problems." [59] Other studies show how in the cases of consumer and general magazines, advertising and editorial content work on each other to form a mutually reinforcing cycle. Thus magazine contents are affected by editorial economic decisions.

Factors and impacts of flow : Conclusion

Four major conclusions can be drawn from the research on the direction of international news flow. The first is that the majority of international news flow from the "centre", the "North", or the "West" by way of the dominant news agencies, that is, there is a vertical flow from the developed to the developing nations. Secondly, proximity - physical, psycho-cultural and political - is a major factor in determining news coverage in that indigenous media tend to select items regarding their own geographical region. A third conclusion is that Western Europe and the United States receive the greater amount of coverage in the media while the socialist countries and the Third World receive the least. Lastly, although horizontal flows do exist within the developing as well as the developed world, this type of flow constitutes a substantially smaller portion of the overall coverage than does vertical flow or "round" flow.

In summary, it is difficult to depict adequately the current state of research on content in international news since most authors, although presenting assumptions on this aspect, have not undertaken comprehensive research in this area. Another major problem is disagreement and conflicting results as evidenced in recent studies conducted by Schramm, Stevenson and Cole, Hester, Wilhoit and Weaver, and several others. However, one conclusion is manifest in nearly all the studies : although there has been some improvement in the quantity of international news largely owing to the newly established agencies as well as national and regional efforts, the quality of international news flow remains quite poor since, as one moves down the news "funnel", there is an intensifying focus on Third World violent conflict and crisis. Conflicting news values are indeed crucial factors contributing to the way the world and its problems are portrayed in the media. Thus qualitative evaluation remains a definite weakness in the current research on the content of news flow.

The review of the literature clearly shows a large gap in our knowledge about the flow of international news. For example, we know more about the quantity and quality of the "Third World" coverage by the "West" but less about the "Third World" coverage of the "West" - both socialist and capitalist - and still less about the flow of news between and among the less-industrialized or "Third World" countries around the world.

Moreover, another neglected aspect of news imbalance is the uneven distribution of communication resources, and, at least in one instance, of foreign correspondents. Mowlana's survey in 1975 showed a total of 865 foreign correspondents reporting foreign news media in the United States. Wide variance was noted in the stationing of correspondents - none from Black Africa, 23 from Israel, 1 from Pakistan, 23 from Taiwan. Western Europe accounted for more than half of the correspondents, with few from Latin America, the Middle East or Asia. There was a total absence of foreign correspondents from several countries [60]. However, the 1981 update by Mowlana shows that there were 1262 foreign correspondents covering the United States - an increase of over 45 per cent in six years. There are twelve new additions to the list, all of which are Third World countries. On a regional level, there are still no reporters from Black Africa [61]. What bearing does this increase in correspondents have on the flow of news ? It seems clear that a flow and content analysis of those countries increasing their correspondents or installing them in the United States for the first time might tell us something about the volume and quality of international news reporting. In short, to measure the actual two-way flow we need more of the intake-output ratio, a research strategy which is often neglected.

There are several factors which have been found to influence the global flow of news. One of the most frequently examined aspects of news gathering and dissemination, which is influential on an individual, organizational, regional and global level, is economics. *Economics affects the quality, quantity, availability* and distribution of news in several different ways, including the following : the number of foreign correspondents ; the ability of regions to establish their own infrastructures for news gathering and transmission ; the ability to produce news media which can successfully compete with transnational media in advertising, news quality and journalist compensation ; telecommunication tariffs ; and the ability of the masses to purchase the news product [62].

Political factors have an effect on both news content and the actual flow of news [63]. The political climate of a state directly affects the international news value of events associated with that state, and has other direct effects such as censorship, control over the entry and exit of journalists, and the importation and marketing of news products. Moreover, official and unofficial perceptions of news value, and of the function and role of news and information within a given political system, and as between systems, directly influence the content and flow of news within that system.

Socio-cultural differences account for one of the most complicated factors influencing the global flow of news [64]. Indeed, cultural, religious and traditional beliefs which differ so significantly from one region or country to another create serious barriers to a smooth flow of news and information. Language, translation difficulties and ethnic biases are perhaps the most common sources of such problems.

One of the most obvious factors affecting the

content and flow of news internationally is the development of technology and the infrastructure associated with it [65]. In developing areas where infrastructural development is primitive, rare, or non-existent, it is difficult to gather and disseminate news in a timely fashion. The solution has been news importation, which has resulted in concern over the issues involved in the economic, political and socio-cultural factors of global news flow.

There are also certain "extra-media" factors, related to those mentioned above, such as literacy level, population and trade [66]. Such factors would include the physical, cultural and psychological proximity which affects the group's view of the outside world. These factors, intertwined with the broader economic, political and cultural elements, directly affect the content and dissemination of news in any given area, and may enhance the global flow of news as well as impede it.

Research regarding the possible effects - positive and negative - of the international flow of news have concentrated on such issues as content, stereotypes, cultural domination and expectations. News stereotyping and its effect on the audience have been studied in Africa, Latin America, Asia and the Middle East. A good number of writers and researchers view the Northern-dominated (meaning both East and West) flow as distorting information on cultural, political and economic progress in the developing world. Others carry this analysis a step further and conclude that such domination has led to a massive consumer culture eroding national identity and sovereignty in different parts of the world. A few other analyses observe the dysfunctional effect of such imbalances on international conflict, national discontent and the New International Economic Order. Similarly, several studies conclude that the news media reinforce the status quo, which is a division of the world between high and low status nations, and present the world as more conflict-laden than it really is so as to emphasize the use of force rather than peaceful solution. Finally, there are those analyses which caution that the world news media are incapable of assembling an accurate, complete and current picture of objective reality in every corner of the globe, and that they should be viewed as only one source of information and not a physical map of the world.

FOOTNOTES

Chapter Two

1. Hamid Mowlana (ed.), *International Flow of News : An Annotated Bibliography*, Paris, Unesco, 1985.
2. Hamid Mowlana, *International Communication : A Selected Bibliography*, Dubuque, Iowa, Kendall/ Hunt Publishing Company, 1971. See also Hamid Mowlana, "Trends in Research on International Communication in the United States", *Gazette*, XIX:2, 1973, pp. 79-90 and his more extensive review, "The Communication Dimension of International Studies in the United States : A Quantitative Assessment", *International Journal of Communication Research* (University of Koln, Federal Republic of Germany), 1:1, Winter 1974, pp. 3-22. For earlier bibliographical publications on international communications see Harold Lasswell, Ralph Casey and Bruce L. Smith, *Propaganda and Promotional Activities : An Annotated Bibliography*, Minneapolis, Minnesota, The University of Minnesota Press, 1953.
3. Alexander Szalai's study *The United Nations and the News Media*, New York, United Nations Institute for Training and Research (UNITAR), 1972, is the most extensive international comparative study in the field under scrutiny. Unesco's efforts to encourage and sponsor comparative research during the last ten years have been quite prominent in this field. See Unesco's publications *Reports and Papers on Mass Communication*, especially numbers 65, 69, 70, 75, 76, 77, 79, 81, 83, 85, 86, 87, 90 and 92. (Please refer to selected bibliography for full titles.)
4. For example, see Jacques Kayser, *One Week's News : Comparative Study of 17 Major Dailies for a Seven Day Period*, Paris, Unesco, 1953 ; Wilbur Schramm, *One Day in the World's Press*, Stanford California, Stanford University Press, 1960 ; International Press Institute, *The Flow of News*, Zurich, Switzerland, International Press Institute, 1963 ; George Gerbner and Marvanyi, "The Many Worlds of the World's Press", *Journal of Communication*, 27:1, Winter 1977, pp. 52-66 ; Al Hester, "Five Years of Foreign News on U.S. Television Evening Broadcasts", *Gazette*, 24:1, 1978, pp. 86-95 ; Robert L. Stevenson and Richard Cole, "Foreign News in Selected Countries", *Research Reports*, International Communication Agency, U.S. Government, Washington, D.C., July 1980 ; and Wilbur Schramm and Erwin L. Atwood, *Circulation of News in the Third World : A Study of Asia*, Hong Kong, Chinese University Press, 1981.
5. Johan Galtung, "A Structural Theory of Imperialism", *Journal of Peace Research*, 8:2,1971, pp. 81-117 ; Johan Galtung and Mari H. Ruge, "The Structure of Foreign News : The Presentation of the Congo, Cuba and Cyprus in Four Norwegian Newspapers", *Journal of Peace Research*, 2, 1965, pp. 64-91 ; Rafael Roncagliolo, "Flow of News and Freedom of the Press", *The Democratic Journalist*, March 1979, pp. 7-11 ; Fernando Reyes Matta, "The Information Bedazzlement of Latin America", *Development Dialogue*, 2, 1976, pp. 29-42 ; and Herbert I. Schiller, "Freedom from the 'Free Flow'", *Journal of Communication*, 24:1, Winter 1974, pp. 110-117.
6. Peter M. Clark and Hamid Mowlana, "Iran's Perception of Western Europe : A Study in National and Foreign Policy Articulation", *International Interactions*, 4:2, 1978, pp. 99-123 ; International Association for Mass Communication Research/Unesco, "The World of the News : The News of the World", Final Report of the "Foreign Images" study undertaken by IAMCR for Unesco, London/Paris, 1980 ; Edward Said, *Covering Islam*, New York, Pantheon Books, 1981 ; James D. Halloran and Virginia Nightingale, "Young TV Viewers and Their Images of Foreigners : A Summary and Interpretation of a Four Nation Study", Centre for Mass Communication Research, University of Leicester, Leicester, England, 1983 ; Unesco, Mass Media, *The Image, Role and Social Condition of Women*, Reports and Papers on Mass Communication, No.84, Paris, 1979 ; and C.B. Pratt, "The Reportage and Image of Africa in Six U.S. News and Opinion Magazines : A Comparative Study", *Gazette*, 26:1, 1980, pp. 32-45. These are examples of the most recent studies using news stories and editorials as the basic data. Studies dealing with perceptions and images using survey research and other sources are not considered in this study.
7. For examples of this method, see Charles A. McClelland, "Answers to common questions about the world news index and international event analysis", Los Angeles, University of Southern California, July 1975 ; Philip M. Burgess and Raymond W. Lawton, "Indicators of International Behaviour : An Assessment of Events Data Research", *International Studies Series*, Beverly Hills, California, Sage Publications, 1972 ; Hamid Mowlana, "A Paradigm for Source Analysis in Events Data Research : Mass Media and the Problems of Validity", *International Interactions*, 2, 1975, pp. 33-44 ; and Robert Burrowes, Gary D. Hoggard, Russell J. Long, Hamid Mowlana, Sophia Peterson, Warren R. Phillips and Alvin Richman, "Events-Interaction Analysis : Selected Bibliography of Recent Research", American Political Science Association Annual Meeting, Chicago, September 1971.
8. For illustrations, see Unesco's series on *Reports and Papers on Mass Communication* :

"Transnational Communication and Mass Media Industries", No. 92, 1980 ; "Mass Media : Codes of Ethics and Councils", No. 86, 1979 ; "News Values and Principles of Cross-Cultural Communication", No. 85, 1979.
See also Jim Richstad and Michael H. Anderson (eds.), *Crisis in International News : Policies and Prospects*, New York, Columbia University Press, 1981 ; Oliver Boyd-Barrett, *The International News Agencies*. Beverly Hills, California, Sage Publications, 1980 ; Friedrich-Ebert-Stiftung, *Television News in a North-South Perspective*, Bonn, Federal Republic of Germany, 1981 ; and Thomas Szecsko, *Recent Studies (on Radio and Television) 1976-77*, Budapest, Mass Communication Research Centre, 1978.

9. For a discussion of extra-media data in flow of international news, see Karl Erik Rosengren, "International News : Methods, Data and Theory", *Journal of Peace Research*, 11:2, 1974, pp. 145-156 ; and Hamid Mowlana, "A Paradigm for Comparative Mass Media Analysis", in Heinz-Dietrich Fischer and John C. Merrill (eds.), *International and Intercultural Communication*, New York, Hastings, 1976, pp. 474-484. Mowlana's paradigm integrates the extra-media variables with intra-media variables as well as making a distinction between production and distribution of the message in the flow. Rosengren directly challenges the approach by Galtung and offers the extra-media approach as an alternative. For a follow-up and a specification of Rosengren's extra-media data notion, see his "Bias in News : Methods and Concepts", in *Mass Communication Review Yearbook I*, edited by Cleveland Wilhoit, Beverly Hills, California, Sage Publications, 1980, pp. 249-264.
10. Johan Galtung, "A Structural Theory of Imperialism", *op. cit.*, pp. 81-117.
11. Herb Addo, "Structural Bases of International Communication", *Peace Science Society*, 23, 1974, pp. 81-100.
12. Robert Buijtenhuijs and Rene Baesjou, "Center and Periphery in Two African Newspapers : Testing Some Hypotheses on Cultural Dominance", *Kroniek Van Africa*, 33:3, 1974, pp. 243-271.
13. Bruce McKenzie and Derek Overton, "International News Via Tasmanian/Australian News Media Outlets : An Analysis of Sources, Flow Biases, Weaknesses and Consequences". Paper for the ANZAAS Congress, Brisbane, Australia, May 1981. See also Jim Richstad and Tony Mnaemeka, "Information Regions : Context for International News Flow Research". Paper prepared for Association for Education in Journalism Convention, Boston, Mass., August 1980.
14. Fernando Reyes Matta, "The International Bedazzlement of Latin America", *op. cit.*, pp. 29-42.
15. Shelton A. Gunaratne, "Reporting the Third World in the 1970s : A Longitudinal Content Analysis of Two Australian Dailies", *Gazette*, 29, 1982, pp. 15-29.
16. Gehan Rachty, "Foreign News in Nine Arab Countries", *Communication and Development Review*, 2:2, Summer 1978, pp. 23-25.
17. Frank Kaplan, "The Plight of Foreign News in the U.S. Mass Media", *Gazette*, 25:4, 1979, pp. 233-243.
18. Andrew K. Semmel, "The Elite Press, The Global System, and Foreign News Attention", *International Interactions*, 3:4, 1977, pp. 317-128.
19. George Gerbner and George Marvanyi, "The Many Worlds of the World's Press", *op. cit.*, pp. 52-66.
20. Robert L. Stevenson and Richard R. Cole, "Foreign News and the 'New World Information Order Debate'", Foreign News in Selected Countries, Part II, International Communication Agency, U.S. Government, July 1980.
21. Johan Galtung and Mari H. Ruge, "The Structure of Foreign News...", *op. cit.*, pp. 64-91.
22. Barbara A. Salamore, "Reporting of External Behaviours in the World's Press : A Comparison of Regional Sources". Paper presented at the Annual Meeting of the International Studies Association, Washington, D.C.
23. Wilbur Schramm, "International News Wires and Third World News in Asia : A Preliminary Report", The Center of Communication Studies, Chinese University of Hong Kong, 1978.
24. Vernon M. Sparkes, "The Flow of News Between Canada and the United States", *Gazette*, 55:2, 1978, pp. 260-268.
25. Fernando Reyes Matta, "El Encandilamiento Informativo de America Latina", *La circulación de noticias en America Latina*, Mexico, Federación Latinoamericana de Periodistas, 1978, pp. 155-139.
26. See Peter Golding and Phillip Elliot, *Making the News*, London, Longman, 1979.
27. Wilbur Schramm and Erwin L. Atwood, *Circulation of News in the Third World..., op. cit.*
28. G. Cleveland Wilhoit and David Weaver, "Foreign News Coverage in Two U.S. Wire Services : An Update", *Journal of Communication*, 33:2, Spring 1983, pp. 132-147.
29. G. Cleveland Wilhoit and David Weaver, "Foreign News Coverage in Major U.S. Wire Services and Small Daily Newspapers". Paper read at the International Association for Mass Communication Research, 13th Scientific Conference, Paris, September 1982, p.16.
30. G. Cleveland Wilhoit and David Weaver, "Foreign News Coverage in Two U.S. Wire Services : An Update", p. 147. For their earlier study, see G. Cleveland Wilhoit and David Weaver, "Foreign News Coverage in Two U.S. Wire Services", *Journal of Communication*, 31:2, Spring 1981, pp. 55-63.
31. See monographs I, II and III on news agencies published by the International Commission for the Study of Communication Problems, Paris, Unesco, 1979-80 ; also, Oliver Boyd-Barrett, *The International News Agencies*, Beverly Hills, California, Sage Publications, 1980 ; and Sophia Peterson, "International News Selection by the Elite Press : A Case Study", *Public Opinion Quarterly*, 45:2, 1981, pp. 143-163. Also G.J. Robinson, *News Agencies and World News in Canada and the United States and Yugoslavia*, 1981.
32. Gertrude Joch Robinson, *News Agencies and World News in Canada, the United States and Yugoslavia : Methods and Data*, Fribourg, Switzerland, University Press of Fribourg, 1981, pp. 206-210.
33. *Ibid.* See also references to monographs published by the International Commission for the Study of Communication Problems, *Many Voices, One World*, Paris, Unesco, 1980, pp.297-298 ; Oliver Boyd-Barrett, *The International News Agencies, op. cit.*, and Friedrich-Ebert-Stiftung, *Report of the URTNA Study Mission 1979 for the Feasibility for TV News Exchange in the URTNA region*, Bonn, Friedrich-Ebert-Stiftung, 1979 ; and Friedrich-Ebert Stiftung, *Mass Media Manual : Television News in a North-South Perspective*; Bonn, Friedrich-Ebert-Stiftung, 1981. For reference to other regions of the world, see Hamid Mowlana (ed.), *International Flow of News : An Annotated Bibliography*, Paris, Unesco, 1985.
34. Cees J. Hamelink, *Cultural Autonomy in Global Communications*, New York, Longman, 1983, pp. 72-78.
35. For a summary of this report see Annabelle

Sreberny-Mohammadi, "The World of the News : The News of the World", in *New Structures of International Communication ? The Role of Research,* Main Papers from the IAMCR Caracas Conference (1980), Leicester, International Association for Mass Communication Research, 1982, pp. 183-193 ; for the complete version see IAMCR/ Unesco, "Foreign News in the Media".

36. Peter M. Clark and Hamid Mowlana, "Iran's Perception of Western Europe : A Study in National and Foreign Policy Articulation", *op. cit.*, p. 123.
37. Hamid Mowlana, "Mass Communication, Elites and National Systems in the Middle East", in *Der Anteil des Massenmedien bei der Herausbildung des Bewubtseins in der sich wandenden Welt* (Proceedings of the International Association for Mass Communication Scientific Conference), Leipzig, DDR, September 1974, Karl-Marx-Universität, pp. 55-71.
38. Hamid Mowlana, "Technology versus Tradition : Communication in the Iranian Revolution", *Journal of Communication*, 29:3 (Summer 1979), pp. 107-112. The study of the Iranian revolution and the flow of news and political messages between the West and Iran prior to the revolution underlined the importance of an appreciation of the total communication system in a given culture. In this article, Mowlana discusses the conflict between the official culture of the government, which he believed was dominated by the Western media systems, and the traditional culture of the masses rooted in the Iranian national and religious traditions.
39. Edward Said, *Covering Islam :How the Media and the Experts Determine How We See the Rest of the World*, New York, Pantheon Press, 1981. See also William Adams (ed.), *Television Coverage of the Middle East*, Norwood, N.J., Ablex Publishing, 1981.
40. Hamid Mowlana, "The Role of the Media in the U.S.-Iranian Conflict", paper presented at the conference on the Role of the Media in National and International Conflict, East-West Center, Honolulu, Hawaii, September 1-10, 1981.
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CHAPTER THREE

The World of Broadcasting: Broadcasting the World

The technology and methods of broadcasting constitute an important part of the international flow of information. In this respect, three areas of inquiry occupy a major position in international communication: television, international radio broadcasting, and the most recent technology and phenomenon in international relations, the direct broadcast satellite (DBS).

PERSPECTIVES IN TELEVISION FLOW

The early studies on the international flow of information were concerned with print media and news agencies, but it was not long before television was singled out by national planners as well as communication scholars as a primary area of importance. The rapid technological advances of this medium contributed to its growth and the degree of interest generated. For example, in 1950 only five countries had regular television services, but by the late 1970s, there were 400 million television receivers in 138 countries [1]. In addition, it is estimated that the number of television sets worldwide has increased at least ten per cent in the four years since the last statistics were published.

The character of international television flows may be viewed from two historical perspectives. The first is a review of the progression of scholarly research and inquiry conducted in the field, represented by the early work of Nordenstreng and Varis in a 1974 report prepared for Unesco which provided the first empirical documentation of world-wide flows of television programming [2]. Based on data compiled from questionnaires received from over 50 countries, covering topics such as general content and percentages of imported versus domestic programming, Nordenstreng and Varis were able to identify two predominant trends in global television programming: one-way flow from big exporters to the rest of the world and the predominance of entertainment programming. On the basis of average hours of television programming exported per year, the leading producers and distributors at that time were the United States (150,000 hours per year), the United Kingdom and France (both 20,000 hours per year) and the Federal Republic of Germany (6,000 hours per year) [3].

Nordenstreng and Varis were aware that the scope of their study was limited to clarifying general patterns of international flows of all kinds of television programming. This narrow scope precluded consideration of relevant issues such as ownership, historical analysis of flows, and in-depth investigation of the cultural, economic and political implications of one-way global television traffic. In spite of these limitations, their findings served as a springboard for a flurry of discussion and highlighted the urgency for further research in this area.

A second historical approach to the reviewing of global television flows is to examine the growth of television as it interfaces with the production and distribution of news within a nation. During the last ten years, especially between 1976 and 1983, a number of studies have been conducted on the significance of television news and other programmed material. Among these studies are those of Katz [4], Neuman [5] and Robinson [6], who have treated such subjects as Third World television programming, patterns of recall among television news viewers, and the larger question of comprehension. There have also been more specific studies dealing with images, impressions and stereotypes in the content of news programmes. Studies such as those of Adams, Sahin, Davis and John Robinson and others [7], as a whole portray the "world of TV news" as a self-contained, coherent area with its own internal logic and dynamics which tend to form social reality in specific ways.

Recent studies of television coverage of international affairs by three American networks show that, with the exception of the Middle East and Viet Nam, news coverage of the Third World is, at best, sparse. Most of the studies dealing with television news are crisis-oriented and deal mainly with the United States television coverage of the Third World. This is not only because the United States as a major power is involved in many of these world events, but also because television has become a major source of news and information for large segments of the American public, and data on television news are readily available in indices and abstracts.

The crucial question in analysis of the media in international affairs is not only speculative and normative - what the media *can* or *should* do - but also functional - how the media currently operate under certain structural conditions and in response to particular environmental factors. Some studies do address themselves to the structural conditions of television news but most of the analyses undertaken approach the entire question of news flow and news coverage by examining the pattern of the television coverage of certain international issues.

Two recent publications in the United States are of particular interest here. One deals with television coverage of the Middle East and analyses some of the most intensely reported news stories of the past decade: the Iranian hostage crisis, the Soviet involvement in Afghanistan, and Anwar Sadat's trip to Jerusalem [8]. The other presents thirteen issue-oriented and wide-ranging studies of television coverage of such topics as terrorism, the Third World, Viet Nam and Latin America [9]. The focus of these studies is the role of Western television coverage in the developing countries. For example, Adams examines controversies of television coverage of international affairs

in terms of thoroughness versus superficiality, United States versus global vantage, left versus right, and Hobbesian versus Panglossian (liberal model versus "new class" leftist views) [10]. Larson presents an overview of international affairs coverage on United States evening network news from 1972 to 1979. He shows the sparsity of the coverage and supports the conclusion of others that "many portions of the globe scarcely existed as far as viewers of United States network TV news were concerned." [11] Unfortunately, there is little coverage of Europe and such issues as the arms race and disarmament, and none of Eastern socialist countries, let alone the forgotten continent of Africa.

One of the studies conducted by Dahlgren suggests that three motifs have pervaded Third World coverage by the three television networks in the United States : social disorder, flawed development, and primitivism. Dahlgren reports the following [12] :

- According to the cumulative imagery which emerges from network news reports, disorder looms eternal in the Third World.
- This violence is of a very particular kind : it is overt, blatant and often irrational.
- The West stands for rationality, science over magic, purpose over activity, man over nature.
- Corruption in the Third World takes on more of a systematic quality ; a similar treatment characterizes human rights violations.
- Idealization of the primitive is implicit in much of the reporting, becoming relatively explicit only occasionally. When reports highlight manifestations of primitivism, they can be grouped under one of two sub-motifs : exoticism or barbarism.
- Reports of the Third World, like the other stories on TV news, offer the viewer a form of truth, the literal truth of the facts.

Studies in the United Kingdom, Sweden and several other Western countries over the past few years show that the world of television news, in its depiction of domestic and internal development, tends to be concerned with the needs and interests of the social classes and economic and political élites. Dahlgren notes this observation and adds that "though TV news' proximity to the political economic processes of the international arena are more remote compared with the domestic arena, its way of seeing reveals a hegemonic approach in characterizing social and political realities between countries." [13]

Attention has also been given, over the past few years, to the political economic processes of international television news and programmes. A number of international and regional workshops, reports and documents have discussed the flow of television news in a North-South perspective. For example, it has been observed that the problems connected with the Asian-Pacific area, in terms of television communication, are complicated by two factors : 1) the lack of terrestrial communication networks covering the whole or even part of the region which are capable of carrying television signals ; and 2) the high tariff rates for satellite usage. Satellite tariffs in the Asian-Pacific region as of August 1980 ranged from $ 600 in the case of New Zealand for the initial ten minutes to $ 2,000 for Pakistan. Rates in most of the other countries of the region fall between $ 640 and $ 1,000 for the first ten minutes [14].

There has also been a growing tendency towards the expansion of commercial television in several Western European countries, particularly in the United Kingdom and the Federal Republic of Germany. On the other hand, because of internal political change and communication policies adopted in some of the Third World countries, such as Iran and Nicaragua, commercial television and importation of foreign materials have been restricted in favour of public service and national development objectives.

International flow of television material

At the global level, television flow can be seen as the offspring of previously existing broadcasting and film flows. Nor surprisingly, the patterns of introduction and development of television in many nations are similar to those in the United States, where the infrastructure and resources of broadcasting and film were already in place to nurture the growth of television. This process is traced by Antola and Rogers in their study on television flows in Latin America. In this instance, Mexico plays a crucial role both as a regional producer of television programmes and as a gatekeeper for American programmes being distributed throughout Latin America, having gained its advantage in the late 1950s when dubbing in Cuba was no longer possible. Because Mexico possessed dubbing capability and a suitable infrastructure resulting from its film industry, its potential market and proximity to the United States provided the additional necessary ingredients for the development of a television industry. A trend was established whereby foreign television programming is broadcast within Latin America only after having first been purchased by Mexico [15]. More recently, dubbing studios have opened in Brazil and Peru, which, along with Argentina and Venezuela, now compete with Mexico for television programming in Latin America. Despite such competition, Mexico maintains its key position as a gatekeeper for television flow in Latin America.

It is enlightening to follow the process by which foreign television programmes are transferred to Latin America, as described by Rogers and Antola. American television producers exhibit pilot programmes at an annual two-week screening session in Los Angeles in May which is attended by those wishing to purchase programming for Latin American TV. When there are enough interested buyers for the American networks to cover costs and make a profit, the programmes are sent to Mexico for dubbing and distributed from there to those Latin American networks which have agreed to buy them [16].

Within other regions of the world, major producing nations are beginning to function in a gatekeeping role similar to that of Mexico. Lebanon and the Arab Republic of Egypt are important television centres in the Middle East, as is Japan for the Far East.

The most comprehensive summaries of international television flows are found in the original work of Nordenstreng and Varis (Varis and his associates are currently in the process of updating their previous study for Unesco), an update of available data by Lee [17], and a venture to map international television flow with a new methodology by the London-based International Institute of Communication (reported periodically in *Intermedia* magazine). On the basis of their work and additional literature reviewed, it can be said that little has changed in the past decade in the geographical distribution of studies on television flow. Most of the information on the subject is derived from research conducted in the United States and Western Europe on television flows in and out of those regions. While the number of studies done on television flows in Latin America has increased slightly, there is still a lamentable lack of material dealing with Eastern Europe, the Middle East, Africa and Asia (excluding the People's Republic of China and Japan). Canada, with its special concern for broadcast spillovers from the United States,

has taken greater strides towards making its voice heard by conducting its own research and attempting to clarify its communication policies.

In order to obtain a more precise view of both the direction and content of international television flow, a number of research projects have been undertaken at regional and national levels. Additional studies, such as Chapman's 1977 study on international television flows in Western Europe, have focused on tracking changes in the flow over time or on supplementing the knowledge obtained by the Nordenstreng and Varis report [18]. Based on his review of seven channels in Sweden, Italy, Finland and the United Kingdom, Chapman concludes that there seems to be little departure from the flow patterns described by Nordenstreng and Varis, but he provides even greater detail on the content and viewing patterns, such as the percentage of broadcast time allocated to imported programmes catalogued by the day and time of broadcast and records of monthly variations. Foreign programming was found to be concentrated at peak viewing hours on Mondays and on weekends. Particularly in Sweden, there is more foreign programming in the winter than in the summer. The United States is the primary programming supplier for Great Britain and Italy, although the latter also receives programmes from Great Britain and France. Sweden and Finland rely primarily on European sources for imported programming. While the imported programmes are mainly for entertainment purposes, the content of domestic programming is far more diversified.

Interfacing with the work of Chapman, Johnson's research, focusing specifically on Swedish television flows in 1977, reveals an average of 58 hours per week of domestic programming and 33 hours of imported programmes. Of the 44 countries whose programmes appear on Swedish television, those countries responsible for more than one hour a week were Great Britain, the United States, Finland, France, the Federal Republic of Germany, Italy, Norway and Denmark. Through careful recording of the subject matter of imported television shows, Johnson discovered most TV drama and documentaries came from British sources, most TV movies were American, light performances were produced by both the United States and the United Kingdom, and programmes addressing ethical issues were British, American, West German, Finnish and French in origin [19].

Johnson's findings on the sources of television programming containing sex and violence have serious implications for policy makers. The leading producers of the violent programmes imported in Sweden were the United States and the United Kingdom (33 and 30 per cent respectively), followed by France (10 per cent). The United Kingdom was the primary source of programming containing sexual material (46 per cent), with the United States (14 per cent) and Italy (12 per cent) as secondary suppliers.

Comparisons with this study and patterns observed in broadcasts by the BBC Channels One and Two in the United Kingdom during 1977 are available from a joint report prepared by Gould and Johnson [20]. In this study, it was ascertained that of the imported programmes appearing on the two British channels, there was 30 per cent more conflict content and 153 per cent more crime content than what is actually shown in Sweden. 90 per cent of the conflict and crime content on the two BBC channels was from American programme sources. On the other hand, seven times as much value projection was broadcast in Sweden via imports than in the United Kingdom. Additionally, during a six-week period of comparison, the BBC channels broadcast no programmes from Eastern Europe, while Sweden showed several hours from Finland, the USSR, Poland and Yugoslavia.

A distinct richness emerges from research efforts of this nature as detailed accounts of the direction of television flows are incorporated with content analysis. Yet even with this added insight, there remain numerous questions to be dealt with by decision-makers and researchers. As the research leads to interesting conclusions about international flow and expanding television activities provoke greater curiosity, the need for continued and more consistent research efforts becomes evident. Just one day of television viewing over five channels in Japan provided 323 programmes for categorization and study. Although nearly one-third of the violent content on Japanese television came from American programmes, this nevertheless represents a major decrease from ten years ago since only 2 per cent of all programmes viewed contained antiperson violent crime material [21].

The potential for dramatic swings in television scheduling and the increasing complexity involved in monitoring television flows suggest the difficulties faced by researchers attempting to reconstruct accurate and timely descriptions of global television flows [22]. Furthermore, increased awareness on the part of local and national decision-makers, such as in Latin America, is progressively bringing about a restructuring of television programming. Antola and Rogers confirm a general trend in Latin America to produce more and import less ; initial steps in this direction are being taken by Mexico, the long-time industry leader, followed by Venezuela, Brazil and Argentina [23]. After the development of television programming in Brazil from 1963 through 1977, Straubhaar notes that, despite an increase in the number of imported programmes in Brazil, the relative proportion of the audience has declined [24].

Among the most stimulating publications in recent years are Tomo Martelanc's study on international broadcasting and the series of Cultural Co-operation studies and experiences of "Three weeks of television : an international comparative study" sponsored by Unesco [25]. The growth of the intensity of the debate on a new world information and communication order, Unesco's efforts to encourage and stimulate co-operative multinational research projects and preliminary (although not comprehensive) findings of research reports such as the ones cited here, have provided sufficient stimulus for many national leaders to re-examine seriously past trends in the television policy-making process, and to look for appropriate alternatives.

Actors in television flow

Governments and national institutions frequently are the primary actors in television programme production, distribution and exchange because a majority of countries have government-owned and operated broadcasting facilities. However, the degree to which public systems are combined with commercial enterprises varies considerably as between the different nations of the world.

In a commercial situation, single organizations evolving over time and groups of organizations adjusting to the changing environment have expanded through horizontal and vertical integration as well as diversification of their portfolios so as to remain competitive actors in the television flow process. Pursuing the ramifications of this process in various industrial sectors, Fombrun and Astley discovered that previously unrelated organizations dealing in entertainment and information are uniting through a series of acquisitions and joint ventures [26]. For example, firms such as IBM, Western Union, AT & T and Hughes Aircraft, which have generally been associated with information technologies, are incorporating cable television, videocassette recorders, videotex and satellite transmissions into their packages of available services. These services

interface with the entertainment sector and it becomes increasingly difficult to make clear distinctions between sectors within the international telecommunications community.

Impact and effects of television flows

At the heart of the debate on international television flow lies the issue of the impact and effect on viewers around the world. It is in this area that values and priorities are most often considered in research efforts. In the most general sense, participants in this debate are aligned in three camps. One camp argues that television's impact is immense and totally pervasive, requiring immediate formulation of national media policies to cope effectively with advancing influences. A second group maintains that the lack of empirical data precludes verification of the degree and nature of television's impact, thereby necessitating an intensified research effort allowing policy-makers to base their decisions on accurate information. The third group asserts that national communication policies result in restrictions detrimental to the free flow of television programming and therefore claim that although there is presently an unequal flow, with time and fewer restrictions the process will become more balanced.

A primary cultural issue is the American model of commercial television programming, which, it is held, possibly leads to consumerism and cultural homogeneity. Many countries where television was launched as a medium for education have subsequently moved towards commercialization of their television systems. In addition, the link between cultural identity, language and political conflicts is an important element in the discussion devoted to linguistic effects. Although researchers such as Colin Cherry document an increase in the number of languages used by international broadcasters, recorded declines in programmes broadcast in minority languages in the United States and other countries elicit concern over possible homogenization of languages [27].

Research on the psychological effects of television has produced variable results. While Charles Osgood's development of the semantic differential isolates meanings which are universally understood, Holmes and Doob report that visual symbols are not always transferable from one culture to the next. An indication that television serves as a vehicle for escapist fantasy may be found in research by Greenberg and Colomina de Rivera, yet in a classroom setting, McMenamin found that a teacher's effectiveness is reduced when translated into the television image [28]. Different conditions and intervening variables appear to produce different results. This confusion of results highlights the need for more complete research in this field.

The way in which television programmes sustain outmoded stereotypes is examined in the contributions of Beltran, who analyses the effects of American programmes in Latin America, Gallagher, who assesses global images of women in the mass media, and others. Because children are seen as having special media needs and as being easily moulded by television messages, a number of scholars have taken issue with the impact of television on children and its possible policy implications. The works of Graber, Mayo, Beltran, Kader, Straubhaar *et al.* have, again, resulted in differing assessments of children's television programmes [29].

One of the most critical debates is that dealing with the impact of television violence on various segments of the viewing population, and the question of reality and television fantasies. Here, George Gernber's work on television and cultural indicators is most relevant [30]. Gerbner's study is unique and important because it goes far beyond familiar "children-and-violence" arguments and uses the research and data to explore wider and deeper ramifications. His conclusion, based on American television programming, is that heavy viewers of the prime-time programmes are receiving a grossly distorted picture of the real world, which they tend to accept more readily than reality itself. He also presents evidence that television violence induces heavy viewers to perceive their world as a more violent and dangerous place than it really is.

Some of Gerbner's findings are as follow :

- Male prime-time characters on American television outnumber females by three to one, and women are portrayed as weak, passive and submissive to powerful men.
- The elderly (people over 65) are grossly underrepresented in television programming.
- Television treatment of blacks is more one of image than of visibility.
- Heavy television viewers greatly overestimate the proportion of people in the United States employed as physicians, lawyers, athletes and entertainers.
- There is about ten times more crime on television than in real life.

Inherent in Gerbner's findings is the element of cause and effect or the "chicken-or-the-egg" proposition. Is it television that makes heavy viewers view the world the way they do, or do the viewers come from that segment of the population who, by virtue of their environment and socialization, regard the world that way to begin with ? Gerbner approaches the cause and effect questions through cross-sectional correlational analysis and samples of heavy television viewers stratified across all ages, income and education levels, and ethnic groups. In order to change the trend, Gerbner suggests active, participatory roles for the viewers in the overall television production and distribution process [31].

On a different note, the most recent summary of a portion of a Nordic project on women in television suggests that there are two mutually dependent causalities determining concepts of reality, and thus the concepts of women, rendered by television. They are : "a) the position of the media in society and the related managerial conditions ; and b) the national and international news structure (which is generally derived from the economic structure of the society in question, but which is administered through a set of professional journalistic criteria and methods of preference". This research states that "in many respects the women disagree with the existing principles of producing and editing - disagreements which would be of great impact even to the contents of the broadcasts if they were taken into account" [32].

Methodological questions regarding both flow and impact have also been of major interest in television research literature during the last five years. For example, one of the first things that becomes obvious when reviewing the literature on global television flow is the lack of consensus on the appropriate means by which one should study and measure that flow [33].

In the political arena, inquiry is directed towards the issues of sovereignty of the state, prior consent for foreign television broadcasts, and the role and extent of government control. Here, the nexus between the capacity to communicate and economic viability is evident. Once again, the importance of conducting additional research in order to provide national leaders with reliable information on which to base their policy decisions is stressed. Paradoxically, there is evidence that those groups with the resources to sponsor such

research are not committed to these efforts, while those who feel a need for additional information often lack the financial resources to obtain it.

Factors impeding or facilitating the flow

There are several factors which impede or facilitate the flow of television programmes from one country to another. Mayo refers to an insufficient infrastructure in Latin American countries as inhibiting reception and adaptation of programmes such as *Sesame Street*. On a more concrete level, this means a shortage of the capital necessary for providing the backup materials and services that keep a broadcasting system in operation as well as lack of trained technicians, script-writers, actors, translators, producers and other essential staff, appropriate facilities and interpersonal contacts. This combination of factors alone explains why so many developing countries find it easier to fill their broadcast days with canned American programmes, which were available at a significantly lower cost, rather than attempt to build their own viable production and distributions system.

By the same token, when communication and development goals are not clearly defined, many national leaders have joined the bandwagon praising Western technology in order to justify communications projects without carefully considering the purposes for which the technology is to be applied. A related factor is the rate at which innovations are diffused. The consequences of misjudgment are best illustrated by the Iranian revolution, where the modern communication system implemented by the Shah conflicted with the traditional communication networks of Iranian culture and value systems [34].

As previously pointed out, governments play an important role in the flow of television programming [35]. Some countries have implemented policies designed to gain greater local control over the production and distribution processes [36]. For example, Canada has stipulated that a minimum of 60 per cent of the programmes in a broadcast day must be Canadian in content and character.

Other relevant factors affecting the flow of television programming are competition, commercial motivation, ethnocentricism, language barriers and the degree of cultural similarity between the producing and receiving countries [37]. Proximity of nations, especially in the case of Europe, tends to increase television flows, be it as a consequence of broadcast spillovers or formal exchange systems such as Eurovision, even though different standards for television line systems present technical barriers.

The question is whether imported communication technologies ensure the transfer of the skills prerequisite to local production. It is not unusual to find countries in which the hardware for distribution of programmes has been set in place, while the means for production of software and programming have not been transferred. In those countries where local production systems are just getting off the ground, domestic television producers find themselves competing with slick foreign imports and Western established standards of "professionalism". If national communication policies are to be devised, the conflict of interest between conventional notions of media professionalism and the desire to gain control over the production end of television flows must be resolved.

Some common assumptions

Just as communication models vary, so do their supporting assumptions. It may be instructive to list some of the common assumptions found in the literature on television flow, keeping in mind that differing world views lead researchers to ask different questions and to reach divergent conclusions. Assumptions frequently made include the following :

1. Television is the most powerful medium and exposure assures impact.

2. The impact of television flow is especially powerful on women, children and populations of the least industrialized countries [38].

3. Uneven flow is bad and should be corrected through the formulation of national communication policies [39].

4. Uneven flow is temporary and will balance itself out over time [40].

5. Given the nature of the "product life cycle" of television transfers, a free flow of programmes is more desirable than the imposition of national communication regulations and policies.

6. The present global system of television flows is perpetrated by the dominant Western producers of television programmes (especially by the United States) in order to maintain the status quo [41].

7. The transfer of technology may be considered effective if the format and original objectives of a given programme are maintained, but the process can be taken over by local media personnel [42].

8. Neither the dominant Western model nor the socialist model of television infrastructures is sufficient to meet the communication needs of developing countries [43].

INTERNATIONAL RADIO BROADCASTING

Since its inauguration in the 1920s, radio broadcasting has been a rapidly expanding part of the flow of information, and international broadcasting in particular has become a significant area of focus. The increased importance of this channel is reflected in Unesco's 1980 report of a five-fold increase in shortwave transmissions over the preceeding 25 years. Additional data show that where there were 385 shortwave transmitters in 1950 and 1500 in 1979, there are, in 1983, approximately 2200 transmitters with greatly increased total power. "Voice of America", for example, claims that 104 million adults listen to its broadcasts at least once a week and the British Broadcasting Corporation estimates its audience at 75 million regular adult listeners [44].

In spite of the obvious significance of this medium in the international flow of information, little is known on a world-wide scale about the attention paid by external broadcasters to audience research. In much of the world, domestic broadcasters are no better informed about their audiences. The truth is that, as one writer suggests, "in some political contexts nobody really wants to know the facts that would be uncovered by audience research" [45]. In a system in which positive feedback is highly valued as contributing to self-preservation, negative feedback indicating that the broadcasts are off-target may be ignored or suppressed.

The research in radio broadcasting is imbalanced in other areas as well. Little attention has been given to the use of international broadcasting in the transportation industry - aviation, terrestrial and maritime - and to the commercial functions and stations. Additionally, there is very little known about radio broadcasting in most Third World regions, both of intra-regional broadcasting and of South to North flows. Clearly, there is a need to step up research efforts in the neglected areas of radio broadcasting as it relates to the international flow of information.

International broadcasting can be defined as the purposeful attempt on the part of stations in one country to reach listeners in other countries. It is communication crossing national boundaries through technological and telecommunication channels. The latter are enhanced by the introduction of the satellite, making possible super high frequency (SHF) transmissions which are more rapid, of higher quality, and more difficult to jam than other frequencies.

The flow has traditionally been from stations headquartered where policies and programming are created directly to the audience through relay stations located in foreign countries. There are, however, other types of cross-border flow. One example would be international transmitters to domestic broadcasters who use portions of the external service to supplement domestic programming. This type of flow appears to be decreasing.

Another type of flow in international broadcasting is in the form of monitoring services which function to collect and disseminate information of particular relevance to political decision-making and foreign policy objectives. It is estimated that this type of flow reaches larger audiences than can be reached by direct broadcasting.

There are two distinct patterns in the directions of international radio broadcast flow. The first is a vertical flow in which stations transmit to foreign audiences within and between East and West, and from North to South. Although there is some intraregional broadcasting within the South - or the Third World - there is no effective South-North flow.

The second distinct pattern is circular broadcasting in which beamed signals are intercepted and routed to alternate destinations. This is primarily used by monitoring broadcast services which provide information to policy and decision-makers.

Of prime importance in the patterns of flow is the geographical distribution of broadcast transmissions and receiving sets. In 1981, the United States, Western Europe, the Socialist nations and Latin America were the geographical regions with the greatest number of radio sets. In terms of hours broadcast per week, the list was essentially the same except that the People's Republic of China replaced Latin America in fourth position. The major broadcasting regions also produce the greatest number of multilingual services, with the Transworld broadcasting station providing programming in seventy different languages and dialects [46].

Actors and factors

There are three primary actors in the international flow of information through radio broadcasting : governmental actors and agencies ; international institutions ; and private organizations. The first, governmental actors and agencies, perform two roles : they sometimes function as regulators and gatekeepers of the flow as well as actually participating in international broadcasting to serve their "national interests".

International institutions play the same roles as governments except on different levels and in differing degrees. In addition to operating broadcast facilities to transmit news and educational and cultural programming, organizations such as the United Nations have passed resolutions pertaining to global broadcast flow. While not having the enforcement capability of governmental regulations, such resolutions do have an influence, however major or minor, on United Nations Member States and broadcasters.

The final category of major actors in international radio broadcasting is the private organization, which would include religious, unofficial political, commercial and educational organizations. This is the most diverse category of actors. The types and purposes of their broadcasts are highly varied, ranging from missionary programmes to language instruction and ideological propaganda to commercially sponsored entertainment.

The purpose of the programming is a factor which influences both content and flow of international broadcasts. A major purpose of broadcasting is to inform and influence the receiver, either politically, socially, culturally, or academically. Radio broadcasting is also used both as an instrument of "public diplomacy" and as an agent of psychological warfare [47]. For example, a 1981 study showed that Cuban international broadcasting covered diverse topics emphasizing news about Latin America and Africa in its North American broadcasts, while the United States' "Voice of America" broadcasts in Spanish dealt primarily with American domestic and foreign affairs [48]. Within cultural and educational broadcasting, language instruction is the most prominent type of programming, although cultural programming featuring classical music is also popular.

Another factor influencing international broadcasting is technical capacity, which includes not only the actual technical facilities for production and distribution, but also the ability to jam unwanted incoming signals. In addition, multilingual capability is a factor which, when combined with technical capacity, increases the size and diversity of the audience.

The financial capability of both broadcasters and receivers is a factor which determines the amount and nature of the flow that is produced and disseminated, as well as influencing its destination. For example, recently the BBC had to drop its services in three languages because of budgetary constraints. The high cost of maintaining correspondents abroad and of hiring personnel, frequently required to be citizens of the receiving nation, restricts and limits broadcast flow. The purchasing power of a specific audience is another factor in determining type, amount and feasibility of programming.

Geographic factors are related to the technical and financial factors in that they are typically a part of situations in which the latter are considerations. For example, distance and natural barriers, such as mountains or atmospheric interference, directly influence not only the technical equipment in terms of restricting its utility, but also increase the cost of maintaining or securing equipment which can overcome geographical barriers. Similar examples can be cited where the geographical barrier is not a natural phenomenon but rather a human one, such as a widely dispersed audience.

Governmental relations and regulations constitute another factor influencing radio broadcast flow. On the technical level, the global flow is regulated to some extent by international and intergovernmental institutions and organizations such as the International Telecommunications Union (ITU) and regional broadcasting organizations. Moreover, national regulations and diplomatic relationships have a direct influence on cross-border flows both in the content and the process aspects of flow.

Further factors influencing broadcast flow include world events and crises as well as the element of time. For example, there is a world-wide tendency for broadcasters to respond to crisis by establishing services or securing positions in the crisis area. Although this in itself directly affects content, volume and direction of flow, the time involved in setting up such facilities and the time-span of crisis activities has an equivalent influence.

Finally, human and ideological factors must be examined for their direct and indirect effects on broadcast flow. The ideological orientation of the producers is a definite factor in determining content, but a more subtle influence is ideological affinity or opposition within the sphere of operation. An even more subtle influence is the human aspect of production and distri-

bution represented by technicians, service staff and translators. Even though the ideology may be dictated by ownership, the human channels of flow production and distribution will influence the message content. A similar effect is sometimes even produced by administrative policy, through the continual minor decisions made by staff and technicians every day in the context of personal attitudes [49].

The impact of international radio broadcasting on receivers is an area of research which has largely been neglected, as was indicated previously by broadcasters' relative disinterest in audience research. Some work has been done, however, on what could be labelled "indicators" or impact. Jamming efforts usually indicate that the flow is having some kind of an effect not considered desirable from the point of view of regulatory institutions - be they political or social. Mail received by broadcasters is often regarded as an indicator of impact although Bernard Bumpus of the BBC warns against drawing conclusions about audience size or reaction to programming based on listener letters [50]. Mail is, however, the primary source of feedback in some instances, especially where there is no audience survey.

In the area of regional broadcasting, infrastructure and technical facilities have been the focus of research. Audience studies have been carried out mostly in Europe, North America, the Soviet Union and, to some extent, in the Middle East. Although the structure and technique of broadcasting is a line of inquiry in this area, little data is available on minor interregional transmission among Third World countries, and South to North broadcasting. There is significant imbalance in the research in this area and much of the data on regional and international radio broadcasting is prepared and distributed by the major stations which have the financial resources to conduct research to serve their own purposes.

Study of religious broadcasting is another research area which has recently received attention. Although religious stations are seldom included in listings of major broadcasters, Browne states that at least four such stations - Radio Vatican, FEBC, HCJB and Transworld - figure among the top twenty international broadcasters in terms of hours broadcast per week [51]. They are also leaders in multilingual broadcasting, since Transworld broadcasts in seventy languages and Radio Vatican in thirty. In several Third World countries, specifically in Asia, religious broadcasting has continued to expand. Christian groups have received permission to operate broadcasting stations and are the major religious broadcasters in Indonesia, Australia, the Republic of Korea, Taiwan and the Philippines. There are also major differences in methods and approaches within the groups of religious broadcasters. For example, whereas Christian broadcast stations are operated by religious organizations, Islamic broadcast stations generally operate as a part of the national broadcasting authority within the Islamic societies.

A further area of research in international radio broadcasting is audience analysis. Until recently, most of the audience research on international broadcasting was conducted on Eastern Europe and Soviet Union listeners while little research was done on American audiences. A recent study conducted on feedback in international broadcasting by Collins, Gibson and Mowlana showed that the methodologies most usually employed by international broadcast stations around the world are audience surveys, listener letter analysis and listener diaries. It was shown that listener letter analysis was more likely to be employed outside of Europe and North America, with the resultant research findings being used more frequently to guide radio programming. Similarly, domestic broadcasters were more interested in estimates of audience size while external broadcasters were concerned with audience perception of the station and its credibility [52].

A final category of radio flow research is that of programming and its international flow, which occurs either by direct broadcast or by programme exchange among stations. The latter is regulated and co-ordinated by international organizations and controlled to some extent by the receiving station, which links international broadcasting to domestic services. Programming has been extensively researched, with a focus on content, sender and the socio-economic status of the receiver.

DIRECT BROADCASTING BY SATELLITE

In the last decade there has been considerable evolution in the major issues involved in international communication. One of the primary elements underlying this change has been the phenomenal technological innovations that have transversed various cultural, social, political, economic and legal norms. Most recently, the issue of new communication technology, specifically in the form of direct broadcast satellites, has become increasingly prominent in discussions pertaining to international communication.

This technique has been used on an experimental basis in several countries around the world and is now being used in the United States by television networks and cable companies. However, it is the possible use of direct broadcasting internationally and across national boundaries, especially without the prior consent of the receivers, that has stimulated the most controversy and debate in the international community. In 1982, the United Nations' General Assembly endorsed a resolution emphasizing the importance of negotiating an international agreement on the subject, and outlined a set of principles for such an accord.

At issue is a new technique that relays satellite telecasts directly to residences without going through ground receiving stations. Communication industry experts in the United States and Europe estimate that within ten years the special receiving equipment that is needed will be inexpensive enough for such broadcasts to reach mass audiences around the world. The main impetus behind the debate is the conviction in the world community that unregulated DBS poses serious threats to national sovereignty. Specifically, there are three categories of perceived threats : propaganda, commercial domination and cultural intrusion.

On the other hand, there are undeniable benefits to be derived from this technology. Broadcast satellites offer a cheaper and more flexible means of communicating messages over long distances. This technology also has the potential to open up contact with previously inaccessible areas. Because of the dangers and benefits inherent in this technology, DBS has sparked a heated international debate. The issue is complicated by the fact that direct broadcasting involves the use of outer space - an area that has never been adequately regulated. For this reason, these debates are perceived by many nations to be important in establishing precedents in international law. One of the issues at stake is the future of the administration of outer space. However, it is quite clear that the competing principles of national sovereignty and the free flow of information are at the heart of the issue.

Direct broadcast satellites are not an essentially new form of communication ; rather, they are the result of the development of the communications satellite. The direct broadcast satellite is a more powerful and versatile communications satellite that transmits a signal "directly" from the satellite to an inexpensive receiver. There are two types of direct broadcast satellite receiving systems : 1) reception of the trans-

missions into community receivers for rebroadcasting; and 2) direct reception by private sets via small antennae without the aid of a community or ground transmitter. It is this latter type that has caused much of the controversy since the nature of the former makes it more conducive to control and regulation.

The ITU Radio Regulations revised by the World Administrative Radio Conference for Space Telecommunications (WARC-ST) define a broadcasting-satellite service as "A radiocommunication service in which signals transmitted or retransmitted by space stations are intended for direct reception by the general public." [53] The ITU radio regulations specify that the term "direct reception" shall encompass both individual and community reception. Individual reception, on the one hand, is defined as "the reception of emissions from a space station in the broadcasting-satellite service by simple domestic installations and in particular those possessing small antennae". Community reception, on the other hand, is defined as "the reception of emissions from a space station in the broadcasting-satellite service by receiving equipment, which in some cases may be complex and have antennae larger than those used for individual reception, and intended for use by a group of the general public at one location or through a distribution system covering a limited area" [54]. A distinction must also be made within the category of community reception as to whether the reception is direct or indirect. A direct community reception is one in which there is a transmission of programme from point A through the satellite to point B and point B is the site of a rebroadcasting facility that can immediately transmit the signal as a broadcast to individual television sets. If, at point B, the programme signal is relayed further through terrestrial facilities to other cities from which the programme is broadcast for general reception, the distribution is termed indirect community reception.

There are several problems related to the use of this type of satellite reception system. One of the major problems in the past has been economic in nature. In the beginning of satellite communication, terrestrial receiving stations required such large expenditures, from hundreds to thousands to millions of dollars, that the idea of having direct home reception was unrealistic. On economic grounds, direct broadcasting by satellite was not considered a viable alternative to the already existing terrestrial transmission networks, especially in the developed countries. It was not until the last decade, through technological innovations in satellite design, satellite receivers and reception antennae, that the cost of such a system was reduced. For example, within a four-year period from 1975 to 1979, the price for a single commercial receiving station dropped dramatically from $ 125,000 to less than $ 4,000 [55].

Furthermore, it had been thought that reception by large terrestrial stations with subsequent distribution by cable would be a more economical arrangement than direct reception by a large number of viewers using small terrestrial receiving antennae. In fact, it has been estimated that this latter arrangement offers the lowest per viewer cost. For example, given a country with 16,000,000 homes, each with individual satellite reception, the distribution cost would be approximately 50 cents ($ 0.50) per home per annum. This is considerably less expensive than a terrestrial network system. The cost of an antenna, modulator and receiver, assuming a production of 1,000,000 units, would be between $ 250 and $ 500 [56].

A study in Italy has shown that to serve 98 per cent of the population would require the construction of 45 UHF main terrestrial transmitters with 770 UHF relay stations. For a second programme network with a coverage of 96 per cent, the required construction would be 48 UHF main transmitters and 396 UHF relay stations. Assuming that the network would have a life span of twenty years, the overall distribution cost would be approximately $ 12.75 million per annum. A comparable satellite system, however, would only cost between six and eight million dollars [57].

In the future, the cost of satellite broadcasting will diminish even more than it has in the past two decades. When the space shuttle system eventually becomes available, it will be possible to use heavier satellites carrying more and more transponders. At present, in the event of a breakdown, it is generally impossible to intervene and the satellite, although it may still contain many elements in perfect operational condition, has to be abandoned. Flights for maintenance or repair, whether manned or automatic, have been too costly in relation to the cost of the satellite itself. With the development of the space shuttle in the near future, it will be possible to do maintenance and repairs in space and consequently it will be feasible to use components in the satellite with less expensive reliabilities [58]. The economic impact will be enormous because the capital outlay will be amortized over a lifetime much longer than that of the existing satellites.

It is realistic to assume that in the near future there may be enormous space stations assembled in low orbit using units transported separately which, once the station is assembled, can be transferred into a geosynchronous orbit [59]. This could revolutionize broadcast satellite systems, since it would decrease the cost of space systems, open the possibility of more powerful satellites, and further lower the costs of receiving antennae by reducing their diameter size requirements.

Apart from the promises for the future, a second major problem that needs to be considered is the problem of orbital or spectrum spacing. Although physically there is ample space in the synchronous orbit for a very large number of satellites, there is a limitation on the proximity of their orbits. As a result of the increased number of communication satellites, a problem related to orbital spacing is "band capacity". The capacity of a band of frequencies is the maximum quantity of information which that band can convey. That is to say, it is the "maximum number of television programmes which can be broadcast from a stationary orbit and received with satisfactory quality in a given area".

A third major technical problem is that of "spillover". This problem arises when the transmission signal overextends or crosses the boundaries of one country into another. This causes numerous legal, social and political problems that will be discussed later. It is doubtful that future technology can totally eliminate this problem. However, continuous technological improvements have gradually reduced the degree of spillover in some areas. Through the use of "spot" or "directional" beams, the area that a satellite signal covers has been drastically reduced.

Satellites offer several advantages over more conventional methods of communication. Because the satellites are located high above the earth, they cover a much larger distance than do traditional broadcast systems. In addition, there is no corresponding increase in cost for greater distances.

A second advantage is that satellites are much more flexible than terrestrial systems which rely on an infrastructure of cables and wires. In the first place, they do not require costly physical networking in order to establish communication ties. In the second place, satellite beams can be easily redirected to other areas whereas physical infrastructure is rigid.

A third advantage of satellite communication systems is their greater capacity for carrying messages. Satellites can be used to transmit large numbers of any kind of electronic signal [60].

In the industrialized countries, ever increasing

needs for regional and local television programmes will take over terrestrial UHF or VHF bands and national programmes will have to find another new medium, or higher frequency bands. Thus, satellite broadcasting is also of interest in these countries as it provides a means of replacing or transmitting additional national programmes by making it possible for terrestrial networks to be used for new services.

The fear of many nations is that this technology will result in the unwanted reception of foreign programming. This outside programming can occur in two forms : they may be unintentional or intentional spillover.

The first, as its name implies, refers to the accidental transmission of television signals between countries at border areas. This is often unavoidable because broadcast patterns cannot be made to conform with the configuration of international boundaries. This type of spillover occurs with any form of broadcasting. Progress is being made in attempting to avoid spillover problems by altering the shape of the broadcast pattern.

Underlying all these issues is the widespread conviction that the form and content of the television system in a country is an aspect of national sovereignty. The traditional notions of sovereignty, which have been expressed in geographic or spatial terms, are being redefined in terms of concern about informational sovereignty. This concept reflects a recognition that all countries, through national political decision-making, have worked out their own arrangements for domestic television to fit their own special needs and situations. In most countries, including those of Europe, broadcasting has always been under government control. Either the national system has been directly operated by the state or by a state-owned corporation, or it has been strictly regulated by the state. For these countries, a system of international control represents no great conceptual extension.

One concern for the broadcasting of television programming across national boundaries has been the indication that most of this flow has been one-way. The introduction of direct broadcasting satellites to already existing international radio services and current television exports would seem to indicate an increasing volume of this one-way flow, rather than any equitable cross-national exchange of information. A related concern is the balance of the flow. The principle of free flow of information would be more palatable if it were not unidirectional or nearly so. For those less developed countries, who are media and information poor in the Western sense, each external piece of information takes on great significance.

The fear expressed by many countries of being subjected to unwanted political messages through DBS is not without precedent. The point at which the free flow of information principle seriously violates national sovereignty and becomes offensive propaganda is, of course, subject to widely divergent interpretations. Most countries with the technical capacity have been engaging in international radio broadcasting for years. This is particularly true where the sending and receiving nations are politically antagonistic. To date, the only alternative that nations have had to accepting these unwanted messages has been to jam the incoming signals. This measure is expensive and not entirely effective. Furthermore, this wastes the limited number of broadcasting frequencies.

There have been claims that nations would not be defenseless against unwanted direct television broadcasts. In addition to jamming, some writers have cited options such as forbidding illegal viewing, adapting sets to prevent DBS reception, or even shooting down offending satellites [61]. For obvious reasons, none of these alternatives is terribly viable. The only real option would be jamming, and it is even more difficult and expensive to interfere with television signals than radio signals.

DBS and national development

The chief advantage offered by DBS over more conventional methods of television broadcasting is that the former method does not require elaborate ground intrastructure to be developed before an area can receive television transmission. For this reason, DBS may have more promise for those areas where extensive terrestrial broadcasting facilities do not exist. For the countries having remote, sparsely populated areas where it is difficult and expensive to set up terrestrial broadcasting, the technology of DBS can be rather beneficial. Among current users of this type of broadcasting are Alaska, Northern Canada, Siberia and the Japanese Islands.

It is projected that the use of direct broadcasting by satellite would greatly reduce the cost and time required to establish television networks. Formerly isolated areas could be connected by simply setting up community receivers. By establishing visual contact with formerly inaccessible regions, national leaders are provided with opportunities to promote national integration and development.

The problem of national integration is particularly acute in countries with regions and populations that are made remote by geographical, cultural and linguistic barriers. By surmounting these barriers through the application of satellite communication systems, many national governments hope to unify culturally diverse and regionally scattered peoples under a single set of national symbols and values. In addition to promoting national integration, it is hypothesized that an all-pervasive national communication system would afford national planners the opportunity to promote education and national planning [62].

The first true direct broadcast satellite was the Applications Technology Satellite (ATS-F) which was launched by the National Aeronautics and Space Administration (NASA) in May 1974, and positioned in geo-synchronous orbit over the west coast of South America. This experimental satellite was intended to demonstrate major advances in communication and spacecraft technology. It initially pioneered delivery via space of advanced educational and health services to many people in the United States in small towns in remote areas of the Rocky Mountains, Appalachia and Alaska, where reception by ground facilities had been difficult and costly.

At the conclusion of the year of availability for the HET experiment, ATS-F was moved to 35° east longitude for the Satellite Instructional Television Experiment (SITE) for India from 1975 through 1976. This experiment took place under an agreement concluded in 1969 between the Indian Department of Atomic Energy and NASA. The primary objective of the SITE experiment was for television to be utilized in the developmental process as an instrument of social change and national cohesion. It was designed to cater for both in-school and out-of-school education, with priority to primary schooling. In addition, it was intended to be used to disseminate information about specific aspects of science, technology, agriculture, health and family planning.

The educational programmes achieved very high ratings in the Indian villages, while entertainment programmes, drama, folk music and folk dancing were less popular. The education was simplified and suited to the very limited experience and knowledge of the village people [63]. The experiment, more than anything else, was a hardware success story [64].

A second experimental direct broadcast system is being conducted in Canada and is known as the Com-

munication Technology Satellite (CTS). The CTS experiment has demonstrated how a satellite system of this magnitude and scope can be used in conjunction with a well-developed terrestrial communication system, such as exists in southeastern Canada. It has provided valuable information on the utility of a high-powered communications satellite. Not only have the Northern communities of Canada benefited from CTS, but also the underdeveloped remote areas of Canada and the United States as well. Moreover, the CTS experiment demonstrated reception capabilities by compact, simple and potentially low-priced receivers representative of the home-entertainment type of equipment which would be used for receiving television signals at home directly from a satellite.

In the United States, the Satellite Television Corporation (STC), a subsidiary of the Communications Satellite Corporation (COMSAT), has been granted a satellite construction permit for the nation's first direct satellite-to-home broadcasting service. Both Comsat and New York-based United Satellite Communications Inc. (USCI) are already competing for a share of a market that does not yet exist but has a great deal of commercial potential [65].

The United States and Canada are not the only countries experimenting and proposing to establish direct broadcast systems [66]. Western European nations have already developed large-scale, fixed plans for direct-to-home television and radio broadcast services, with fully operational satellite systems anticipated in the next three or four years. European broadcast administrators are turning to satellite distribution out of desperation rather than choice, in an attempt to solve increasing problems they already face in their efforts to finance, produce and distribute domestic programming. The real question no longer seems to be whether the direct broadcast satellite system should be made fully operational, but whether European audiences will remain patient and content during the next decade until the satellite system is completed. In reality, it might be contended that if there are problems in the proposed European direct broadcast satellite system, they do not lie so much within the system itself as within the media structures in which it must operate. The failure of these structures to adapt to change in the past makes the need for creative telecommunication policy formulation in Western Europe more pressing than ever.

The evolution of the issue of direct broadcast satellites illustrates changes in the nature of the debate on questions of international communication since 1970. These changes are in essence only reflections of larger alterations in the international geopolitical structure. More specifically, this is evidenced by the changes within the United Nations system, in the international economic order and in the way traditional identities of national interests decompose and new ones emerge. From the beginning of the debate on direct broadcast satellites, many countries have been reluctant to accept this new communication technology without some form of control over its application. The political values these countries attach to such concepts as cultural integrity and national identity have taken precedence over what the United States and several other countries would consider more pragmatic values. It is clear that some of the more salient, technical, legal, institutional and political problems of this new technology are just beginning to emerge.

FOOTNOTES

Chapter Three

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CHAPTER FOUR

The Information Warehouses and Transborder Data Flow

An important trend in international economic activities during the past decade has been the increasing role of data communication. Information-intensive industries such as banking, insurance, airlines, multinational businesses and news agencies are heavily dependent on the instantaneous availability and dissemination of data around the world. In order to transmit vital management information, manufacturing and trading firms operating in more than one country must facilitate reliable lines of data communication between the parent organization and its subsidiaries. Governments also rely on data links via satellite and cable for military, diplomatic and technical communication and decision-making.

These types of international communication, commonly known as transborder data flow, were made possible by the development of computer communication systems, linking sophisticated computers in one country to affiliated computers in other countries, and through them to remote terminals. Providing for cost-effective and speedy data processing, storage and retrieval at virtually any location, the merger of computer and telecommunications technologies is, in fact, the precondition for the emergence of transborder data flow [1].

In recent years, many nations have become concerned with the growing international network of computers facilitating the storage, transmission, manipulation and retrieval of enormous amounts of information. This information ranges from personal data on private citizens to financial information and data on scientific and technical processes. The number of industries involved in such activities is rapidly growing.

In short, the computerized supply of financial and commercial information has become a major and growing source of profit. For example, Telerate, a New York company that provides financial information to many commercial institutions, increased revenues eleven-fold between 1978 and 1983, and is reported by the *Financial Times* of London to be installing its screen terminals in the United States at the rate of nearly 2000 a month. At the same time, "Britain's Reuter, its older and much larger rival in the transatlantic business information battle", reported "record annual profits of $ 54 million in 1982, with 32,000 terminals installed and ambitious plans for expansion" [2].

The same report indicates that the total revenue from on-line data-base services alone in Europe will increase from $ 300 million in 1982 to $ 896 million in 1987, with financial services nearly tripling to $ 453 million. There are no accurate statistics on the total amount of such transactions world-wide, but it is estimated that the lucrative transborder data flow industry is a multi-billion dollar enterprise.

The United States leads the way in the field of communication and computer technology and American producers of equipment and software dominate the world market. In 1981, the United States was responsible for 80 per cent of worldwide transmission and processing of data [3].

Clearly, at this point, there are many nations without the technology necessary to build their own computer systems. An important question for these countries is whether it would be in their interest to subscribe to an international data network in which they will clearly play a client role.

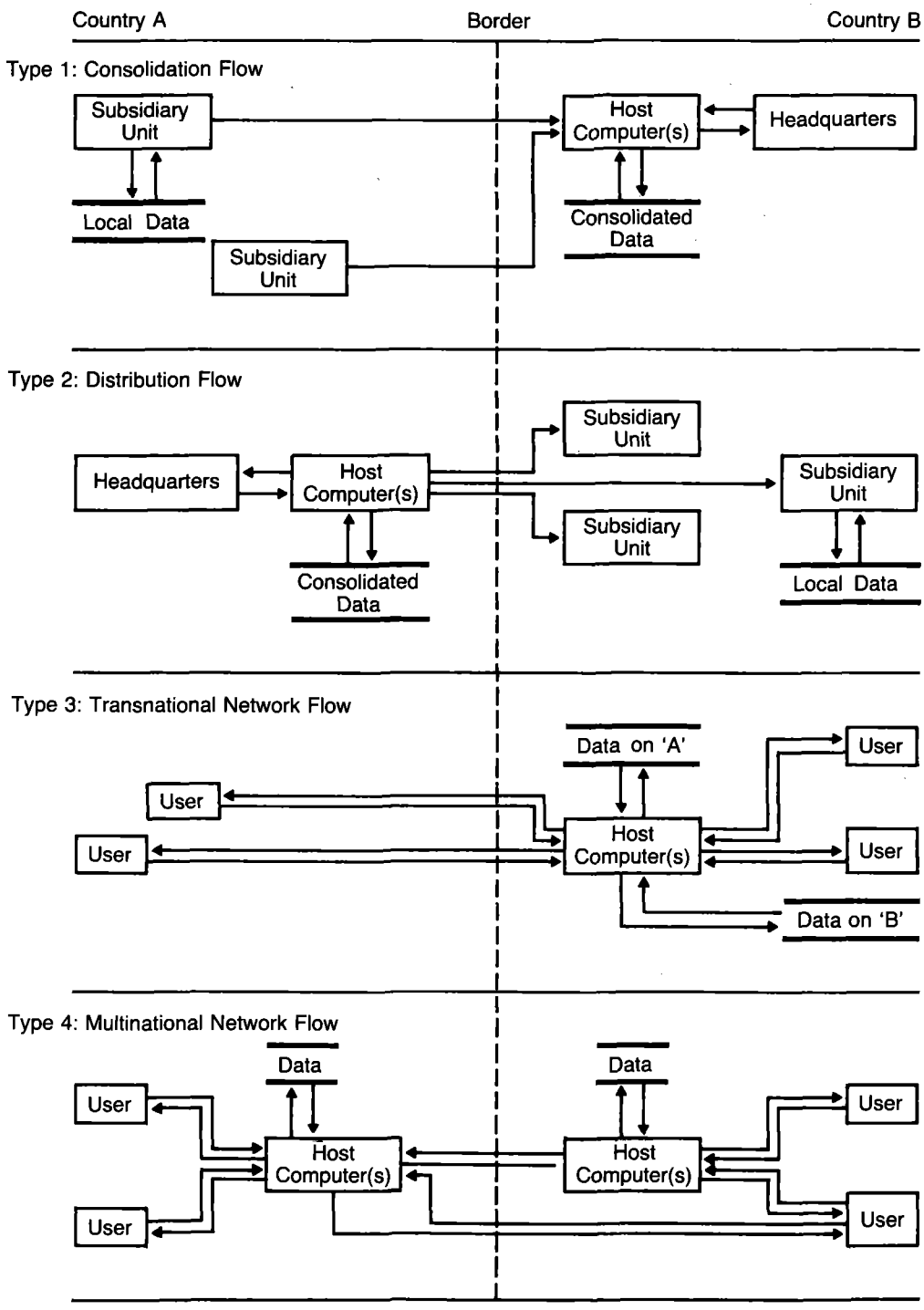
Opinion is divided on this issue. On the one hand, it is argued that information networks offer less developed countries cheaper and more effective access to the latest scientific and technical know-how from the developed countries [4]. Others claim that Third World countries find themselves in dependency relationships, suggesting that the information that is transferred to the Third World is often "ill-suited to the resources, needs and climates of the developing world" [5]. For example, Francophone Africa has much of its information on credit and insurance stored in French computers. As a result, "a computer-poor country depends on a dominating, computer-rich neighbour even for vital information about itself" [6]. This is paralleled by an earlier observation that in the process of technology transfer and know-how, "ninety-eight percent of the scientific and technological research at present is being undertaken in the advanced industrial states - drawn on their own experience. Only one per cent of the research is directed at the special problems of developing countries" [7].

Specifically, transborder data flows are defined as the transfer of digitally encoded units of information for processing, storage or retrieval across national boundaries. To qualify as transborder data flow, the technical process must involve : 1) transmission ; 2) storage ; and 3) processing. Traditional telephone and telegraph technology provides transmission, but offers neither storage nor processing. Storage of data opens convenient access to large data bases, and processing allows manipulation of data in various forms and orders. This definition excludes transborder data flows resulting from media products, such as news broadcasts, television programming and conventional telecommunication services [8].

These technical distinctions are important, as they relate to the roots of problems peculiar to transborder data flows. For example, laws affecting personally identifiable data did not appear until the development of technologies involving data processing and storage. In addition, transborder data flows are normally of a proprietary nature and are based on contractual relationships between parties. Thus, electronic media products which involve mass diffusion are not considered as part of transborder data flow.

FIGURE 8

Patterns of Transborder Data Flow Movements



Source: Eric J. Novotny, 'Transborder Data Flow Regulations: Technical Issues of Legal Concern', *Computer/Law Journal,* 3:2, Winter 1981, p. 111.

It is important to understand the nature of transborder data flow in the context of its participants, content, patterns and direction. In order to assure that this new innovation is used to benefit man in his global environment, we must first of all examine the various issues surrounding transborder data flow, including the implications for communication policies, and then determine the direction of future research.

Actors and participants in transborder data flow

The major actors in the flow of data across national boundaries are as follows: states, intergovernmental and nongovernmental organizations such as private communication carriers, data processing service bureaux, multinational corporations and transnational associations [9]. Depending on their particular interests in transborder data flow, these participants may promote or restrict the flow of information, with widely varying strategies and methods for maximizing interests. It is precisely this complex of conflicting interests that makes it so difficult to achieve widespread policy agreement on transborder data flow [10].

States are the most significant actors in transborder data flow. They are heavy users of international computer communication systems and own, operate and manage domestic communication networks that send and receive international data traffic. In the United States, computer communication systems are operated largely either in-house by private organizations, or by data processing service bureaux for private customers. In other nations where communication services are state-operated, data communications are provided through facilities of the Post, Telegraph and Telephone (PTT) authorities.

Intergovernmental organizations are a second set of significant actors in transborder data flows. Although their actual use of computer communication is quite limited, these organizations provide an arena for both regulating data communication technologies and for debating and resolving conflicts about the transnational flow of data. The International Telecommunications Union (ITU), a specialized agency of the United Nations, performs planning, standard-setting and co-ordinating functions for international communication facilities ranging from telephone and telegraph to broadcasting and data communication. Although it operates no communication facility, administrative conferences held under ITU sponsorship have considerable authority over such practices as the allocation of radio spectrum frequencies.

The International Telecommunications Satellite Organization (INTELSAT) operates its own system of communications satellites. INTELSAT membership currently stands at 104 countries, each owning an investment share in the system proportional to its use of the satellites.

Other international organizations which take an active role in transborder data flow include the Organization for Economic Cooperation and Development (OECD), the Council of Europe and the Intergovernmental Bureau of Informatics (IBI). These organizations are specifically involved in the issues and controversy surrounding this burgeoning new field.

In addition to governmental actors which sometimes own and operate communication facilities, there are a number of private communication carriers and international data network organizations. International record carriers such as RCA Global Communications, ITT World Communications, and Western Union International jointly own and operate transnational communication links with American Telephone and Telegraph (AT&T) and state-owned PTTs. International data networks such as SWIFT (interbank transfer system) and SITA (airline networks in Europe) provide customized communication services to a specific group of subscribers.

Another type of nongovernmental actor in transborder data flow is the data processing service bureau. As a consolidation of specialized communication carriers providing data transmission and processing, these organizations offer international computing services directly to a wide variety of users in any state that has transmission capabilities and permission to access the network.

Multinational corporations purchase and use large amounts of data services, and also rely on internal international data transmission for management purposes. Information-intensive organizations such as banks, credit firms and commercial airlines are the heaviest users of external services, while manufacturing firms must internally transmit and consolidate vast amounts of data for corporate decision-making. Some corporations use high-speed data communication for international currency speculation.

A final set of nongovernmental actors includes national and transnational associations such as the US National Endowment of Science and the Smithsonian Institution in Washington. These organizations produce and disseminate scientific or bibliographic data through international computer communication networks.

Types of transborder data flow

The use of transnational computer communication systems is largely determined by a variety of needs for a given actor. The content, patterns and directions of transborder data flow reflect the specific tasks assigned to each data communication according to the diversity of the actor's needs.

Eric Novotny has identified four types of data flow content [11]. *Operational data* consist of transborder data flow supporting organizational decisions or sustaining certain administrative functions. Multinational corporations, for example, use such information to co-ordinate geographically dispersed business functions.

Financial transaction data represent the information resulting in credits, debits and transfers of money that are distinct from operational data containing financial information. While the unrestricted flow of financial data permits convenient financial arrangement, it also makes it difficult for governments to control currency speculation.

Personally identifiable data contain information relating to credit and medical histories, criminal records, employment and travel reservations, or simply names and identification numbers. Personally identifiable data may also appear in operational or financial transaction data.

Scientific and technical data include experimental results, surveys, environmental or meteorological measurements, and economic statistics. Bibliographic data bases and software to process raw data are also made available to the international scientific community through computer-communication systems.

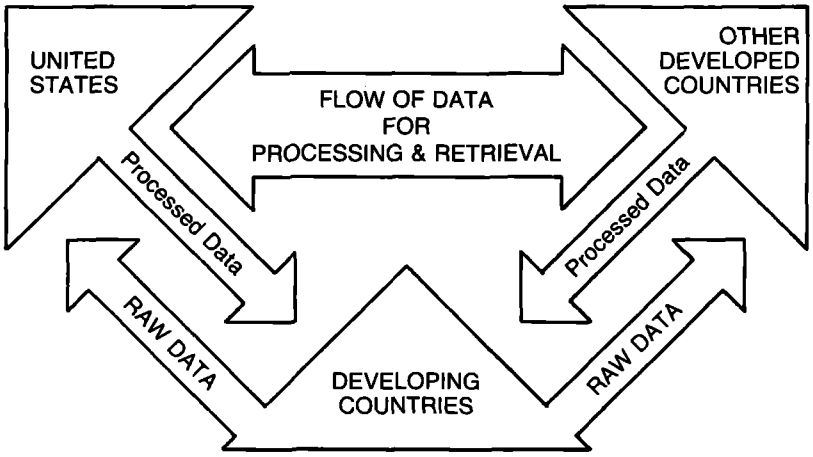
As shown in Figure 8, patterns of transborder data flow movements also fall into four generic types [12]. *Consolidation flow* describes a simple subsidiary relationship in which a subsidiary entity in country A transfers information on a one-way basis to a headquarters user in country B. The headquarters consolidates such data from a number of subsidiaries.

Distribution flow occurs when a centralized entity distributes data to several subsidiary entities. Applications of this type of flow include updates to local data bases, orders and financial reports, and similar instructions or information transmitted to subsidiaries.

Transnational network flow commonly involves transborder processing such as a service bureau arrange-

FIGURE 9

Directions of Transborder Data Flows



Source: Rein Turn, ed., *Transborder Data Flows: Concerns in Privacy Protection and Free Flow of Information*, Vol. 1, Report of the AFIPS Panel on Transborder Data Flows, Washington, D.C., American Federation of Information Processing Societies, 1979, p. 5.

ment in which subsidiaries in one country use host computer facilities in another. Two-way traffic occurs since the main purpose of accessing the host is to use its data bases.

Multinational network flow is a more complicated pattern in which data flows are characterized by multiple-user, multiple-host interactions. Information and processing can be centralized, distributed, or both. Large data service bureaux or time-sharing networks typically operate in this manner.

In this process, a more important consideration is whether a particular type of data flow arrangement poses legal compliance problems. Generally, regulatory conditions are influenced greatly by the directions of transmission, the geographic location of processing and storage functions, and, most importantly, the location of the user.

Although there have been few attempts to measure the aggregate volume and direction of transborder data flows, heavy concentration of satellite and submarine cable communications in the North Atlantic area and between the United States and Japan indicates the predominance of transborder data flow within the industrialized West. Yet, even within this area there are disparities. Canada, France and Sweden are especially concerned that they are too dependent on the United States for the supply of data processing products and services, and feel that much valuable information is being deposited in the United States without an equal flow in the reverse direction [13].

This directional pattern is further reinforced by the uneven distribution of computer communication technologies among nations. The limited data processing capacity available in "computer-poor" countries, many of which are located in the Third World, makes it necessary for them to export raw data for processing and to re-import the processed data. As data flows out to be processed, with it flow revenues and, consequently, business and jobs in the information industry.

As Figure 9 indicates, this cycle in international data flow is analogous to cycles in other trade areas where industrially less developed countries export raw materials to industrialized countries for processing and then purchase back the more costly finished products. Noticeably lacking is the exchange of data among developing countries. In the absence of effective communication to integrate and represent the interests of the Third World, their dependency relationships with the industrialized world are exacerbated.

Major issues

The issues and controversies in transborder data flow, although widely ranging and seemingly unrelated, reflect the general context of conflicting interests among actors and participants in international computer communication. In one of the early studies on transborder data flow, Gotlieb, Dalfen and Katz in 1974 suggested that the issues of computer communication should be viewed in the light of the "tension between the conflicting state interests in protecting, conserving and controlling information on the one hand, and of importing, exporting and exchanging ideas on the other - both in pursuit of state goals and in support of national policies" [14].

This perspective was shared by Novotny in 1980 :

> Competition between the exclusive interests of information control and the inclusive interests of unrestricted transfer of information across national boundaries is the taproot of the controversy. Inclusive interests include principles, practices and policies grouped under the general term "free flow of information". These policies promote

increased sharing, use, enjoyment and exchange of transborder data flows. Principles, practices and policies that represent exclusive interests are grouped under the term "sovereignty over information" and promote controlled use, restricted access, conservation, denial and decreased transfers of information. [15]

In the process of balancing the competing benefits of promoting and restricting the flow of information, transborder data flow encounters a variety of problems. The first issue to emerge from transborder data flow activities was the protection of personal privacy: the rights of individuals regarding the collection, storage, dissemination and use of information about them. When the development of computer communication technologies in the early 1970s made it possible to store a large amount of personal information in foreign data bases, subject to the statutes of the host nation, a number of countries began to realize the need for laws and policies to preserve the privacy of their citizens.

While regulations vary from nation to nation, most countries follow the principles of privacy protection contained in the Code of Fair Information Practices [16]:

1. **Openness.** There must be no secret personal data record-keeping systems.
2. **Individual Access.** There must be a way for individuals to find out what personal data are on record about them and how the data are used.
3. **Individual Participation.** There must be a way for individuals to correct or amend personal data about themselves.
4. **Collection.** There must be limits on the kind of personal data that organizations may collect and the method employed.
5. **Use.** There must be a way for individuals to prevent the use of their personal data for purposes other than those for which they were collected.
6. **Disclosure.** There must be limits on the external disclosure of personal data that record-keeping organizations may make.
7. **Information Management.** All record-keeping organizations that create, maintain or use records or personal data must implement data management policies.
8. **Accountability.** Record keeping organizations must be accountable for their operations regarding personal data.

Privacy protection and fair information laws, however, are not implemented by all states. Most of the concern about computer-processed personal information has arisen in the democracies of the North Atlantic area. Most other states do not have political traditions or economies that require the legal arrangements for computer-processed personal data.

To complicate matters further, the privacy rights of an individual in one country may be incompatible with those in another nation to which personal data is exported. The potential legal problems and conflicts arising from the different levels of privacy protection world-wide have prompted several international bodies to establish standards. In 1980, the OECD "Guidelines Governing the Protection of Privacy and Transborder Data Flows of Personal Data" were adopted by 18 of the 24 members governments [17]. In the same year, the Council of Europe adopted the "Convention for the Protection of Individuals with Regard to Automatic Processing of Personal Data" [18]. While the OECD Guidelines are voluntary and intended to provide an interim standard without creating unjustified obstacles to transborder data flow, the Council of Europe Convention seeks to enforce common principles of fair information practices among its members. The United States, judging that transborder data flow problems and resulting policy positions are in an early stage of development not warranting binding agreements which are potentially disruptive of economic interactions, has been critical of the Council of Europe Convention [19].

Another issue in transborder data flow is the question of national sovereignty, which arises when vital information affecting national decision-making is processed and stored in foreign data bases. National sovereignty, defined as a country's ability to influence the direction of its political, economic and sociocultural changes, may be severely impaired if knowledge about the full range of alternatives open to a given country in a given situation is restricted because of limited access to relevant information or an underdeveloped capacity to apply the necessary technology [20]. Sudden interruption of critical data inflow by computer breakdown, natural disaster, political pressure, or the outflow of sensitive data for processing in "data havens" (countries with lax or no data protection laws) could expose a country to foreign manipulation.

Prompted by fears of vulnerability, many states are leaning towards more pronounced restriction of transborder data flow. A study by the Canadian government concluded that "the government should act immediately to regulate transborder data flows to ensure that we do not lose control of information vital to the maintenance of national sovereignty" [21].

Perhaps the most significant impact of computer communication technology on national sovereignty is the transformation of the concept of sovereignty as expressed in geographical terms to information sovereignty [22]. As the role of information in management expands, it is increasingly recognized as a resource over which a state must exercise control. Transborder data flow, however, has been an elusive problem for states. It has been suggested that nations measure political sovereignty by control over resources, including information. Unregulated transborder data flow diminishes this sovereignty.

Yet when it comes to the regulation of internal information flows, states do assert power. In the name of national security, governmental authorities reserve broad powers to engage in interception of telecommunications and monitoring of automated data.

A nation's sovereignty is threatened not only by other nations, but by multinational corporations, probably the most powerful non-state actors involved in transborder data flow. A primary threat is in the context of international currency speculation. Empowered with a computerized global banking system, multinational corporations are capable of by-passing national monetary policy. A study by the French government reported that nations no longer control the international cash flow and credit distributed through specialized networks. They concluded that it was impossible to implement "a coherent financial policy" because worldwide electronic currency transfer makes exchange systems "volatile" [23].

The continuous development of new technologies is likely to intensify the threats to national sovereignty and the corresponding reactions of states.

Another major issue in the recent debate over the economics of transborder data flow is the growing belief that information is a commodity which should be taxed and regulated as it crosses national boundaries. In order to protect the domestic information industries and markets from foreign penetration, a number of countries have erected economic barriers including tariffs, discriminatory pricing, inconsistent technical standards, monitoring of information, excessive government regulation, and restriction of entry into markets.

France, in order to impose a duty on information flows, has proposed a system for their classification according to retail value [24]. Tymshare, an American computer firm, estimated that the cost of subscribing to a Japanese public communication service is about ten times more than using the fixed-cost, dedicated telephone line [25].

Governments also deter the flow of information by non-tariff barriers such as regulations requiring registration of data bases (Sweden), processing of data within the host country (Federal Republic of Germany), purchase of domestic computer and communications equipment (Brazil) and limiting the use of private lines (Japan) [26]. Many business leaders are concerned about the economic impact of privacy data protection statutes that risk disclosure of proprietary information to an unwarranted third party, as well as the possible protectionist motives which underlie the passage of such laws [27].

United States government and businesses perceive these barriers to transborder data flow as serious threats which affect not only the operation of individual enterprises, but the efficiency and growth of entire industries such as banking. Canadian banking regulations, for example, require banks to process and maintain copies in Canada of all data pertaining to Canadian customers, thus compelling foreign firms to establish unnecessary data processing facilities within that country [28]. As competition intensifies among the information industries, these kinds of problems in transborder data flow are likely to be debated in terms of international trade.

The impact of data flow

The impact of transborder data flow is not limited to the small circle of Western industrialized states. To the extent that information is a basis of power, access to information and ability to utilize it can give some nations political, economic and social advantages over others. Third World nations fear that underdeveloped computer technology and lack of access to the international data market will block their participation in the growing information-based world economy, and perpetuate their dependence on the developed world.

As a report by the UN Centre on Transnational Corporations (UNCTC) points out, transborder data flow presents the enormous potential for both assisting and hindering the Third World development process [29]. Providing instant access to a diverse pool of up-to-date knowledge, transborder data flow may give developing countries more information on alternatives and contribute to a more efficient international allocation of resources which, in turn, will accelerate productivity and economic growth. On the other hand, the current imbalance in the international data market and the corresponding levels of computer technologies indicate that transborder data flow has reinforced the international division of labour whereby Third World nations supply raw materials (data) to the developed nations and receive processed goods (data) in return.

Capital-intensive, sophisticated technologies such as computers and telecommunications tend to characterize the multinational corporate system, and deepen the dependence of the Third World on hardware, software, training and administration supplied by the system.

It is within this context that several international fora began to reflect Third World concerns for a more equitable distribution of data and technologies. In 1978, the Intergovernmental Bureau of Informatics (IBI) co-sponsored with Unesco an Intergovernmental Conference on Strategies and Policies in Information (SPIN), where developing nations discussed methods of decreasing their dependence on the United States and Europe for data processing, communication services and products [30]. In 1980, IBI hosted a Conference on Transborder Data Flow Policies which initiated International Working Parties to conduct research on topics such as data protection, national sovereignty and the economic impacts of transborder data flows.

Increasingly at issue in these fora is the assumption that the free flow of data across national boundaries is beneficial to all. Schiller has noted that the free flow of information has been and is a "myth". There are "selectors and controllers" who "shift and shape the messages that circulate in society" [31]. The fear and frustration of Third World nations are exacerbated by multinational corporations which now select and control large segments of world data flows.

At a 1982 Conference on New Technologies and the New International Information Order, Cuban delegates called for an alternative order in the international flow of information. They advocated rejection of free flow on behalf of establishing "autonomous, co-ordinated national communication policies, articulated to educational and cultural sectors ..." [32] With the current economic and political situations surrounding transborder data flow, however, Third World nations are likely to follow a different path where they will strike a balance between total acceptance and total rejection of the free flow doctrine.

The increasing realization of the critical role of computer communication technologies in economic and social development has prompted several industrialized and developing nations to prepare comprehensive strategies for the utilization of information resources and industries. Since transborder data flow involves a variety of economic and political issues, national communication policies are likely to reflect each country's view of the international flow of information.

The direction of research

While transborder data flow issues have grown over the last decade from initial concern over privacy protection to concern for national sovereignty and trade, the literature on data flow has also grown substantially in volume and scope. The relatively large number of policy-oriented studies suggests that inquiry into the nature of transborder data flow originated in states searching for appropriate measures to incorporate this new communication activity in national planning for economic and social development.

The current controversies concerning transborder data flow can be attributed largely to the inability of the current international legal regime to accommodate changes resulting from the rapid development of computer communication technology. The concept of national sovereignty can no longer be considered in geographic terms alone. Information is increasingly viewed as a commodity that can be bought, sold and taxed. Conventional means of privacy protection are challenged by the capability of computers to process and store large amounts of data at any location. The concept of copyright is undergoing a fundamental change because of the ability of computers to write, revise, edit and modify programmes and texts without generating paper copies.

In the light of these developments, there are several possible areas of future research. First, there is a pressing need for the formulation of an international legal infrastructure. Although the proponents of "free flow" fear that international agreements will result in more, rather than less, restriction on transborder data flow, they admit the necessity for multilateral agreements to facilitate international information trade.

While developing and implementing international agreements, it is important to establish the current

status and future direction of information technologies. Most American researchers argue that premature decisions creating binding agreements would hinder future technological development and economic activities. They believe that the world would be best served by "fluid conflict rules" and "a broad framework for resolving difficulties that arise from the diversity of national rules and regulations" [33].

On the other hand, European and Third World nations believe that computer communication technologies have reached the stage where they should be controlled by states to protect their interests. In order to regulate the economic aspect of transborder data flow, it has been suggested that the General Agreement on Tariffs and Trade (GATT) be applied. Some believe the GATT could serve as a "flexible multinational forum that can broaden its mandate to accommodate new trade issues, including international data flows" [34].

While a report by the United Nations considers this relatively undefined legal environment as the "favourable preconditions for a co-operative approach"[35], others express scepticism. However, it is clear that any formulation of international legal infrastructure is likely to occur as an attempt to balance the conflicting needs and demands of states.

A second research concern mandates the empirical examination of the content of transborder data flow and resultant impacts. Owing to the proprietary nature of data flowing across national boundaries, it is difficult to identify precisely what data are flowing and with what effect. The vast majority of data flow is private and beyond public scrutiny. Yet, a study conducted by the Japanese government in 1982 indicates that empirical analysis of transborder data flow is not impossible. The report, prepared by Japan's Ministry of Post and Telecommunications, measured the quantity of data flow in and out of Japan, classifying flows by industry (i.e. trading firms, banking and air transport) [36]. This type of research is increasingly important in order to verify the generally observed characteristics of transborder data flow.

There is additional research interest in the impact of transborder data flow on the Third World. The UNCTC has been particularly active in monitoring transborder data flow issues from this perspective. In a report to the Secretariat, the UNCTC identified an effort to determine how transborder data flow "could be used by host countries to assist them in negotiating advantageous contracts and agreements on the whole range of their interactions with developed countries in general and transnational corporations in particular".

Subsequently, the UNCTC launched a country case study project for which Brazil and Japan recently submitted reports [37]. Although the United States prefers to pursue the debate over transborder data flows in fora more representative of developed countries such as the OECD, it has agreed to participate in the UNCTC project.

In the larger context of the international flow of information, transborder data flow represents a wide range of issues yet to be explored. As the rapid development of new technologies continues to transform traditional economic and political perceptions, fundamental changes in the structure of global communication are expected. Scholars of transborder data flow will play an important and challenging role in instituting these changes.

FOOTNOTES

Chapter Four

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CHAPTER FIVE

The Quintessential International Activity: Planetary Resource Information Flow

As the new horizon of communication technology expands, all sides speak about the potential benefits of new innovations for man if used according to particular prescriptions. The most enthusiastic supporters see technological advances as harbingers of a new age of increasing and equitable development of mankind. Others see these advances as the new means by which the rich will become richer at the expense of the poor if their application is not carefully directed at a change in the status quo.

Nowhere have these positions been more clearly expressed than in the area of remote sensing. As defined by the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS), remote sensing is "a system of methods for identifying the nature and/or determining the conditions of objects on the Earth's surface, and of phenomena on, below or above it, by means of observations from airborne or spaceborne platforms" (UN Document A/AC.105/98, 20 January 1972). Thus, the term "remote sensing" refers not only to sophisticated satellite sensing activities such as Landsat, but also to conventional aerial photography operations. Although this definition includes other satellite systems (i.e. meteorological satellites and Seasats), the most controversial system remains the United States Landsat system. The ability of these satellites to sense and "photograph" countries from a sunsynchronous orbit of 705 km without the knowledge or permission of the countries being sensed, combined with the enormous amount of information produced on natural resources, has fueled the ongoing debate over issues such as national security and national sovereignty.

The technology of remote sensing by artificial earth satellites has potential value in a number of areas. In fact, to many, the benefits of remote sensing are overwhelming. By repetitively providing synoptic imagery of the Earth's surface, remote sensing can be helpful in such fields as resource management, land-use analysis, water-quality study, disaster relief, crop predictions and protection of the environment.

The actors and the participants

As in the area of direct broadcasting satellite technology, the United States with its Landsat programme is in the dominant position in this area, although the Soviet Union has, in recent years, made significant advances. As early as the 1970s, remote sensing became an issue for debate within the United Nations' Outer Space Committee. The earlier proposal by France and the Soviet Union had mentioned the sovereignty of the state over not only its resources, but the information regarding those resources. The proposal emphasized the principle that a sensing state should have the "prior consent" of the sensed state before transmitting remote sensing data to a third state, based on the assumption that remote sensing was not the exploration of outer space, but the exploration of the Earth from outer space [1].

Advocates of strict regulations over remote sensing support their position with Article III of the Outer Space Treaty, which establishes the obligation of states to perform activities in the exploration and use of outer space in accordance with international law, including the United Nations Charter. In 1974, Brazil co-sponsored with Argentina an even stricter proposal for remote sensing regulation than that supported by the Soviet Union and France. Not only did the proposed treaty claim that information about natural resources should be included as part of a state's sovereign rights, but it also "would prohibit any remote sensing activity relating to natural resources under national jurisdiction without prior consent" [2].

The United States was strongly opposed to both the French/Soviet and Brazilian/Argentine draft treaties, indicating that "free and open dissemination of data derived from remote sensing has no legal basis" [3]. The United States was not opposed, however, to the institution of a mild set of guidelines. In a working paper submitted by the Canadians in 1976, an effort was made to find a middle ground between those who supported "free and open dissemination" of all data, and those who called for strict regulations to be applied to dissemination for economic and political reasons. The question of how to establish some sort of international body to co-ordinate and oversee work in remote sensing also received attention at several meetings of the UNCOPUOS. Although the debate on this matter continued throughout the 1970s, consensus has been reached on a number of principles. It was agreed that remote sensing should be carried out in the following manner :

1. for the benefit and in the interest of all countries ;
2. in accordance with international law ;
3. to promote international co-operation and maximize the availability of benefits ;
4. to prevent phenomena detrimental to the natural environment of the Earth ;
5. by states which provide technical assistance to other interested states ;
6. with the United Nations playing a useful role in co-ordination of remote sensing activities ;
7. with information indicating an impending natural disaster being made available to affected states as soon as possible ;

8. without using data intentionally to the detriment of other states.

It is safe to say that as the technology advances, efforts to establish legal principles and to facilitate co-operation in this area will continue throughout the 1980s. It is also probable that the interest of commercial enterprises in the West (especially in the Federal Republic of Germany, Japan and the United States) in operating their own remote sensing satellite will cause increased concern in the Third World.

With the launching of Landsat D on 16 July 1982, the capability of the United States to transmit high resolution images to its ground receiving stations has increased significantly thanks to the addition of a new thematic mapper (TP) to the multispectral scanner (MSS) already in use in Landsats 1, 2 and 3. The new system is designed to accept 300 earth scenes a day with each scene covering 13,255 square miles of land area. Scenes from the MSS sensor contain 32 million picture elements, or pixels. Those from the TM contain 300 million pixels. Under ideal conditions, the MSS sends 200 scenes a day and the TM sends 100 scenes a day through the ground system. Every portion of the Earth, with the exception of the polar areas, undergoes this scrutiny every 16 days through the scanning of successive swaths on each orbit, each measuring 115 miles wide.

The space shuttle comprises part of the United States remote sensing equipment. Its second test flight in November 1981 clearly demonstrated the shuttle's ability to collect remote sensing data on a world-wide basis for earth-related research [4].

The importance of Landsat imagery lies in its varied applications. These applications include : agricultural production ; rangeland management ; forest management ; water resources management ; geologic survey and mineral and petroleum exploration ; cartography ; land use (urban and regional) planning ; demography ; environmental protection ; marine, resources, oceanography and coastal engineering ; disaster warning and assessment ; and desertification. These diverse applications are made possible by Landsat's ability to detect sediment patterns in coastal waters, heat stress in crops indicating disease, rock structures that indicate mineral or oil deposits, as well as detailed surface imagery. The SIR-A flight in November 1981 was successful in identifying an ancient river system under the Sahara desert using radar images which exposed features as deep as 16 feet below the arid sand [5].

There are eleven ground stations currently operating outside the United States receiving Landsat data directly from the relay satellite. These stations are owned by Argentina, Australia, Brazil, Canada, India, Indonesia, Italy, Japan, South Africa, Sweden and Thailand. In addition to these countries, many other nations have made use of the information, which is available on the open market through the EROS Space Center in Sioux Falls, South Dakota. These nations generally either buy the imagery outright, or in conjunction with development aid through the World Bank or USAID.

For example, the government of Upper Volta, working with the World Bank, is using Landsat data to identify areas which can support nomadic tribesmen migrating southward because of drought conditions. A Regional Remote Sensing Centre has been set up in Ouagadougou under the authority of a management committee composed of the eleven member countries : Benin, Cameroon, Ghana, Guinea, Ivory Coast, Mali, Mauritania, Niger, Senegal, Sierra Leone and Upper Volta. In 1981, the centre had already trained 90 participants in remote sensing data interpretation.

Other nations have also had access to and made use of remote sensing information. The EROS Data Center has sold imagery to 127 countries. Thailand has proposed regional usage of the data generated by its ground station in addition to current domestic uses. Sixteen countries of distinct geographical territories are completely covered and six more are partially covered. In conjunction with the ASEAN countries, Thailand could serve the entire area [6]. This proposal is in keeping with NASA's original intention of expanding earth station coverage. Countries with ground stations are encouraged to develop their own markets for the imagery to defray some of the operational costs.

Foreign use of Landsat imagery constituted only 33 per cent of all data sold in 1981, and 25 per cent of all data in 1982. One of the largest domestic users is the United States government.

The Department of Defense has relied heavily on Landsat imagery in the last two years to compensate for the failure of its own sophisticated weather satellite system. Of two military weather satellites now in polar orbit, "one is spinning uselessly out of control". The primary instrument on the second satellite has failed. "A third Air Force weather satellite was destroyed when its launching rocket failed." [7] During the Falklands war, Landsat provided the only high-quality satellite data available. Since United States spy satellites primarily focus on the Soviet Union, they do not range to the South, or are too high in space when passing over Southern areas.

In private application, the United States Commerce Department's NOAA satellite data on sea temperatures, ice and wind conditions will be transmitted via radio facsimile to Alaskan king crab fishermen aboard their boats [8].

There is no comprehensive listing of the actual users of remote sensing data. Apparently, Landsat data is stored haphazardly on various computer tapes interspersed with tapes of aircraft photography and other information. According to officials, a request for a list of users filed a couple of years ago was turned down by the Department of Interior, which decided that it violated the Privacy Act.

There is no readily available information on Soviet remote sensing efforts. The socialist countries in Europe do have their own system of satellites : Intercosmos. For the first time, in 1976, it was indicated that some of the Intercosmos satellites were capable of remote sensing. This ability had already been attributed to Soviet Soyuz and Salyut spacecraft [9].

Remote sensing imagery is primarily generated by these two systems currently in operation, but several countries have plans for entering the market in the coming years. The primary future contender in the marketplace will be the French SPOT system, expected to be launched in 1984. Other future actors in the remote sensing area include the Germans, who have contracted through the European Space Agency (ESA) for a remote sensing device to be carried as part of the space shuttle payload.

The Japanese are developing their own MOS-1 (Marine Observation Satellite-1), the first of a planned series of land and marine observation satellites. Japan plans to launch the MOS-1 in 1986, and the readout and processing of sensor data will be done at the earth observation centre where Landsat readout and processing currently occurs. The Japanese Earth Resources Satellite-1 (JERS-1) is also being developed by Japan primarily for purposes of geological mapping and resource evaluation [10].

Issues and factors in the flow

The issues involved in remote sensing are numerous. In the economic sphere, the transition of remote sensing from an experimental project by NASA to an exploitable market commodity under the auspices of the

United States Commerce Department illustrates the rapidly changing context in which this resource is viewed. The recent transfer of the operational system to the Commerce Department's National Oceanic and Atmospheric Administration (NOAA), and COMSAT's recent bid for takeover of the system complete with the weather satellites, have resulted in a state of flux which makes it difficult to pinpoint exactly who is responsible for what services and information.

The economic facts of the Landsat system are somewhat obscure because of the rapidly changing situation at NOAA. According to a study conducted by Matrics Inc. of Atlanta, Georgia, the world-wide market for satellite-related remote sensing services, equipment and data is expected to reach $ 400 million a year by 1990. The study showed that global hardware procurement is expected to grow from the current annual level of $ 45 million to $ 150 million by 1990, and data services from the current $ 38 million to more than $ 150 million annually [11].

Although the general consensus is that there is not at present a market which would make commercialization of the Landsat system economically feasible, the study indicates that the field could be extremely lucrative. Indeed, American Science and Technology of Bethesda, Maryland is currently trying to acquire the capital to build and launch a set of custom-designed remote sensing satellites by early 1986 to feed the anticipated demand for satellite data. As mentioned previously, COMSAT has offered $ 350 million to take over the present Landsat operation and weather satellites. Frederick Henderson of Geosat, a co-operative venture of large private corporations that use Landsat data, states that "the technology is way ahead of its applications" [12]. Henderson speculates that the market will eventually split into two separate fields: the operation of the satellites themselves, and the "value-added" interpretation of the data for customers like oil companies and agricultural firms.

Landsat data sales have steadily climbed since fiscal year 1978 when the EROS Data Center reported an income of $ 1,976,068. In fiscal year 1982, sales reached $ 2,941,279. A similar increase is evident in the imagery sales figures: $ 1,441,368 in 1978, and $ 1,691,119 in 1982. In 1982, 36 per cent of the total sales were to industry for a total dollar amount of $ 451,700.

However, these figures do not tell the whole story. It has been suggested that industry generally tries to obscure its sales through third parties such as consulting firms or co-operatives like Geosat. Mineral and petroleum companies will further try to cover up their interests by "over-buying" (buying imagery in three or four different states to distract any observers from their true interest in a small five square mile area). State and local government purchases are also obscured by buying from academic institutions. The institutions, in turn, further muddle the picture by replicating what they have bought and swapping with other institutions through interchanges. The official breakdown by the EROS Data Center for 1982 is: 25 per cent to the United States government, 7 per cent to state and local governments, 6 per cent to academic institutions, 1 per cent to individuals, 25 per cent to users outside the United States and 36 per cent to industry.

Another economic consideration is the cost to other countries of constructing and maintaining ground stations. It takes between $ 4 million and $ 7 million to build the station, and $ 1 million and $ 2 million annually for its operation. There is a further $ 600,000 United States government charge for data access. Thus, although the United States position on remote sensing advocates free dissemination of this information, its cost often determines a nation's ability to participate in data use.

An additional cost is for interpretation fees. Landsat offers would-be users (foreign governments or private companies) interpretation assistance for a fee ranging from $ 1,000 to $ 3,000 per frame. The United States government is the prime user of this service, but 30 per cent of the other users are from private industry, oil and mineral exploration firms. In spite of the high fees, Landsat imagery remains one of the most cost-effective means of obtaining this type of information. Satellite image analysis costs only about 16c per square mile, as opposed to aircraft film interpretation which is about $ 1.30 per square mile [13]. Although these figures may have changed somewhat because of recent price revisions, the comparison with aircraft film is still appropriate.

The institutional and political factors in remote sensing involve primarily the United States government. The shift of operations from NASA to the National Oceanic and Atmospheric Administration (NOAA) in the Department of Commerce has introduced a new philosophy regarding the nature of the programme: that it should at least break even, or perhaps show a profit. Admittedly, the Landsat programme was initially designed on an experimental basis, which made it difficult for NASA to keep up with the proliferation of ground stations and demand for imagery. The emphasis in NASA was on innovation and further refinement of the existing system, rather than data production on a regular basis. The latest discussion of privatization of the system reflects acknowledgement of this weakness, but merely proposes government subsidization of a private corporation, rather than a government agency, through a guaranteed market for the data for six to ten years. In addition, the United States Commerce Secretary Malcolm Baldrige's 14 April 1983 testimony before the House of Representatives Committee on Science and Technology seemed to reflect a determination of the United States government to turn the system over to the private sector despite considerable evidence discouraging this move.

The legal issues involved in remote sensing are numerous and complex. In examining some of the literature produced in this area over the last 15 years, it is evident that many of the suggested approaches for dealing with these issues through an international body have lost their pertinence because technical advances have made them obsolete. Similarly, the lack of consensus on the issue has forced inaction in establishing a regulatory system, resulting in the adoption by default of the United States position of free dissemination. Nevertheless, a brief overview of some of the most significant statements will demonstrate the complexity of the area.

In 1968, the United Nations established the Committee on the Peaceful Uses of Outer Space partly to assist in the normalization of ongoing sensing practices. The Scientific and Technical Sub-Committee of UNCOPUOS called attention to the use of remote sensing techniques for the planning of global resources in 1969.

An ongoing controversy in this forum has been the issue of national sovereignty. Two types of suggestion have been offered to deal with the reservations expressed by nations opposed to "free dissemination". The first involves a technical solution which envisages the development of a space-ground system confining the satellite's observations to a specific nation's frontiers, and a "dump" coded telemetry to each country individually and exclusively. A procedural solution would establish a nation's priority access to data about itself, prior to general release after a pre-established lapse of time [14].

The United States, on the other hand, has traditionally advocated a policy of "open skies" and asserts that infringement of sovereignty and related issues are all moot points. To impose limitations on dissemination would be detrimental to two predominant bene-

fits of satellite sensing: the broad-area, synoptic view of natural characteristics and of environmental and resource factors that may be multinational in scope, and the timely availability of dynamic data important to the international community as a whole in matters requiring concerted action (as in the case of monitoring crops).

The policy of the United States is that the space systems of any nation are national property and have the right of passage through space without interference. Indeed, the United States regards the purposeful interference with the space systems of any nation as an infringement upon the sovereign rights of that nation.

William Lazarus describes the dilemma of developing nations in this regard when entering negotiations with transnational corporations, even when both have access to Landsat data:

> Even with the best information provided by the most honest, competent foreign consultant, expatriate expert or national resource analysis department (a highly idealized hypothetical situation), an LDC is likely to be at a disadvantage in its ability to use the information effectively in a negotiation. Local ground experience, even if it is incorporated in the negotiating process, is often more than outweighed by the multinational's access to print, graphic and computer data bases which may include, in addition to the best available analyses of Landsat data, highly sophisticated geological projections, contracts and negotiations in other countries and high level decision-software for handling all the data. [15]

Thus, the crucial distinction between "primary data" and "analysed information" can make a considerable difference in ability to take advantage of remote sensing imagery, even if it is freely disseminated, as proposed by the United States government. Free dissemination does not guarantee equal access to information, just as "free flow of information" does not mean "balanced flow". However, with the widespread participation in use of Landsat imagery in the last ten years, and the lack of regulations governing reproduction of scenes already purchased, the sovereignty and security issues disputed by many developed countries are, indeed, moot.

The technical factors involved in remote sensing are fairly obvious from the introduction of this chapter. The primary impact of the technical aspects has been in the policy-making area, where technological advancements have preceded any coherent consensus on collection and distribution of the data in question. The addition of the thematic mapper with resolution of 30 metres has implemented the ability to gather "local" information, referred to by the Soviets in their proposal. Since such data are also freely disseminated to those who can pay, any proposals for restrictions through the United Nations will have again been too late to be effective.

The impact of the flow

The impact of the flow of this information is evident in its many applications. Undoubtedly, there are many nations which have been enriched by use of remote sensing imagery. The examples mentioned in this work only scratch the surface of the applications of data in the last ten years. It is fair to say that the availability of the data has undoubtedly resulted in some exploitation of developing nations by multinational corporations which have the personnel and experience to extract the most analysed information out of the primary data. The international political ramifications of remote sensing data are considerable as well.

Although the effect of the flow on private industry is impossible to measure because of the obscured buying practices mentioned earlier, the fact that the largest percentage of buyers in 1982 were industry indicates that the data is valuable in a variety of areas. Herbert Schiller sees an insidious link between the private sector and government funding in the area of remote sensing. Citing the Geosat Committee, Inc. as an example, he criticizes the United States position as catering for private interests and use of the "open skies" policy as a shield for commercial exploitation of the information. Geosat is an organization sponsored by 100 United States and non-United States international oil, gas, mineral and engineering-geological companies, and "coaches" NASA on the technical interests of its members. As mentioned earlier, it acts as a screen for corporate purchases of imagery through third party buys. Perhaps Schiller's most revealing quotation is from the testimony of Dr. Irwin Pikus:

> One (problem) concerns the question of sovereignty over information pertaining to natural resources. We find that many developing countries guard their natural resources quite jealously and are considerably concerned that advanced countries might be able to exploit them to their disadvantage. That has motivated a number of countries to assert sovereign control and sovereign claims over information and data concerning their natural resources that, of course, we can't agree with and it is a claim put forth strongly by a number of developing countries ... we do not consider the question of sovereignty over information in the hands of others. [16]

Pikus presents the United States position as completely refusing to consider the issue of national sovereignty (except United States sovereignty).

The purpose and intention of this vertical information flow is purely technical. It is only when the impact of the data is considered that value assumptions come into question. The literature in this area reflects this split. It may be divided into approximately three different areas: 1) technical works on issues or problems of a specific scientific or engineering interest; 2) reports of field projects and efforts in technology transfer; and 3) cost-benefit forecasts or works on the potential or prospects for the technology in developing nations.

The first of these categories encompasses the majority of the literature available today on remote sensing. These works range from do-it-yourself manuals on remote sensing film interpretation, to extremely technical treatises on the workings of the multispectral scanner and the thematic mapper. Most of the information from NASA falls into this category.

The second category, also easily identified, comprises government statements on remote sensing and governmental proposals for applications. It seems that even as governments are criticizing the omniscience that remote sensing data bestows upon the user, they are jostling in line to be next.

The third category is equally represented in United States government and foreign material. Noticeably missing, however (with the exception of Herbert Schiller's work), is any criticism of the technology on a specific level. The issues being currently raised by the proposed transfer of operations to the private sector need further study and analysis. For instance, the question of a developed market for the data seems to be, on the one hand, six to ten years down the road. On the other hand, it is enough of a lure to the French to justify their entry into market competition in 1984.

Thus, remote sensing is anything but a clear-cut issue. Because of the numerous factors involved

and the fluid state of current developments, it is impossible to predict its future even a year from now. Suffice it to say that remote sensing is here to stay, and the heated debate over its use may ultimately be decided when similar contemporary issues in international communication are resolved.

The benefit of these new technologies will soon be available on a widespread basis, but policies to deal with them are virtually non-existent. And yet it is precisely in this area that policies must be developed before the benefits are negated. An all-pervasive problem on national, international and global levels has been the continuing lag of social institutions behind technological progress. It is now generally agreed that application of a set of principles, born out of narrow national circumstances, to the operation of technologies with overwhelmingly global implications, is at the very least a pretentious and self-serving approach. In any case, such is the view of those who take a co-operative rather than a competitive approach to the international utilization of satellite technology.

The economic and political implications of the knowledge acquired by remote sensing are obvious. The ability to predict agricultural failures and food dependencies, for instance, can influence political judgments and international market bids [17]. The conditions under which private corporations have agreed to the takeover of the remote sensing operation illustrates the economic and institutional aspects of this technology. These conditions include the following : 1) giving away the existing facilities free of charge ; 2) governmental obligation to undertake future research and development ; 3) governmental assurance not to enter into any competition as well as to guarantee a fixed market for remote sensing data ; and 4) government management of the international negotiations necessitated by global remote sensing activities. For the moment remote sensing activities in the United States are the domain of NOAA but the government's intention to turn the activity over to the private sector is also being entertained. In fact in September 1983 this commercialization of space by the United States private firms was well underway [18].

FOOTNOTES

Chapter Five

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15. William Lazaras, "Landsats, Minerlas and Development : A Qualitative Notion of the Down-side Risk", MIT, Cambridge, Mass., 1980, pp. 21-22.
16. Herbert I. Schiller, *Who Knows : Information in the Age of the Fortune 500*, Norwood, Ablex Publishing Corporation, 1981, p. 118.
17. *Ibid.*, pp. 130-131.
18. See Michael Schrage, "Consortium Plans Private Satellite Venture", *The Washington Post*, 8 September 1981, p. 1. According to this source, three young American companies will launch a new venture to provide "remote sensing" satellite data services by 1986. "The venture, called Space America, would put a privately owned satellite equipped with spacial sensors in a polar orbit to relay information on various earth resources such as agriculture, mineral deposits and water." According to one analyst's estimate, "the market will be worth $ 1 billion by the end of the decade".

CHAPTER SIX

Conclusion: The Integrative and Functional Elements of International Information Flow

Towards an integrative view

The purpose of the present study was to synthesize the relevant research already undertaken by different institutions and organizations on all aspects of the international flow of information, with special emphasis on the areas of mass media, transborder data flow, satellites and planetary resource information flow. Close examination of these salient areas may assist us in analysing political, cultural, economic, technological and professional practices affecting the international flow of information.

It has been argued that examination of the international functional implications of communication - both in human and technological terms - is another way of studying the complex phenomenon of international relations. After an examination of the range and definition of the phenomenon, an attempt was made to lay a foundation for an identification and critical evaluation of major approaches, theories, concepts and propositions with particular attention focused on problems of analytical integration within the field of study and problems of interdisciplinary contribution and coherence. To this end, a framework of analysis was proposed with the hope that it might provide a guideline for a methodology to be used in future evaluations of related developments.

Historical phases of flow studies

Research on the international flow of information has grown enormously over the last ten years, but we do not know the extent of growth in international communication itself. A major contention of this analysis is that because of the tendency to focus on a few actors and factors, and because of a paucity of systematic research, the present state of knowledge about the international flow of information is rather fragmented. No full scale investigation has shown the possible effects of international information systems on international policies, politics and economics.

Despite these shortcomings, we are in a much better position today to draw a rough skeleton of the global information flow than we were a decade ago. In summarizing, integrating and evaluating the vast and diverse amount of research on the international flow of information, we can only hope that such an exercise will provide us with a concise statement of what we know and what we have yet to learn.

The demand for a New International Economic Order (NIEO) is familiar as the main basis of disputations in the North-South dialogue between the "developed" and the "developing" nations. A similar demand for a new world information and communication order (NWICO) is less well known among the general public in many countries, primarily because of erroneous perceptions that it is less important, but partially because the public media have presented the question of the international flow of information in an extremely narrow sense. Thus, people generally tend to perceive the issues of the economic debate - trade figures, gross national product, energy prices, etc. - as concrete aspects directly affecting their lives. Information is seen as a comparatively abstract or non-material good, which is placed rather low on the list of developmental priorities.

Over the last ten years, however, the calls to re-examine the international flow of information and to re-evaluate the existing structure of global communication have snowballed, first among the information specialists in non-aligned meetings, and subsequently as part of Third World demands for a comprehensive set of new world orders. Consequently, the study of the international flow of information has occupied the most prominent position among students of international communication, as well as among policy-makers dealing with national and international development issues. This upsurge of research, writings and debates has come about as a result of the increasing realization that the imbalances perceived in the economic field were present also in the areas of information and communication, and were in equal need of redress. Indeed, research conducted during the past several years has demonstrated an imbalance in the world's communication and information resources that is now widely admitted.

It is precisely in this area that a more daring historical analysis of real processes and conceptual development, as obtained in this study, would facilitate understanding of how information flow became one of the major issues of our time. Although this report is not meant to be a historical analysis of international flow of information processes, it is hoped that the combined presentation of the synchronic and diachronic elements in the preceding chapters has demonstrated the crucial role played by information and communication in our global environment. Thus, the issue of information and communication, which was perceived a decade ago as one more area of contention between the industrialized and less industrialized countries of the world, has now become a global issue.

Historical analysis of the international flow of information, taken as a whole, reveals that the study of information flow has gone through two distinct but interrelated phases, and that a third phase is just beginning to emerge. The first period, covering analyses of the flow of information in the 1950s and the 1960s, emphasized the message and production aspects of

international flow of information which could transcend the boundaries of conventional media and telecommunications to include human-oriented types of information channels. The main characteristics of this period, as evidenced in the present study, are the fragmentary nature of the content analysis as well as emphasis on the processes of message production both in terms of techniques and socio-economic factors. The few studies attempting to examine the cultural, educational, scientific and related aspects of international information flow were conducted in isolation.

The second phase of international flow of information research includes the studies carried out in the 1970s, especially in the latter part of that decade. The analyses of this period are recognized as being critical of the first phase and emphasizing both the production and distribution aspects of the message as well as the possible or probable impacts of the content. In short, the second period has taken a comparatively broader view of the international flow of information, extending it beyond conventional journalistic and media studies and relating it to the process of the political economy and structure of the system itself.

The development of research during these two periods can be better understood if we consider the following historical processes of the last two decades : the birth of new nation-states ; the greater demands of citizens to participate in political and economic decision-making ; the increasing number and power of transnational actors ; the increase of mobility and human movements across national boundaries ; the world-wide development of electronic communication technologies ; the unsuccessful attempts to establish an international network for distributing television and other programmes and documentaries ; the transfer and growth of earlier sporadic news and information to a now massive data and information flow ; the neglect and failure to cope with inequality and problems arising from the electromagnetic spectrum and the computer satellite systems ; and, last but not least, the amplification of a political debate around the new world information and communication order.

We are now at the threshhold of a third phase, that of the so-called "post-industrialized" or "information age", closely associated with the post-traditional telecommunication technologies such as video-text, computerized communication technologies, telematics, and scores of other technological auxiliaries often combined under the rubric of "informatics", implying complex communication and information systems and their interrelationships with the "information age". It is also a phase in which international communication and the flow of information are becoming viewed not only within a hardware and software context, but also within a behavioural and social context as well. In short, there is an urgent need to view the phenomenon of information flow in its human-technological dimension and within the context of individual, national, international and global ramifications.

The communications revolution has meant the spread of technology, systems innovation, and the speed and quantity with which messages travel. But the real revolution is the *communication* revolution - explained in terms of a quest for satisfactory human interaction - rather than a *communications* revolution viewed through the lens of technological and institutional spread and growth.

One characteristic of this third phase is that the interpretation of communication policies is no longer restricted ; it covers most of the aspects of informatics. Here, the contribution of Unesco in recent years is most prominent and distinct, and worthy of careful note. In comparing the philosophy expounded at the meeting of experts on communication policies and planning (Unesco document COM/MD/24) formulating communication policies for the first time on an international level, and that of Unesco's latest medium-term plan (1984-1989, 4X C/4) entitled "Communication in the Service of Man" [1], one realizes the possibility and need of integrating the hitherto distinct spheres of information and communication policies.

Synthesizing the research results

In the preceding chapters, some tentative conclusions were drawn by examining the data and the research literature on specific aspects of international flow of information. Here, I shall identify the general trends and the emerging picture of the world information flow as one views the landscape of accumulated empirical evidence.

• Directionality of the flow. Inherent in the term "flow" is a vector quality. Three directional patterns have been hypothesized : centre-periphery ; vertical North-South flow, and triangular flow (a variation of North-South flow). In fact, the verticality of the North-South flow downward from the information-rich North to the information-poor South has come to be a common assumption providing a foundation for further research. Researchers have generally set out to show that flows have proceeded from North to South, and more often than not, in terms of the media selected and comparisons made, it has been demonstrated that such a directional trend does indeed exist.

The term "imbalance", however, has not been clearly defined by researchers. It has had different quantitative and qualitative meanings to both researchers and policy makers. Whatever its meaning, "imbalance" in information and communication flows and structures is often regarded in isolation, instead of being seen as another manifestation of much deeper economic and political imbalances. Interestingly, the nature, pattern and direction of the world economy is more or less parallel to the direction of world information flow. With virtually all types of information flow, whether it is news or data, educational, scientific or human flow, the pattern is the same. The cycles are quite similar to cycles in other trade areas : industrially less developed countries export raw materials to highly industrialized countries for processing and then purchase back the more costly finished products. Notably lacking is the exchange of data, news, information, cultural programmes and products, and persons among developing countries.

On the other hand, there exists a much better "balance" in terms of both quantity and quality of information among and between the industrially developed countries. (See Figure 9 in Chapter Four on Data Flow.) This is not to say that proximity of cultural factors is not important in determining the flow direction, but merely to indicate the undeniably strong and important relations between the economic and political control of human and material resources, on the one hand, and communication, information and cultural control on the other.

• Quality versus quantity. Although there has been some quantitative improvement in the amount of information and news exchanges internationally during the last several years, qualitative improvement is either incomplete or totally lacking. Indeed, some research evidence supports the hypothesis that in the area of news flow, cultural and ideological distortion and biases have been predominant during the last several years, particularly in relation to several unfolding international, regional and national developments.

• Communication technologies and international policies. There is a broadly shared perception of a growing overall gap between industrially developed and developing countries in the way they are able

to create, process and apply the information needed for economic, political and cultural development. While such processes as the convergence between telecommunication and computing underline a trend in the industrialized countries, what characterizes the developing countries is their increasing need and determination to provide telecommunications in support of their national and international policies. Research supports the observation that the growth of technology is not necessarily increasing the access of all peoples to information, nationally or internationally. On the contrary, there is a great disparity between the poor and the rich. At the same time, competition within and between the industrialized countries in the area of implementation and services is growing. Yet, during the last five years, there has been a remarkable global consensus regarding the need for and value of structural change and development in the world communication system.

There is also a growing realization of the need for an international regulatory/standard-setting process and institutional modification of the present international communication system. The system will not assume increased tasks and responsibilities unless equitable legal, structural and international steps are taken immediately. Otherwise, the continuation of the current design of international communication will not only enhance rather than diminish the dominance of certain industrialized countries, but the result of other industrialized nations' challenge to American dominance in the global market will disrupt the fragile new information economy.

• Trends in national policies. The debate and writings on communication and information issues during the last ten years have stimulated governments in both industrialized and developing countries to adopt national policies, and in some cases comprehensive plans, to respond to problems brought about by advances in computer and telecommunications technologies and to protect vital national interests. Developing countries, in particular, view their dependence on foreign firms and transnational actors as evidence that the important basis for national decision-making is now located outside their national boundaries.

These national policies are being designed in order to fulfil the following purposes : to preserve national sovereignty ; to insure national security ; to assure access to information held in data banks ; to preserve cultural identity ; to design appropriate educational, scientific and artistic policies ; and, in some cases, to protect individual privacy. While in some geographical areas these measures are in the public interest, there are also cases in which national and local policies are directed towards increased restriction of individual citizens and groups, resulting in greater political and economic control. There is also a tendency in some industrialized countries towards commercialization and privatization of public communication.

• Imbalance in communication research. As research on the international flow of information has expanded during the last ten years, with its most dramatic growth taking place in the beginning of the 1980s, it has been accompanied by several new lines of inquiry. In fact, the last five years can be characterized as the most active period of international communication research in history. There is no doubt that the debate on a new world information and communication order in various international fora, including Unesco, has been primarily responsible for this growth. The many conferences, symposia and workshops held in various parts of the world, the increased number of periodicals and journals devoted to various aspects of information and communication, and a somewhat inflated amount of publishing in the area are all illustrative of this phenomenon [2].

A substantial number of these studies have been carried out by "Third World" scholars, a development that was virtually absent in the early years of communication research. Yet there still exists a communication imbalance between field and subjects, between the issues and different geographical areas, and between the various epistemological and philosophical orientations. If there is to be a correction in communication imbalance, we need nothing less than a new order in communication research [3].

For example, a survey for this study showed that there is no major textbook in the field of international relations either in North America or in Europe that has devoted a chapter to international communication and international flow of information. Likewise, little attempt has been made to incorporate the international implications of communication and information technology in the broader area of international affairs. In general, the authors of communication textbooks have failed to place the findings of communication research in the context of international relations.

Furthermore, most studies on information flow have focused on only a few regions of the world, namely North America, Western Europe and to a lesser degree Latin America and Asia. Thus, the contributions on the study of flow in Africa, the Middle East and the socialist countries in the East are less representative. When research is available, such factors as language, translation and distribution have impeded the flow of information.

It should also be emphasized that the study of international communication, in general, and the flow of information, in particular, have taken the North as their focal point. Little attention has been given to South-South relations as a phenomenon in international communication and international relations. The study of the international flow of information as it relates to the Southern half of the globe is usually cast in terms of "Third World development", and in the field of international politics as a case of "regional conflict management".

Among many writers on Third World development and communication there is not only no deep consciousness about the nature of change independent from big power politics, but there is little consensus as to the nature and direction of indigenous cultural revolution or evolution now taking place. Thus, the literature in this area fails to explain and predict the characteristics of the social process. This is particularly true when writings and research are dominated by a certain epistemological orientation. Unfortunately, to a great extent, the field has been the victim of either pure positivism or crude ideological orientations and biases. The failure of many students of international relations and international communication, both in the West and in the East, to predict the social, cultural and political development of many parts of the world in the last ten years is a case in point. In short, there has been a high level of advocacy and a low level of analysis.

There is already, therefore, a weakness in the final global generalizations which are made in many research findings of the past. Fortunately, one positive result of the ongoing discussion/controversy on the structure of world information is that it has stimulated debates on the nature and direction of communication research [4]. It is hoped that such debates will have a profound impact on the quality of research, and the pluralism which is so badly needed.

Flaws in flow studies

There have been serious flaws in the study of information flow during the last three decades. Specifically,

the research in this area has displayed the following inadequacies :

• It has been concerned primarily with the examination of channels and content, leaving either end of the process - the source and the destination - untouched. There have been no serious efforts to study precisely who makes what use of which kind of information at the destination level. Likewise, little attempt has been made to carry the research beyond the framework of the media so as to examine the primary sources of the message.

Furthermore, both traditions of international flow of information research of the 1950-1960s and the 1970-1980s proceeded on the assumption that distribution, consumption and exposure to outside messages would have the desired impact. The literature on flow emphasized the exposure, but could only make inferences on probable effect or impact. Less emphasis was placed on exactly what happens to the recipients of information once they are exposed to internal and external messages. Less attention was paid to the dynamics of internal human and societal communication, and to the complexity of culture, in relation to mass media or other technologically mediated messages. Unless these factors are taken into account in a variety of cultural, political and economic settings, we shall have no more than "the conventional wisdom" and guesswork as to the impact and effects of information on individuals, groups and the international system as a whole.

• Both phases and traditions of research were inherently biased towards the study of only that type of flow that was technologically oriented and developed, and that would fit the pre-determined definition of "mass media", "communications media" and "information media". Thus, research of the past has not only de-emphasized but, to a large extent, has ignored the role played by traditional, personal and group channels in the process of information flow.

• Externally, the analysis of the flow of communication media was not related to the input and output of information in such areas as education, tourism, migration, the arts and sciences. Consequently, the fragmentary nature of the studies, coupled with each discipline's traditional resistance to loss of autonomy, prevented both the scholars and policy-makers from having a wider perspective on the international flow of information including human and technological, economic and political, and cultural as well as social spheres.

• Researchers have almost totally ignored examination of the role of non-readers, non-viewers and non-listeners who, for a variety of reasons, were not in the centre of modern media exposure in the international flow of information, and concentrated only on those targets that were reached through modern media technologies. Another virtually unexplored area relates to the nature and patterns of information among the different socio-demographic strata, such as international business and political leaders or children and other specific age groups.

• The first period of the flow studies, in the 1950s and 1960s, emphasized the East-West relationship. The second phase, in the 1970s, was tailored to the North-South axis, with emphasis being placed on the West-South aspect of that flow. Less attention was given to the international flow of information among and between the socialist nations on the one hand, and the less-industrialized countries of the Third World on the other. The underlying assumptions of many scholars and policy-makers, based on a monolithic pattern of First, Second and Third Worlds, obviously hampered the analysis in terms of diversification and pluralism, and contributed much to the stereotyping and homogeneity of the Third World.

• Finally, most of these studies, using either political or economic versions of power paradigms, paid less explicit and implicit attention to cultural analysis. Therefore, the question of culture, though popular and controversial, remains subservient to either political or economic analyses, or technological discourses both on theory and methodology.

The four stages of information flow

This study began with the notion that as a prerequisite for understanding the international flow of information and, thus, the role of communication in international relations, one must analyse both the stages of production and distribution of messages in terms of hardware and software. In the light of preceding chapters and the conclusions drawn from the analysis of different dimensions of international flow of information, it is now appropriate to suggest that any future study of the flow of information must include two additional dimensions within the production-distribution process outlined previously. In the production stage one must analyse the source or sources which initially feed the stream of information through institutions, groups, transnational actors and other channels. This will take the process of the creation of symbols and messages beyond the present levels of analysis to that of political, economic and cultural groups both nationally and internationally who initially provide the information.

In the distribution stage, the studies must go beyond conventional exposure to information, to analyses of the process of absorption, internalization and utilization of messages in a given population nationally or internationally. It is only by paying close attention to the latter stage that we can learn something about the function or dysfunction and manifest or latent aspects of message transmission. Thus, the international flow of information, if it is studied comprehensively, must include a careful consideration of four distinct but related stages of the communication process : the source, the process of production, the process of distribution and the process of utilization.

One important trend underlying most of the studies of flow is that, from their beginning immediately after the Second World War and continuing until the late 1970s, they were primarily, if not totally, based on an inter-nation or "international" oriented analysis instead of being world or global in context. That is to say, the nation states were most often the units of analyses in the traditional international relations framework, rather than communities, cultures or regions in their anthropological, cultural and historical contexts. In short, the unique framework of analyses of the international flow of information was built on the following assumptions : the division of the world into many units called nation states ; the desire of each nation state to gain full political, economic and cultural autonomy ; and the articulation of the concept of power in terms of security, military and economic capabilities of governments. More attention was paid to the sovereignty of nation states than to the welfare of individuals. More emphasis was put on preservation and retention of national culture than on individual identity. Yet, as we approach the end of the century, not only the number of world actors in terms of nation states has increased, but a large number of transnational and supranational organizations have been created which alternately are in conflict or co-operate with nation states.

Moreover, it is now clear that as a result of many social, political, economic and cultural factors, there is a greater demand by transnational actors and individuals outside the nation state for the articulation, formulation and implementation of different policies. It is also evident that a comprehensive analysis of the international flow of information must account

for these factors, and research projects designed to examine the various facets of international information flow should include all these varied dimensions in their most complex forms.

Most current books, articles and monographs barely scratch the surface of the problem. They view information and communication questions as a mere maladjustment of a purely economic, political, technological or biological nature. In terms of the East-West conflict, communication and information problems are seen as incidental or ideological. In terms of the North-South debate, they are presumed to be economic. What is not understood is that communication problems are inherent in the nature of the modern industrialized and information culture. Accordingly, for the elimination of problems, the solutions prescribed with perfect confidence are either economic-technological readjustment - defined in terms on money, banking, transportation, training and communication technology, computers, satellites, video, teletext and other media auxiliaries - or a modification of political systems defined in terms of a new bureaucracy, a new infrastructure, a new management, or a new form of disassociation. There is no doubt that some of these measures, where properly applied, can result in some improvements. But there is also no doubt that none of them can reach the source of the problem.

Functional elements of the international flow of information

It is now clear that the development of modern communication technology and the continuous stream of information flow have increased consciousness of national sovereignty and have made for the proliferation of state and transnational actors. These phenomena, in turn, have generated important functional demands on the international system which it cannot possibly handle with the existing machinery. Thus important questions are raised about the validity of the prevailing model and the ability of the present international information system to cope with the rapidly changing envinronment of international relations in general, and international communication in particular.

The fact that "the vessel of sovereignty" is leaking, and in some instances may even be sinking, is now beyond doubt. Nations may act as though they are in control of their full national rights, but the erosion of sovereignty through communication technology and new transnational actors is paralleled by the growing constraints on freedom of national action and the increasing responsibility of international organizations. As the locus of decision-making is continuously transferred from national to international and transnational levels, a growing number of issues will have to be settled in an international environment, otherwise conflict is inevitable. Thus, international organizations, particularly those dealing with communication and information issues, are likely to become a more central force in international relations.

The problem of national policies versus international policies and considerations becomes crucial not only in the sphere of communication technology but also in the set of related global issues connected directly with the nature of information flow and the quality of communication. The following issues, among others, will result in a growing recognition that governments, a group of powerful nation states, or a number of profit-motivated, transnational actors do not have the right to act unilaterally in communication and technological areas when the effects may spread beyond national borders: environmental alteration of man; weather and climate modification; large-scale experimental weaponry actions with substantial and potential environmental effects; pollution; mineral and organic resources of the seabed; living resources of the sea; congestion in ocean uses; forestry; agriculture; geography; resource mapping; data gathering and distribution; navigation and traffic control; food and population; increased public interest in protecting man's environment. The existing legal regime and the institutional structure of the global communication system, along with the entire complex of intergovernmental organizations, will have even more difficulty in the future in meeting the needs and responsibilities of the new systems that will be developed in a few years unless serious and conscious attempts are made to prepare them for a new order.

A non-exhaustive list of several functional elements and implications of the international flow of information as it relates to the international system can be cited here with the purpose of illustrating the kind of functional international requirements for many of the information flow systems examined in this volume.

1. Management. This is a crucial aspect of the international information system. As experience has shown in at least some cases, national ownership and operation are not adequate permanent safeguards for a variety of political, technical and social reasons. If nationally owned, information systems may still be at the mercy of extreme international and regional co-operatives. Here, international bodies - both old and new - can contribute to the smooth operation of newly established information resources by having management responsibility, and even legal ownership. Resource and technology operations, technical assistance, financing of projects and research itself would certainly fall in this category.

Among the elements related to the management function are the following: information echange; data gathering and analysis; monitoring of physical phenomena; and facilitating national, regional and international programmes. Information and equal access to it are viewed as factors for reducing dependency in economic, political and cultural relations. An important issue here is that information and access to information are often viewed as power. The measure of the distribution of access, for example, can be seen in terms of global distribution of National Focal Points (NFPs). Focal points refer to "offices in appropriate national ministries, designed to serve as the liaison centres within an international information system". NFPs are particularly important for the developing countries because they bring the system and user close to one another. In a recent study, Ernst Haas and John Gerard Ruggie found that: "In 1980, 17 major global information systems maintained 1039 NFPs; UN regional commissions maintained an additional 160." [5] Unfortunately, there appears to be a concentration of NFPs among the richer countries, which, according to Haas and Ruggie, indicates that developing countries have not had a significant input in the information provided.

Another implication is the potential role of international information systems to provide conceptual guidance in policy-making. A final consequence is the power of information systems to generate new forms of social organization. These consequences of the current state of information systems are, of course, speculative because of the incomplete state of knowledge about international information systems, but Haas and Ruggie conclude that research efforts in this area are both justified and worthwhile. Their preliminary conclusion emphasizes that: "Information systems can also affect the dependency of poorer countries in the industrialized North by compensating for the lack of material power within the developing world." In reference to cultural dependency, they conclude that "in the short run at least, the internationalization of Northern designs and products is

enhanced rather than diminished by the prevailing structure of information flow" [6].

2. Legal and regulatory aspects. In the last two decades, communication policy and regulations have emerged as important issues in international relations and conflict resolution, and are expected to remain high on the agenda throughout the 1980s. The lack of consistency and coherence in legal concepts and applications has been conditioned not only by historical circumstances, but by the development of new technologies. In international law, there is at present no generally recognized category under the heading of "information law". In many cases "information law" has been associated only with human rights. In other instances, it has referred to telecommunication law, space law, postal law, intellectual property rights, or a set of ad hoc rules and regulations developed through institutional and historical circumstances. Such salient areas as culture and education, trade and customs regulations, transborder flow of broadcast signals, terrestrial transmission, television signals via cable systems, and the host of related social, political and technological elements are left open to different interpretations and national considerations. At the same time, international organizations serve as fora in the discussion of the international rules and norms to be established. As a direct consequence of this norm allocation and establishment of international rules and regulations, international and intergovernmental organizations must deal with the disagreements arising from the interpretation and operation of new communication systems. Thus adjudication, mediation and enforcement of standards and regulations are the functional areas within the realm of legal matters that the international community must consider at present and in the near future.

3. Economic and strategic consequences. Economic and strategic consequences are at the heart of the functional elements of international flow of information and modern communication technologies. Some of the systems being developed may involve differential costs of application for some geographical areas, as well as considerable differential benefits. Aside from purely economic consequences, there are security, political and military factors that must be considered once the new systems are in operation. It is said that in such cases there will be strong pressure for these new systems to be internationally operated with the users assured a voice in management and ownership. The profit potential of some of these systems cannot be ignored, nor can the equity principle involved in procurement and other related activities. It is here that these functional implications will have to accompany either the creation of new institutions or the modifications of existing infrastructure. Since information is a resource convertable into all kinds of power, there is, and in all probability will continue to be, intensive competition and conflict over its production and utilization. In short, many questions are debatable, among them : Who pays and who profits ? What will be the ecology of national and international systems in the future ? What will be the stratification of the information élite nationally and globally ? What will be the relationship between the knowers and users ? Will it reduce the amount of armed conflict or will it directly lead to the ruination of the "cold war" ? Will alienation, mental isolation, withdrawal and cultural acceptability of individuals, groups, institutions, and even nation states increase or decrease ?

4. Reliability and quality. Finally, there remains the element of reliability and quality of information, especially as applied to human-machine communication. The barriers to the quality and reliability of information arise not so much from the information transfer process, but rather from the translation required to accommodate the highly different and distinct characteristics of receivers and sources. Whereas humans, though noisy and narrow banded, have simultaneous active channels such as facial expression and other intelligence and flexible sensory organs, machines are single-minded and highly restrained by programming. Machines can produce and generate text much faster than can be assimilated by humans, but information other than text can be assimilated much more rapidly by humans. Thus forecasting human-machine technology is much more difficult than predicting hardware technology. Yet the information flow resulting from machine and from human-machine interaction is increasing at an enormous rate.

For example, the United States National Aeronautics and Space Administration's (NASA) Task Group, in forecasting space technology for 1980-2000, predicts that : "By the year 2000, imaging experiments in Earth applications satellites will be capable of returning 10^{13}-10^{15} bits per day, in comparison to the present rate of 10^{10}-10^{11} bits per day. The lower value of 10^{13} bits will encode approximately one million 300-page books ; that much data per day corresponds to 30 Libraries of Congress per year." [7] Comparable increases in data can be expected from other missions or technologies. Yet, the same report acknowledges "that reliability has not received attention in the individual forecasts in proportion to its importance" [8]. At the same time, the introduction of robots is no longer science fiction. The NASA forecast indicates that : "During the last decade of this century the technological and economic developments of the preceding fifteen years in information science and in computer hardware, combined with advances in problem-solving, learning, decision-making, sensory analysis and other fields of artificial intelligence, will permit the introduction of simple robots to society at large." [9]

Herein lie the questions of reliability, quality, utility, as well as individual, social and global usage of information. The increase in the volume of information is not limited to space and satellite technologies. The elements and problems are equally applicable to all kinds of information channels outlined in this study. This increase in the amount of information will require increasing the amount of selectivity and absorption. In the final analysis, it is not the amount and quantity, but the selectivity and quality of information which will be crucial for communication.

There might indeed be a consensus on a now popular and somewhat orthodox view that the industrialized countries of the North have entered the information age, that many others are on the threshold, and that sooner or later the less industrialized societies and nations will enter the circle. There is, in fact, a broader view that regardless of the level of development, all nations are already in the midst of the information age internationally if not globally. Although we might accept these views and propositions as natural or inevitable, the important question remains : Will we handle the "Information Revolution" better than we handled the "Industrial Revolution" ?

FOOTNOTES

Chapter Six

1. Unesco. *Draft Medium-Term Plan (1984-1989)*, General Conference, Fourth Extraordinary Session, Paris, 1982 (4XC/4), pp. 79-86.
2. It would take many pages to cite all of the various symposia held on international communication. For a list of periodicals dealing with the field of mass communication, see Sylwester Dziki, *World Directory of Mass Communication Periodicals*, Cracow (Poland), Bibliographical Section of IAMCR and Press Research Centre, Cracow, Poland, 1980.
3. This point has been emphasized by K.E. Eapen, "Reshaping Training and Research for the NIIO", *Media Development*, XXVII, 4, 1980.
4. For example see : International Association for Mass Communication Research, *New Structure of International Communication ? : The Role of Research* (Main papers from the 1980 Caracas Conference), Leicester, England, International Association for Mass Communication Research, 1982 ; Unesco and International Association for Mass Communication Research Consultation Meeting Report of July 1982, "Communication in the Eighties : The Nature of the Problem and Some Proposals for an International Research Strategy", prepared by Annabelle Sreberny-Mohammadi, Leicester, England, Centre for Mass Communication Research, University of Leicester, January 1983 ; E.M. Rogers and F. Balle (eds.). *Mass Communication Research in the United States and Europe*, Norwood, N.J., Ablex Publishing Corporation, 1983 ; James D. Halloran, "Warring Schools or Complementary Perspectives ? A Case of Critical Eclecticism", Leicester, England, Centre for Mass Communication Research, Leicester University, 1983 ; Hamid Mowlana, "Communication in Intercultural and International Relations : Toward a New Framework", *Cultures : Dialogue Between the Peoples of the World*, Paris, Unesco, 1983 ; Hamid Mowlana, "Mass Media and Culture : Toward an Integrated Theory", in William B. Gudykunst (ed.), *Intercultural Communication Theory*, Beverly Hills, California, Sage Publications, 1983 ; Tamas Szecsko, "The Grammar of Global Communication", *Intermedia*, 10,2, March 1982 ; Alex Edelstein, *Comparative Communication Research*, Beverly Hills, California, Sage Publishing, 1982 ; G. Melisoek, K.E. Rosengren, J. Stappers (eds.), *Cultural Indicators : An International Symposium*, Vienna, Akademie der Wissenschaften, 1983 ; and George Gerbner and Marsha Siefert (eds.), *World Communications : A Handbook*, New York, Longman, 1983. See also *Journal of Communication*, 23:3, Summer 1983 (the entire issue is devoted to communication research). For a more general and epistemological debate on communication and society, see Jurgen Habermas, *Communication and the Evolution of Society*, Boston, Beacon Press, 1979 ; Ali Shari'ati, *Marxism and Other Western Fallacies*, Berkeley, California, Mizan Press, 1980 ; and I.V. Blauberg, V.N. Sadovsky and E.G. Yudin, *Systems Theory : Philosophical and Methodological Problems*, Moscow, Progress Publishers, 1977.
5. Ernest B. Haas and John Gerard Ruggie, "What Message in the Medium of Information System ?", *International Studies Quarterly*, 26:2, June 1982, p. 205.
6. *Ibid.*, p. 218.
7. National Aeronautics and Space Administration (NASA), *A Forecast of Space Technology : 1900-2000*, Washington, D.C., Government Printing Office, 1976, pp. 3-117.
8. *Ibid.*, pp. 3-119.
9. *Ibid.*, pp. 3-105.

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This is a selected bibliography representing the different dimensions of international flow of information. For additional references, please refer to the text.

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