TELECOMMISSION

Study 3(b)

Communications and the Canadian Assistance Program for Developing Countries

The Department of Communications

REPORT OF TELECOMMISSION STUDY 3(b)

COMMUNICATIONS AND THE CANADIAN ASSISTANCE PROGRAMME FOR DEVELOPING COUNTRIES

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Ottawa, 1971

This Report was prepared for the Department of Communications by a project team made up of representatives from various organizations and does not necessarily represent the views of the Department or of the federal Government, and no commitment for future action should be inferred from the recommendations of the participants.

This Report is to be considered as a background working paper and no effort has been made to edit it for uniformity of terminology with other studies.

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TERMS OF REFERENCE

A/GENERAL

1. Definition of "Communications"

"Communications" from the point of view of Study 3 (b) is concerned basically with electronic and electrical systems for the transmission, reception, storage and retrieval of information. However, it also includes training programmes and educational institutions in applicable disciplines and special software for data banks.

2. Purpose of the Canadian Assistance Programme

The essence of the Canadian Assistance Programme is assumed to be contained in the concept of a "development partnership" put forward in the Pearson Report, "Partners in Development". This partnership is seen as an international development effort aimed at putting the less developed countries, as soon as possible, in a position where they can realize their aspirations with regard to economic progress without relying on foreign aid. It is based upon the promise that it is in the interest of all nations, the strong and the wealthy, as well as the economically weak, to co-operate to secure the fullest possible utilization of the world's resources, human and physical.

3. Military Assistance

The study team will be concerned only with non-military assistance.

4. Proviso

In considering the approaches to assistance it will be recognized that programmes supported through CIDA must meet the criteria and priorities established by both the recipient country and CIDA for the provision and utilization of development assistance.

B/SPECIFIC TERMS OF REFERENCE

1. Discuss the potential contribution that improved communications could make in accelerating progress in developing nations.

2. Describe the organization, scope, history and impact of Canadian assistance programmes with specific reference to those involving communications; include sanitized case histories.

3. Outline ways in which government assistance is or might be provided to support the establishment of subsidiaries of Canadian companies in the developing nations.

4. Discuss the various channels through which Canadian assistance may flow; eg., UN, UN Specialized Agencies, World Bank, Asian Development Bank, Bilateral and Multilateral Agreements, Canadian Government Departments and Crown Corporations, etc.

5. Discuss in detail specific forms which assistance may take, eg.,

(a) Providing Communications Hardware, - earth stations, switching centres, cable, etc.

(b) Design and construction of communications systems - microwave relay systems, urban telephone systems, medical radio networks, tropo systems, etc.

(c) Design and construction of functional information systems - Educational TV, Medical, Legal, Law Enforcement, Scientific and Information Services, Communication Satellite or CAI systems, etc.

(d) Establishment of regional educational institutes in communications technology and management.

(e) Providing information services - ranging from local tape and film libraries to regional or international data banks with access equipment in the developing nations.

6. Assess Canadian capabilities with respect to our ability to provide assistance. Include, for example, such factors as availability of suitable manpower, industrial capabilities, private organizations, government organizations, financial resources, etc.

7. Prepare recommendations on institutional arrangements, programmes and policy which can provide guidelines for future activities.

TELECOMMISSION 3 (b) PARTICIPANTS

Mr. D. Bartlett,
Secretary General of
Canadian Commission for UNESCO,
140 Wellington Street,
Ottawa, Ontario

Mr. F.L. Bentley,
Chief, Applied Research and
Development Division,
Department of Transport,
No. 3 Temporary Building,
Wellington Street,
Ottawa, Ontario

Mr. J.A.Campbell,
Assistant Vice-President,
Consulting Services,
Bell Canada,
Representing Trans Canada Telephone System,

Mr. F.J. Chambers,
Canadian International Development Agency,
Fuller Bldg.,
75 Albert Street,
Ottawa, Ontario

Mr. G. Dinelle,
Foreign Relations Officer,
Canadian Broadcasting Corporation,
1500 Bronson Avenue,
Ottawa, Ontario

Mr. E.J. Easdown,
International Operations Division,
Northern Electric,
1600 Dorchester Blvd.,
Montreal West, Quebec

* Mr. H. Flynn,
Director,
Technical Planning,
Department of Communications,
100 Metcalfe Street, Room 1112,
Ottawa, Ontario

Mr. C.A. Fortier,
Electronics Division,
Department of Industry, Trade & Commerce,
112 Kent Street, Tower "B", Rm. 1081,
Ottawa, Ontario

Miss Sheila Fraser,
Research Assistant,
International Development Research Centre
Pebb Building,
2197 Riverside Drive,
Ottawa, Ontario

Mr. G. Graham,
Director,
Planning & Research,
National Film Board,
P.O. Box 6100,
Montreal 101, Quebec

Dr. R.C.Langille,
Director General,
Communications Research Centre,
Shirley Bay,
Ottawa, Ontario

Mr. J. Miedzinski,
Science Advisor,
Science Council,
150 Kent Street, Room 729,
Ottawa, Ontario

* Mr. D.F. Parkhill
Assistant Deputy Minister, Planning
Department of Communications,
100 Metcalfe Street,
Ottawa, Ontario

Mr. W.A.C.Schultz,
Vice-President,
International Telephone & Telegraph Corporation,
116 Albert Street, Suite 307,
Ottawa, Ontario

Mr. E.A.Skrabec,
Aid & Development Division,
Department of External Affairs,
Langevin Block, Room 330,
Ottawa, Ontario

** Mr. Frank L. Goodship,
Mass Communications, UNESCO,
Paris, France

* Liaison Officer
** Consultant

SECTION I

INTRODUCTION

Although most discussion of communications and the Canadian assistance programme must turn on consideration of defined projects and specific products or areas of Canadian competence, it is important in establishing policy thac the effects of communications be seen in the wider context of contemporary social change, of which development planning and development assistance planning are important aspects.

On reflection, it can be concluded that without contemporary communications there would have been no "revolution of rising expectations" and thus no thrust towards development as we understand the concept at the beginning of the second Development Decade. Robert S. McNamara, President of the World Bank, speaking in New York on February 20, 1970, said:

> "----Though men have inhabited the same planet for more than a million years, they coexist today in communities that range in the extremes from stone-age simplicity to space-age sophistication.
>
> That degree of inequality would not, perhaps, be as socially and politically explosive as it in fact is, could it remain a well kept secret. For centuries stagnating societies and deprived peoples remainea content with their lot because they were unaware that life was really any better elsewhere. Their very remoteness saved them from odious comparisons. But the technological revolution has changed all that. Now, with the transistor radio and the television tube in remote corners of the world dramatizing the disparities in the quality of life, what was tolerable in the past provokes turbulence today.
>
> And what else but turbulence could one expect on a planet linked by instantaneous communication but fragmented by conspicuous inequality...."

Professor E.M. Rogers carries this line of thought a little

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further in his study on "Modernization Among Peasants - The Impact of Communication" (Holt, Rinehart and Winston, Inc., 1969), when he describes the 1950's as the decade of rising expectations and the 1960's as the decade of rising frustrations.

> "----Why do aspirations outrun actualities in many emerging nations? One reason lies with the use of mass media in less developed countries. As important heralds of the gospel of desires, the mass media have effectively put forth the message of wider horizons. Unfortunately, the mass media have not been equally effective in showing their audiences how to achieve these new goals. For example, it is very likely more difficult to teach villagers how to read by way of radio instruction than it is to make city life appear desirable. Hence the need to utilize the mass media as tools for achieving development actualities (such as literacy) grows more important every day. When mass media audiences are encouraged to want more and not fully informed on how to get more (food production, higher incomes, better education for their children), the net result is frustration, not modernization ...."

In the time available, and given the present state of knowledge about the inter-relationship between communications and social change in traditional societies, the Study Group has been unable to explore fully the fundamental concepts bearing on our terms of reference. Indeed, it is probably fair to suggest that "the many and complex inter-relationships between cultural change, science and technology and economic development can hardly be said to be understood by expert specialists, much less by interested layment" (Tom Mboya "Impact of Science on Society", Volume XIX No. 4, p. 332). The Study Group has had to concern itself with specific recent or potential projects where some information and experience are available. Even here, we have very little data on long-term broad-spectrum effects. On the other hand, we feel that any recommendations and conclusions should not be considered in isolation from this broader background, which we hope will soon become better understood through the work of the new International Development Research Centre, and other studies in Canada and elsewhere.

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Most of the present report necessarily regards international development projects as outlets for Canadian production and Canadian competence. However, seen from the viewpoint of the recipients, assistance in communications represents inputs to programmes directed much less to communications as such than to economic growth which, in turn, implies social and cultural change. The specific project - improvement of the telephone system or establishment of a broadcasting service, for example - is the administrative unit, but it is through the larger development programme that the success or failure of the communications inputs must be measured. In other words, communication systems in the broadest sense allow services to be provided which can be catalysts for development but conversely the lack of good communications may be a limiting factor in the rate of development.

It does not necessarily follow that a project which succeeds dramatically in terms of its own relatively limited and technical objectives will make an equivalent net contribution to the development programme seen as a whole. Indeed, it will not make a maximum contribution if resources devoted to the project have a higher use in other areas, or if the secondary social effects of the project inhibit other aspects of the overall programme. In a different perspective, it is not necessarily true that the project which has the highest utility from a Canadian domestic point of view will necessarily have the same priority in terms of the development needs of the recipient society.

Although we recognize the importance of the questions, the Study Group is unable to advise with any authority on "How much communications should appear in the aid mix? What criteria should be followed in assigning priorities?" We would stress the need for additional research in the relationship between communications and the development process, to revise and perhaps modify what must at this stage be intuitive or rule-of-thumb judgments.

Some points are, of course,fairly clear, if not clearly helpful. One cannot generalize about developing countries and draw conclusions relevant to development assistance policy. It makes no sense at all to bracket India with Jamaica, or even with Pakistan. With differing cultural traditions and economic and social conditions the optimum aid mix will change - whether the "optimum" is seen in terms of abstract theory or of alternatives preferred by governments.

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There is nevertheless some evidence that national development planners have tended to neglect the potential of the mass media (and communications generally) or at least to assign them a much lower priority than current thinking in developed countries would indicate. For example, in the 1950s, only .02% of India's national development budget was allocated to radio broadcasting, and only about half this amount was actually spent. In the 1960s, India's development planners cut this broadcasting budget in half (Rogers op cit p. 100).

This is not an exceptional case; it is seldom indeed that communications will be ranked with steel mills, power dams and other conspicuous development indicators. The less-developed Communist nations are an interesting exception to this general statement.

The weight of informed opinion in developed countries appears to hold that the potential benefits offered by improved communications in education, economic development and social integration in developing countries (and others) are very high. If cost-benefit ratios could be calculated, they would often prove very favourable. The Study Group broadly shares this view. Can we then conclude that the proportion of electronic communications in the aid mix is too low? Perhaps it is sometimes, but a great many other considerations (apart from sovereignty and local pressures) must enter into the decision.

Not the least of these is the point, discussed earlier, that electronic communications may be more effective in arousing wants than they are in providing the means of satisfying them. Print may have a relative advantage here, and if so the relative stress that many developing countries accord to literacy and book production may not be misplaced.

There is also the concept of "cultural privacy" which is already receiving some attention and will probably come to carry increasing weight over the next decade. This holds that cultures which may be intrinsically rich and satisfying, but which are relatively weak in contemporary terms, can neither assimilate inexpensive foreign-produced media content, nor afford to produce material of equally commanding audience impact on their own. Under other names, the concept is familiar

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to Canadians. In this context, it is not necessarily irrational for a developing country to assign a low priority to electronic communications: in effect, to allow time for change in the traditional culture in order to avoid its collapse.

Generally speaking, it seems clear that intellectual and operating problems involved in assistance through the supply of equipment are easier and cheaper to solve than those concerning the fundamental questions of production of content, the effect of content, and the extent to which content can in practice be modified or improved to secure a desired effect or at least to minimize deleterious effects. Difficult related questions concern institutional structures: Do the models now available represent the optimum for developing countries? How far is it appropriate to use models which have grown up in the very different economic, social and cultural traditions of the present rich countries? How far are these models implied by the conventional application of readily available technology?

The Honourable Tom Mboya raised this question in the last article he wrote (op cit), when he referred to institutions:

> "which are often imported without modification from the developed countries. The financial institutions or the manufacturers who come to set up business in Africa always come unprepared to make any form of adjustment and modification; instead, they expect Africa to adjust as a condition of their participation in the development that should take place."

Leaving aside the temptation to read "Canada" for "Africa" in the foregoing, it is fair to ask whether Mr. Mboya's criticism may not be as valid for the communications sector of development (and especially for the programming sector of communications) as it is for the manufacturing and financial institutions to which he specifically refers.

So far, the foregoing has raised more questions than it has offered answers. We conclude with the suggestion that Canada is probably better fitted than any other country to help find the answers. Apart from the obvious advantages of technological and methodological sophistication, relatively well-developed scholarship, and a reputation for political

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objectivity and sympathetic concern, we offer the tremendous advantage of lead-time.

It seems clear that the implications of present technology and the applications of new technology will be worked out first in the wealthy and scientifically sophisticated countries. Most of the new developments in both hardware and software, and most of the editorial content, will continue to be produced in the very large nations and will be quickly reflected in Canadian experience. How we respond thus offers models for developing countries, if not to follow then at least to examine and to reflect upon. Current concern over "Canadian content" is a case in point.

Some Canadian discoveries may be very useful, with or without modification. One notable "invention" was the farm radio forum technique which was developed here in the early forties and endured until the late fifties when it outlived its usefulness, or at least its audience. It is significant that this technique is now being used in India (where in 1965 there were some 12,000 forums attended by nearly 1/4 of a million villagers) in Pakistan, Mali, Nigeria, Ghana, Madagascar, Jordan and elsewhere. Research indicates, incidentally, that this technique may tend to combine in an optimum way the economy and modernizing effects of mass media communication with the stronger influence on attitude change which is characteristic of inter-personal communication. It may well be that current Canadian experiments with film and video-tape production (as distinct from presentation) in community development will come to be regarded as an equally significant contribution.

As an unintended by-product of its main purpose, the Telecommission itself is likely to prove an important Canadian contribution to development planning in many other countries. Many of the studies of influences bearing on Canada and much of the consideration of appropriate Canadian initiative and response will certainly be of great significance and interest elsewhere. As indicated earlier, other countries may well decide not to follow our models; the significant point is that the models will have been defined and analysed, and will accordingly offer very important examples and insights for decision makers in developing countries who will shortly face similar kinds of choice in policy and operations.

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The international community is looking hard at the lessons that have been learned in the last decades in which assistance to the less developed nations has become an important aspect of international life. Important decisions must be taken about the future course of the international development effort in light of the present priorities of donor countries and the changing needs and attitudes of less developed nations (Hon. Mitchell Sharp).

An important contribution to this review is the report of the International Commission of the World Bank headed by the Rt. Honourable Lester B. Pearson - the report appeared in a book entitled "Partners in Development". Further, the Government has tabled a paper on international development as part of the overall review of our foreign policy. The United Nations Development System is presently under study and among many reports and plans which have been submitted is the Jackson Report - "The Capacity of the United Nations Development System". It is a comprehensive report on the problems of international development and recommendations are made regarding an appropriate re-organization of the UNDP. The Jackson and Pearson Reports, and studies on the second development decade are regarded as complementary documents. In the US, the Peterson Report was released recently and it calls for radical changes in the foreign assistance policies of the United States, and urges that past concepts of massive comprehensive bilateral aid be abandoned and the U.S. Agency for International Development be dissolved - not because they have failed but because world conditions have changed. The report further suggests that "a growing part of U.S. assistance should be provided through multilateral, international agencies so it will be free of foreign policy entanglements." The Peterson report has not, as yet, become official policy. Another example of possibly the changing approach to assistance and the supporting institutions is the emergence of a number of multilateral regional banks, with concomitant economic groupings.

In summary, it is clear that there is a relationship between communications and social and cultural change, but the precise nature of the relationship in defined economic and cultural contexts correlated against programme content in specific media is very imperfectly understood. Canadian experience as focused through the Telecommission and in other ways is likely to be highly relevant. Assistance projects must obviously proceed despite the gaps in our understanding, for the perfect must not become the enemy of the good, but we should be prepared progressively to modify assistance policy with increasing understanding over time.

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SECTION II

CANADA'S PAST AND PRESENT ACTIVITIES

2.A. Canadian International Development Agency (CIDA

CIDA's allocations rose from $288.6 million in 1968-69 to $338.1 million in 1969-70. Of the latter amount $269.7 million was for bilateral assistance and $68.4 million was provided through multilateral agencies such as the United Nations and the World Bank Group.

Canada continued the policy of bilateral aid to certain counties of concentration. The major recipients are: India, Pakistan, Ceylon and Malaysia; Nigeria and Ghana (in Commonwealth Africa); Tunisia, Cameroon and Senegal (in Francophone Africa); and the Commonwealth Caribbean. Countries receiving bilateral Canada aid are shown on pages 9 and 10. The countries are grouped by regions and a distinction is made between those countries of concentration or of special mention and those which are receiving Canadian aid at some level.

During 1969, there were about 2000 students and trainees from less developed countries studying in Canada under CIDA auspices. However, CIDA is giving increasing attention to projects which provide education and training in the developing country itself. About 700 Canadian teachers are working overseas through CIDA programmes and under the technical assistance programme. CIDA now has 250 experts abroad carrying out a variety of professional and technical jobs.

Telecommunications is one of many fields of economic activity that CIDA recognizes as important to development growth. The Canadian assistance programme is significantly involved in telecommunications, including the latest technology such as satellite communication earth stations. Such programmes can be an excellent investment for developing countries through increasing the quality, speed and dependability not only of their international communications but, in some cases, are essential to the improvement of their domestic communications system, eg., CIDA's recent loan to Pakistan for two satellite earth stations to link East and West Pakistan.

CIDA's bilaterial disbursements on telecommunication projects have been increasing both in aggregrate and relative to the other economic sectors receiving Canadian bilateral aid. The following table 1, page 11, indicates this growth. No detailed annual breakdown of expenditures on telecommunication projects from 1951 to 1967 is readily available:

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COUNTRIES RECEIVING BI-LATERAL CANADIAN AID

(Source - OECD)

COUNTRIES OF CONCENTRATION OR OF SPECIAL MENTION	RECEIVING AID
EUROPE:	EUROPE:
Nil	Turkey *
AFRICA:	AFRICA:
COMMONWEALTH COUNTRIES:	COMMONWEALTH COUNTRIES:
Ghana Kenya * Nigeria * Tanzania * Uganda *	Botswana Lesotho Malawi Sierra Leone Swaziland Zambia *
FRANCOPHONE COUNTRIES:-	FRANCOPHONE COUNTRIES:-
Algeria * Cameroon * Congo (Kinshasa) * Morocco * Niger Senegal Tunisia *	Burundi Central African Republic Chad Congo (Brazzaville) Dahomey Gabon Ivory Coast * Madagascar Malagasy Mali Mauritania Togo Upper Volta
OTHERS:-	OTHERS:
East African Community Rwanda	Ethiopia *
AMERICA: NORTH AND CENTRAL	AMERICA: NORTH AND CENTRAL
Barbados Honduras (Br.) Jamaica * Trindidad and Tobago * West Indies (Br.) (N.I.E.)	Nil
AMERICA: SOUTH	AMERICA: SOUTH
Guyana	Nil

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COUNTRIES RECEIVING BI-LATERAL CANADIAN AID - con't.

ASIA: MIDDLE EAST	ASIA: MIDDLE EAST
Nil	Nil
ASIA: SOUTH	ASIA: SOUTH
Ceylon *	Afghanistan
India *	Burma
Pakistan *	Maldive Islands
	Nepal
ASIA: FAR EAST	ASIA: FAR EAST
Cambodia	Hong Kong
Laos	Indonesia *
Malaysia *	Korea (South) *
Thailand *	Philippines *
Vietnam (South) *	Singapore *
OCEANIA:	OCEANIA:
Nil	Nil

* Member of INTELSAT

NOTE 1: Of the 28 Countries for concentrated aid, 17 are members of INTELSAT.

NOTE 2: Of the 30 other Countries receiving Canadian aid, 8 are members of INTELSAT.

NOTE 3: A total of 34 of the 52 LDC's of Africa are receiving Canadian aid at some level.

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TABLE I

TELECOMMUNICATIONS

BILATERAL DISBURSEMENTS BY CIDA

	Total Disbursements in $1000	Percentage of Total Bilateral Programme
1951-67	$ 3,793.1	0.5%
1967-68	1,572.1	1.1%
1968-69	5,015.7	3.3%

It is anticipated that the 1969-70 figure will be approximately the same as that for 1968-69. It is to be noted that the percentage for telecommunications assistance has increased and this increase parallels that of other aid sources such as the World Bank Group and is relatively of the same magnitude. The Canadian increase over the past few years could, be due to some relaxation in the "Canadian content" (requirement that assistance loans be used in part to purchase Canadian equipments and services), but nevertheless, there is a growing recognition in both recipient and donor countries of the interdependence of reliable domestic and international communications and the full exploitation of the assistance provided for other basic areas of economic development. To respond to this growing emphasis on communications, CIDA has increased staffing for this purpose.

Table II gives a breakdown of CIDA's bilateral disbursements for 1968-69 by economic activity and geographic groupings. It should be noted that communications allocations are exceeded in a major way by Commodities, Food, Transportation, and Technical Assistance.

The following is a brief summary of past and present CIDA involvement in telecommunications projects. Telecommunications equipment has been provided as an integral part of many projects in which it is not easily separable from the overall project for purposes of this review. An example would be the construction by CIDA of the Katunayake Airport in Ceylon. In some of these projects the telecommunications equipment is not necessarily Canadian since the overall Canadian content of the project is high enough to permit foreign purchase. An example would be the Swiss made (Brown-Bouveri) communication equipment purchased for the Hyderabad-Karachi transmission line in Pakistan. The summary does not include any mention of projects which may have been considered but rejected by CIDA. Thus, the following summary includes only telecommunications projects which are identifiable as such and which have been or are being implemented by CIDA.

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Bilateral Disbursements 1968-69

by Field of Economic Activity
($ Thousands)

	Agriculture and Rural Development	Commodities	Education	Energy	Food	Health and Social Services	Industrial Plants	Natural Resources	Communications	Transportation	Public Utilities	Cash Contributions	Technical Assistance	Total
Colombo Plan	476.1	26,474.0	782.5	5,192.0	48,765.4	2,267.2	352.6	233.7	2,252.8	5,826.3	3,898.3	1,729.1	5,328.8	103,578.9
Commonwealth Caribbean	423.8	—	1,197.6	—	100.0	124.3	116.8	1,409.4	513.1	739.1	918.7	48.1	3,509.3	9,100.2
Commonwealth Africa	16.8	—	69.1	—	4,227.1	128.5	279.5	190.1	1,728.9	2.3	366.9	50.5	8,347.8	15,407.4
Francophone Africa	—	891.7	512.8	—	6,032.1	16.6	—	—	—	67.1	159.9	46.2	6,704.8	14,431.3
Other Programs	—	—	29.0	—	—	21.8	—	—	423.1	.4	—	5,950.5	1,195.4	7,620.2
Latin America	—	—	54.7	—	—	—	—	559.4	97.8	2,565.8	40.0	—	—	3,317.7
Total Disbursements	916.8	27,365.7	2,645.7	5,192.0	59,124.6	2,558.4	748.9	2,392.6	5,015.7	9,201.1	5,383.8	7,824.3	25,086.2	153,455.7

The Bilateral Programme

a) Asia -At the present time the major Canadian telecommunications project in Asia consists of a development loan for $40,000,000 in support of a $600,000,000 telecommunications development programme in India. Under the programme, major Indian cities are to be joined by high capacity co-axial cable and microwave systems increasing the capacity of existing urban and rural telephone networks and generally improving efficiency and service. Canada will supply approximately $15,000,000-worth of microwave equipment and $23,000,000 worth of cable as well as some technical assistance support.

Canada is presently undertaking to build three earth satellite stations, two in Pakistan and one in India under contracts with RCA Company of Montreal. The Pakistan stations, one each in East and West Pakistan, will be used to send television, radio and telephone communications between the two parts of this country. These stations will be interconnected through an INTELSAT satellite to provide also a significant improvement in their international communication links. The total loan to Pakistan is for $10,500,000 and includes, in addition, to the satellite stations, major improvements to other communication facilities, and training. A similar project in India costing $4,000,000 will supply an earth satellite station at Poona, east of Bombay. The station whose total cost will be $7,000,000 will tie India to the global satellite system providing high quality multi-circuit telecommunications with Europe.

Canada is now supplying telephone cable through development loans to both India and Pakistan. The National Standard Company of Guelph is manufacturing $900,000 worth of cable over the next three years for Pakistan, and the General Electric Company of Canada is now finishing a project which consisted of $353,000 worth of telephone cable of various sizes for India.

Past telecommunications projects in Asia were not as large as the ones now being undertaken. The largest was only peripherally a telecommunications project in that no equipment was supplied; this consisted of $490,000 for the provision of architectural engineering and other technical services to design and supervise development of television facilities at Kuala Lumpur for the Government of Malaysia. Malaysia has also been given fifty two-way semi-portable radio sets purchased from the Canadian Marconi Company for $150,000. These sets were for the use of the Aborigine Medical Service.

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In India in 1963, Canada supplied and installed four dual diversity receivers and four transmitters in a $250,000 project for the Indian Meteorological Service. This project was necessary to fill an Indian commitment to maintain the Moscow-Delhi-Tokyo link in the Northern Hemisphere Meteorological Communication System. Canada has just recently finished a project involving $56,000 worth of microwave training school equipment for the Pakistan Telegraph and Telephone Microwave Training Department.

b) Commonwealth Africa The major CIDA involvement in telecommunications projects in Commonwealth Africa has been in Nigeria. In 1965 an initial development loan for $3,500,000 was made to Nigeria to purchase telephone cable from Phillips Cable Limited of Brockville. This project was part of the second phase of the development of telecommunications in Nigeria and the Canadian project was done in co-operation with two British firms that supplied $10,500,000 of telephone equipment. Canada is now more heavily involved in the third phase of Nigeria's telecommunications programme. In 1967 a $1,600,000 loan was allocated to provide through the Northern Electric Company of Canada, a 7,000 line telephone exchange in Lagos. In 1968, the project was increased by $8,000,000 to provide telephone exchanges in eight additional locations plus 3,000 more lines for the Lagos exchange. The loans for the third phase also pay for a technical training and maintenance programme for the switching systems.

Two other telecommunications projects are presently underway in Commonwealth Africa. Technical Material Corporation is supplying electronic equipment for five communications stations for the Kenyan national police force. This grant aid project costs $200,000 and also involves technical assistance to install the equipment and train the operators. In Lesotho, an $85,000 project consisting of a simple telephone exchange for the University of Botswana, Lesotho and Swaziland is now being implemented. $33,000 worth of Canadian telephone cable is to be installed by the local telephone company and once in place, a PABX system for 200 telephone lines is to be added by Canada.

In 1966, Canada agreed to a project to provide approximately $115,000 worth of equipment and engineering services necessary for ground-to-air communications facilities for the Blantyre Flight Information Centre in

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Malawi. The two other past telecommunications projects in East Africa were done for the former East African Common Services Organization. In 1965, a $38,000 radio transmitter was given to the East African Meteorological Department in Nairobi. $92,000 worth of aviation electronics equipment, consisting mainly of 9 T.M.C. transmitters for the use of the Civil Aviation Authorities have also been given to East Africa.

c) Commonwealth Caribbean CIDA has not carried out large telecommunications projects in the Commonwealth Caribbean comparable to the projects in India and Nigeria. The largest telecommunications project supported by CIDA in this area provided a radio telephone system for Jamaica. The $770,000 development loan purchased VHF and HF equipment for 65 fixed base and 66 mobile receiving and transmitting stations to link government departments on all parts of the island and central headquarters. A 1968 extension of this project included the Jamaican Railway Corporation.

Two smaller projects have consisted of providing aviation electronics equipment. In a project undertaken in 1963, Canada supplied the necessary equipment for a V.O.R. (V.H.F. Omni Range) instrument landing system at Piarco Airfield, Trinidad. The total cost of the project including installation and shipping was about $134,000. Canada has recently allotted a grant of $165,000 to Guyana to purchase and install point-to-point communications equipment for Guyana Airways Corporation. This project is now being implemented.

d) Francophone Africa There have been no telecommunications projects undertaken by CIDA in Francophone Africa, although possibilities are being pursued for satellite communication earth stations.

e) Latin America Through the Inter-American Development Bank, CIDA is now participating in a $16,300,000 telecommunications project in Chile to improve the long-distance communications within the country. CIDA is providing a development loan of $4,230,000 for the extension of a microwave system, provision of H.F. and V.H.F. radio and radio telephone networks and supply of toll switching equipment. In addition, Canada will train four technicians in Canada and provide other technical assistance.

f) Other Programmes CIDA is contributing $4,000,000 in grant aid to a $25,000,000 telecommunications project in Turkey won under international competition by the Northern Electric Company of Canada. At the time the debt servicing capacity of Turkey had been exhausted to the extent

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that the Turkish authorities and the Consortium of which Canada is a member were requiring financing at an interest rate of 3% and amortization over 15 years. To meet these requirements, a grant was made by CIDA that reduced the effective interest rate of the total Canadian package. The project consists of supplying telephone equipment to the Turkish Posts Telegraphs and Telephone Administration.

The Multilateral Programme

Canadian telecommunications equipment manufacturers have supplied equipment and technical expertise to aid projects under the auspices of the World Bank, International Development Association (IDA), the United Nations, and the Organization for Economic Cooperation and Development (OECD). These organizations require international bidding on the tenders for their aid projects; no list of successful Canadian bidding on such tenders is readily available. The following multilateral aid organizations are summarized in Appendix A.

- The World Bank; IDA
- United Nations, ITU, UNESCO
- Asian Development Bank
- Interamerican Development Bank
- Caribbean Development Bank

The Private Sector

In addition to official aid activities, CIDA also assist Canadian non-governmental agencies to strengthen and increase their participation in international development. In 1968-9, grants totalling almost $4 million were made to more than 50 agencies. Grants to non-governmental agencies are based on a "matching" principle. The voluntary agency supplies one-half to two-thirds of the funds required. The largest grants have been to the Canadian University Services Overseas (CUSO), and the Canadian Executives Services Overseas (CESO).

CUSO's involvement in the provision of personnel for work in telecommunications has been very limited. At present there is one volunteer working on external telecommunications for the East African Post and Telecommunication System.

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The remainder of CUSO's communications activities are in educational radio and television. In Nigeria, CUSO currently provides a producer/director for work in the English Language Schools Broadcast Division of Kaduna Television. In Peru, a CUSO engineer maintains equipment for the Adult Education Radio School operated by the Franciscan Missions.

Telecommunications are really outside the area of maximum CUSO concentration, which tends to be related to education. While CUSO remain sufficiently flexible to respond to the requirements of developing countries as they become evident, they do not anticipate, at this time, that they will be supplying personnel for employment in telecommunications to a greater extent than is currently the case.

CESO is a non-profit organization which recruits senior and usually retired executives, middle management, and technical and professional men to serve without salary for up to six months in developing countries. Their job is to hand on valuable financial or operating knowhow. There is no loss to Canada and a net gain to the countries involved.

There are now more than 800 volunteers on the roster with a broad range of skills. CESO provides fares for the volunteer and his wife, the host country their board, lodging, and incidental expenses. CESO commitments are underwritten by the CIDA.

So far, CESO has handled 280 requests, 90 of which were withdrawn before CESO could place a man in the field. Of the 190 projects, the remaining 78 have been completed, 47 are open pending location of suitable candidates, while volunteers now in the field or awaiting acceptance for projects, total 65. About 18% of the projects are in South America, 42% in the Caribbean and the rest in Asia, India and the Middle East.

Assignments have averaged 3.7 months each. CESO also cooperates with the UN Technical Assistance Recruitment service in searching its own roster for suitable candidates. There is a large fund of goodwill being built up for Canada by CESO efforts abroad, and often other organizations can follow up CESO efforts with further support. At the time of contacting CESO in February 1970, there were no commitments for executives in the communications field.

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2.B. Canadian Broadcasting Corporation

The Canadian Broadcasting Corporation has a long tradition of cooperation with foreign broadcasters. In 1938, only two years after the CBC succeeded the Canadian Radio Broadcasting Commission, a CBC radio producer was seconded to the Australian Broadcasting Commission to produce drama and special features. Since then, the CBC has seconded its personnel to international organizations and foreign broadcasters, and has responded to requests from both international agencies and foreign broadcasters to provide training and practical attachments to overseas trainees.

The first responsibility of the CBC is the discharge of its responsibilities as laid down in the Broadcasting Act. Its involvement abroad is geared to the implementation of its mandate and the Corporation has no special fund to assist foreign broadcasters. Except in special cases, such assistance as is provided by the Corporation is given through the Canadian International Development Agency, UNESCO, and other international organizations, who assume all direct costs to the Corporation of such assistance.

The Corporation operates a National Training Centre at Engineering Headquarters in Montreal. Formal technical courses are offered throughout the year. The programme and the design of these courses are geared to the needs of the Corporation and directed to its own personnel. Overseas technical trainees are registered in the appropriate courses given during their stay with the Corporation, and practical attachments are arranged for the balance of their training period.

In other areas, such as production, stage design, and news, training within the Corporation is in-service, on-the-job training. Since these courses are for CBC personnel, they are offered in a series of seminars which are given irregularly according to the availability of staff who are free to attend.

Because of the peculiarities of training facilities within the CBC, each request for training from a developing country is treated on an individual basis and the response is the result of a cross-Corporation

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canvass. The training programme is established for each trainee according to his own requirements.

In addition, the CBC accepts every summer, on attachment, a number of overseas students sponsored by CIDA who are studying in Canadian universities and colleges in fields related to broadcasting.

During the ten-year period from November, 1959, to November, 1969, the CBC provided a total of approximately 807 training-months to 190 trainees from 31 developing countries.

At the request of CIDA or international agencies, the CBC may release members of its staff for special projects. The CBC has been called upon to provide specialists to make feasibility studies, to act as advisors on a long or short-term basis, and to act as instructors. Here again, except in special cases, all direct costs are borne by the requesting agency. In this connection, the CBC has been involved in several major projects abroad, the most important of which were the introduction of television services in Ghana and Malaysia.

In Ghana, the recommendations of a feasibility study for the introduction of a television service conducted by two CBC specialists were approved by the Ghanaian government. A Canadian engineering consulting firm went to Accra to produce designs and tender specifications for a TV studio centre and a supporting network of microwave links and appropriate transmitters. In the Autumn of 1961, by arrangement with the then External Aid Office, a senior CBC technician and a producer went to Ghana and, with two senior Ghanaian technicians, began setting studio-classroom facilities. At the beginning of 1963, the first classes began with ten production trainees, a dozen technicians, a film student and a young artist.

In June 1963, the first 22 Ghanaian trainees in all fields of broadcasting came to Canada for a year. An equally large contingent replaced them in 1964 for basic training at CBC facilities. During this period it became necessary to increase the staff of the Accra training school and three more CBC staff members, a producer, a television news editor, and a film camera man-editor, went to Ghana.

Early in 1964, film training started and, after five months of classes and exercises in Accra, the first six film trainees went to CBC Halifax

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and Winnipeg production centres. The second group of six, having spent a year in Canada, replaced their colleagues in the Accra training programme.

As a result of this approach, Ghana TV went on air in the summer of 1965 with a fully-manned station providing a domestic programme schedule from the very beginning, ranging from news, sports and special events programmes, to some variety and light entertainment programming.

Again, in Malaysia, following a Malaysian government decision to introduce television, two CBC advisors (one in engineering, the other in administration/programming) went to Malaysia in 1962 under the Colombo Plan to conduct the feasibility study and submit recommendations to the Malaysian government.

In 1963, the administration/programming advisor returned to Malaysia on a long-term basis and was joined the following year by three more CBC advisors. As in Ghana, a Canadian engineering consultant firm was appointed under the Colombo Plan to provide the plant design and tender specifications.

At the same time, Malaysian technicians, engineers and producers were being trained in Canada and Malaysia. The pilot television services began in December 1963 and by mid-1964 the permanent service of "Talivishen Malaysia" began. Before returning home, the principal CBC advisor presented the Malaysia government with a plan for broadcasting organization development and a long-range projection for the expansion of the television service.

During the period of November, 1959, to November, 1969, 27 CBC advisors were seconded to 10 developing countries of Africa, Asia and the Caribbean for a total of 246 man-months. In most instances, these secondments are arranged and financed by CIDA or UN agencies. These assignments ranged from a feasibility study of a merger between Sierra Leone Radio and Sierra Leone Television, to a detailed study of the improvement and development of broadcasting technical facilities in Nigeria. In the summer of 1970, a CBC technical instructor was assigned to a regional course for radio studio operators organized by the Commonwealth Broadcasting Secretariat.

The following table gives an overview of the activities of the CBC's assistance to foreign broadcasters during the past ten years:

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November 1959 to November 1969

	Trainees	Total months of Training	Secondments	Total months
Algeria	15	30		
Antigua	1	4		
Barbados	2	3-1/2		
Camerouns	6	25	2	36
Ceylon	1	1/2		
China	5	3		
Congo (Brazzaville)	2	5-1/2	1	4
Congo (Kinshasa)	3	19-1/2		
Ghana	47	310	9	113
Guyana	3	6		
India	4	6-1/2		
Indonesia	11	28		
Israel (x)			2	13
Jamaica	4	11-1/2	2	5
Kenya	11	26	1	1
Korea	3	28		
Malagasy Republic			1	3
Malaysia	40	129	6	94
Morocco			1	1
Nigeria	3	9	1	1-1/2
Pakistan	8	32		
St. Kitts-Nevis-Anguilla	3	11-1/2		
Sarawak	2	3		
Senegal	1	5		
Sierra Leone	1	9	1	1/2
Singapore	1	4		
Tanzania	1	6		
Togo	1	3		
Trinidad & Tobago	2	4 1/2		
Tunisia	3	31		
Turkey	2	1		
Uganda	4	52		
TOTAL	190	807	29	259

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2.C. Export Development Corporation (EDC)

There is an important relationship between the financing provided by CIDA for development assistance and the funds provided through the Export Development Corporation (EDC) (formerly Export Credits Insurance Corporation) to finance and provide Credits Insurance for Canadian exports. Although the purpose of EDC is to promote Canadian exports, the amounts provided to less developed countries are included in the international accounting of aid flows published by the Development Assistance Committee of the Organization for Economic Cooperation and Development (OECD). Funds allocated under the development assistance programme are intended to help in the development of the recipient country, but because bilateral assistance is partly tied to Canadian goods and services it is a significant additional source of financing for Canadian exports.

A new investment insurance facility is being provided by the Export Development Corporation. Investment Insurance will protect Canadian investments in less developed countries against such non-commercial or political risks as war, insurrection or revolution, expropriation or confiscation, and prohibitions against the repatriation of earnings or capital. Insurance will be provided only in countries where an understanding has been reached between the governments of Canada and the host country concerning the general treatment to be accorded to the investments and claims under the insurance.

Individual investments will be approved for insurance only if they are judged to result in commercial and industrial advantages to Canada and provided they will complement Canada's development assistance objectives.

Loans are made by EDC on a commercial basis at conventional interest rates, ie., hard loans. In this respect, EDC is only somewhat analogous to the World Bank and the International Finance Corporation but is fully comparable to the US Export-Import Bank.

The purpose of long-term export financing and Credits Insurance is to give encouragement and assistance to Canadian exporters of capital equipment who develop business possibilities abroad. Through these facilities, exporters who can meet international competition in terms of price, quality, and deliveries are afforded the opportunity of competing in terms of credit as well.

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This kind of financing is a useful form of capital assistance for economic development in recipient countries, but is not intended as an instrument of Canadian foreign aid but nevertheless, is complementary to it. Accordingly, while the terms of credit match international financing terms for viable projects, they are not intended to match aid-type financing facilities.

As an example of a multination financing agreement which places the onus on a supplier to be internationally competitive, is the "Agreement on Maximum Terms of Payment for Ground Satellite Communication Stations", which follows:

(REVISED TEXT - OCTOBER, 1967)

(1) The parties to this Agreement are the following Government Departments and Agencies:-

CANADA	Department of Trade and Commerce
FRANCE	Ministry of Economy and Finance
FEDERAL GERMAN REPUBLIC -	Federal Ministry of Economy
ITALY	Ministry of Foreign Trade
JAPAN	Ministry of International Trade & Industry
NETHERLANDS	Ministry of Finance
SWEDEN	Ministry of Commerce
SWITZERLAND	Department of Commerce
UNITED KINGDOM	Export Credits Guarantee Department
U.S.A.	Export-Import Bank of Washington.

(2) The Agreement shall apply to all sales of Satellite Ground Communication Stations except those current cases already specified by parties to the Agreement as being excluded because negotiations on longer terms were already too far advanced. The only such current cases concern sales in Mexico, Argentina, Chile and India.

(3) Maximum terms of payment shall be eight years from commissioning of each station but the final payment may in no event be later than ten years from the date of the purchase contract. At least 10 per cent shall be payable by completion of delivery and the balance shall be by regular and equal instalments.

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(4) It is clearly understood that aid must not be used to circumvent the agreement and that the above limitations shall apply to all forms of official support and finance including aid. However, if, for exceptional reasons, any party to the Agreement wishes to concede more favourable terms in a particular case for aid reasons, he may do so but only provided that adequate notice of his decision is given to all other parties to the Agreement.

(5) Similarly, any party to the Agreement may offer more favourable terms in a particular case to match terms offered with official support by any country which is not a party to the Agreement, provided that adequate notice of his decision is given to all other parties to the Agreement.

(6) For the exceptional cases referred to at paragraphs (4) and (5) above adequate notice shall be interpreted as requiring that notification of the decision to support terms more favourable in any way than those of the Agreement must be made to all other parties to the Agreement in time for them to be able to compete effectively on those terms, i.e., before any contract has been signed or, in cases where tenders are invited, at least 7 days before the closing date for tenders. All parties to the Agreement must be given the opportunity to match credit terms offered by any member exceeding those set out at (3) above. Support (including the provision of aid) will be refused for any contract signed on more favourable terms before other parties to the Agreement have been given such advance notice.

Since 1961, the Export Development Corporation have financed in the Telecommunication sector, a large number of loans for developing countries. In dollar value the total of the loans is exceeded only by the loans in two other sectors, Nuclear Power and Railways (locomotives and rails).

The total of the loans for telephone equipment is $91.7 million. These loans were for Dominican Republic, Greece, Israel, Jamaica, Philippines, and Turkey. Loans for microwave equipments and systems totalling $16.6 million

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were for Colombia, Liberia, Mexico, the United Arab Republic and Korea. A further loan for $ .48 million was for satellite earth station equipment in Brazil. The foregoing total $108.8 M up to 31 May, 1970.

2.D International Development Research Centre (IDRC)

The IDRC was established by Act of Parliament in May 1970 to "initiate, encourage, support and conduct research into the problems of the developing regions of the world". World-wide "development research" constitutes less than half of one percent of the aid budgets of donor countries at present. The Secretary of State for External Affairs announced in the House of Commons that the Government would provide a minimum of $30 million over the first five years for the administration and programmes of the IDRC. After this initial period, governmental support is expected to be related to the level of the Canadian aid programme and may amount to as much as 5 percent of Canadian aid funds or about $25 million by 1975.

The policies of the IDRC will be vested in an international Board of Governors who will hold their inaugural meeting in October 1970. The Centre's work will be oriented toward the solution of scientific and technological problems confronting rural peoples in the underdeveloped regions of the world. The research projects financed by the Centre will be carried out in a variety of countries. It is possible that as part of the Centre's total programme, some attention may be directed toward the development of an information system concerned with the field of development research around the world.

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2.E. National Film Board (NFB)

The National Film Board has provided pictorial information service in the form of motion picture films, filmstrips, slides, photographs and related materials as a regular part of its legislative mandate. To meet the growing demand the Board operates distribution offices in London, Paris, New York, New Delhi, Buenos Aires and Tokyo. In addition libraries are maintained in External Affairs posts throughout the world. Over fifty language versions of many Canadian films are available to meet an audience which approaches one hundred million persons per year.

As one of the few organizations in the democratic world which operates a complete film communication service including all phases of production and distribution it is natural that the Board would represent an appealing model to the developing nations for their information services. Possibly an even stronger reason is the unique editorial freedom enjoyed by the Film Board in planning its programmes.

As a result of these factors, the Board has become an international film reference centre for many countries. Typical projects have included:

(a) Training foreign film-makers in Canada and abroad.

(b) Consultation and feasibility studies on organization, administration, technical plants, distribution, etc., in Africa, Ceylon, India, Malaysia, Mexico and South America.

(c) Provision of special equipment, for example, Cinema Vans, built in Canada and delivered to various African countries.

Based on this background, certain general observations can be made:

(a) Aid to a developing nation in the field of communication must be planned as a total system which includes hardware, software and adequate training of personnel to programme the facilities independently. The quantities of oversold hardware presently unused in our domestic school system should constitute a fair warning not to repeat that error on an international scale.

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(b) The major part of training programmes should be carried out within the country concerned so that information support programmes may be directly related to local needs with the active participation of the people involved.

(c) Communication programmes should be planned on a systematic basis (preferably as a result of serious research studies as recommended by Erskine Childers), instead of the present ad hoc procedure which provides no continuity or feedback for those who must plan hardware and software components.

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2.F. Department of Communications (DOC)

Personnel in the Department of Communications continue to participate in consulting services in a number of ways. Expert advice is provided to Canadian International Development Agency (CIDA) on proposed telecommunication projects in other countries which CIDA have been requested to support through assistance loans. In this regard, DOC were intimately involved in the assessment of satellite communication earth terminals for Pakistan, and this subsequently lead to CIDA's support for two earth terminals to be supplied and installed by Canadian industry. In addition, CIDA placed heavy reliance on DOC in formulating and preparing specifications for a major improvement and expansion to the microwave communication system in India. This pattern of expert assistance to CIDA was repeated regarding the construction of an extension to the microwave system in Chile, and again with respect to the expansion of the telecommunication maintenance and training facilities in Nigeria.

DOC is often requested by CIDA to evaluate personnel applying for international positions in the field of telecommunications either with the International Telecommunications Union (ITU) or in connection with technical missions and projects within the United Nations Development Programme (UNDP).

The UNDP has made specific requests for technical advice from DOC personnel. Such requests are coordinated with the Department of External Affairs (EA) and CIDA. For example, a DOC expert was provided to lead a group of technical experts in the evaluation of the satellite earth station at Amedabad, India, as a training centre for technicians from other developing countries. The same expert was requested by the UNDP to represent it at the Paris UNESCO Conference on Space Communications which was held in December 1969.

Occasionally, DOC advice is sought by the ITU. In January 1970, Canada, one of five countries, was requested to provide an expert on satellite communications, to evaluate earth station designs which could economically meet the requirements of developing countries. It should be noted that Canadian engineers are often consulted during the course of the many ITU sponsored meetings by engineers from developing countries. Frequent consultations also take place with other government departments such as External Affairs, Ministry of Transport, Industry Trade and Commerce, and National Defence, on a wide variety of questions and projects involving telecommunications.

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2.G. Industry Questionnaire

In order to obtain an estimate of the direct contribution which the Canadian Telecommunication Industry has made in the area of technical training to developing countries, a questionnaire was prepared, see page 30. This question was sent to 64 companies. Of this total, there were 37 replies, 24 of which showed Nil activities, leaving 13 with some relevant information. Northern Electric, Bell Canada, RCA., T.M.C., and IBM have contributed the bulk of the training.

The total value of the training provided by these companies amounted to about $1.3M over the last five years and involved some 30 countries. Some of the training was given free of charge by companies in some instances. In most other cases the training was provided as part of the cost of a contract.

A large part of the telecommunication industry in Canada is affiliated with foreign owned companies. It is apparent that this subsidiary role of our industry is a significant factor in its lack of participation in assistance activities and in the area of technical training. Two comments made in the questionnaire could support this conclusion. Although appearing only once in the responses they were "not involved due, in part, to the license arrangements the Company had until February of 1969 which restricted the Company activities in Canada", and "As (our Headquarters) has manufacturing facilities in many of the developing countries, the technical assistance tends to be given directly by our Headquarters".

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TELECOMMISSION STUDY GROUP 3 (b)

QUESTIONNAIRE: TECHNICAL ASSISTANCE TO DEVELOPING COUNTRIES

Name of Donor Company or Organization _____

Country to which technical assistance has been given _____

ITEM	DESCRIPTION		TRAINING IN CANADA	TRAINING IN RECIPIENT COUNTRY	REMARKS
1.	Total number of foreign personnel trained				
2.	Total man years of training received.				
3.	Approx. costs.	3.1 Instruction			
		3.2 Training material (books, tools, equipment, etc.)			
		3.3. Subsistence for trainees			
		3.4 Transportation " "			
		3.5 Subsistence for instructors			
		3.6 Transportation " "			
		3.7 Other (define)			
		TOTAL			
4.	Source of funds	4.1 Canadian Gov't			
		4.2 Donor's expense			
		4.3 Recipient Country			
		4.4 U.N. or other programme			
		4.5 Part of commercial contract			
		4.6 Other (define)			
		TOTAL			
5.	List of any other assistance given e.g. equipment, training material, setting up of technical schools etc. indicating source of funds as per Item 4.1 to 4.7				

Attach separate sheets, if necessary.

SECTION III

THE ROLE OF TELECOMMUNICATIONS IN DEVELOPMENT

General Considerations

The introduction of this report does, in fact, contain an assessment of the potential role of telecommunications in developing countries. Caution is expressed with respect to the need to fully understand the relationship between communications and the "developing" process. It is concluded that one cannot generalize about developing countries and draw conclusions which would be relevant to all. It is accepted, however, that improving telecommunication systems ie., conventional services and mass communication media, radio and television, is a valid activity which could lead to improving the social well-being, eg., literacy, of a developing country. It is also recognized that improvements to the communication capability in developing countries can be a vital catalyst or pacing item in achieving the full exploitation of the potential for development. Nevertheless, it should be noted that the rate of introduction of cultural change which could be brought about by an accelerated introduction of improved communications is a significant factor, and it is not irrational to have assigned a low priority to electronic communications in order to allow change to evolve in an orderly fashion while retaining cultural inheritances.

A separate report to the Telecommission, entitled "Communications and Development in the Seventies" by F.L. Goodship of the Communication Department, UNESCO, is an annex to the report herein. The Goodship report is primarily concerned with the processes of mass communication, and its role in development, especially in its electronic forms of radio and television. The report discusses five separate aspects as follows:

1. the function of mass communications in the developing world.
2. the present state of communications development in some representative developing countries.
3. the major agencies, both national and international, which are associated with communication development.
4. the needs of developing countries and assigns a scale of priorities.

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5. suggests how the most urgent needs can be met, and how both national and international agencies can best assist in the process.

Roles of Traditional Communications

Satellite Communication has become a major element in planning the improvement of national and global communications. No other single development contains the potential to interconnect all nations via a common communication system. In addition, some developing countries are in a unique position to benefit directly from this technology, not presently being encumbered by a large investment in terrestrial transmission and distribution systems. Many developing countries are planning the use of satellites as a major, vital, national capability to accelerate their social and economic development. Other countries, because of geographic considerations, for example, joining East and West Pakistan require satellite communications to eliminate their dependence on foreign systems for passing purely domestic traffic. Satellite communications presents mankind with unprecedented possibilities to assist in solving some of the urgent needs of the developing countries to achieve efficient and increased flow of information, and to reduce the isolation of countries, communities and individuals. The developing countries have already recognized the importance of satellite communication to provide reliable external communication links. Of the 75 Member Countries of the International Communication Satellite System (INTELSAT) as of 15 April, 1970, 52 are listed as developing countries within the OECD criteria. A list of the members of INTELSAT showing the developing countries are contained on pages 36, 37, and 38.

Broadcasting from satellites represents an advanced stage of the general development of satellite communications. The effects and implications of satellite systems used for broadcasting purposes must be set against the background of the political, social, economic and technological environment into which they are introduced. The increase in capacity and flexibility, and the potential for national and international services provided by satellites, as compared with terrestrial systems, point to new patterns of broadcasting geographically and functionally with far-reaching social implications. Men and women everywhere will become more conscious of their environment. Such opportunities carry with them commensurate responsibilities. The common interest in taking full advantage of these opportunities demands common action; a partnership between the developing countries and the

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industrialized nations for the utilization of satellite systems for educational, economic and social development purposes.

In a long term perspective, it can be expected that various types of 'point-to-point' communications, distribution, semi-direct and direct broadcast satellite systems will be in use simultaneously. An important consequence will be the development of new concepts for communication and broadcasting satellite systems characterized by greater flexibility to decide and organize communications according to social needs and general requirements.

The possible effects of satellite broadcasting should be seen against the background of the explosive development in radio and television all over the world, which has turned the electronic mass media into one of the most important and persuasive means of communication and information, dissemination

Through active participation in space research and technology, Canada has developed competence in the development, construction and utilization of satellites and earth stations. The Canadian Alouette-ISIS programme of scientific satellites is an excellent example of how an international programme can help nations which do not have the resources and skill to build their own satellites. Based on experience gained in the development and construction of Earth's terminals, as well as through participation in experiments with low channel capacity satellites, such as for communication between Earth's terminals and aircraft and ships using satellites, Canada has been able to advise developing countries as well as international organizations on the utilization of satellites for scientific and communication purposes. These activities also include advice given on system design characteristics and the interpretation of operational requirements of the potential user.

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INTELSAT MEMBERSHIP

15 April, 1970

*	ALGERIA	February 19, 1965
*	ARGENTINA	May 19, 1965
	AUSTRALIA	August 24, 1964
	AUSTRIA	May 6, 1965
	BELGIUM	February 10, 1965
*	BRAZIL	May 17, 1965
*	CAMEROON	November 6, 1969
	CANADA	August 20, 1964
*	CEYLON	February 17, 1965
*	CHILE	May 18, 1965
*	CHINA	February 17, 1965
*	COLUMBIA	February 19, 1965
*	CONGO, DEMOCRATIC REPUBLIC OF	February 2, 1970
	DENMARK	March 3, 1965
*	DOMINICAN REPUBLIC	January 12, 1970
*	ETHIOPIA	February 19, 1965
	FRANCE	January 18, 1965
	GERMANY	September 21, 1964
*	GREECE	May 19, 1965
*	GUATEMALA	March 7, 1969
*	INDIA	February 19, 1965
*	INDONESIA	February 19, 1965
*	IRAN	September 3, 1968

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*	IRAQ	February 17, 1965
	IRELAND	October 5, 1964
*	ISRAEL	November 30, 1964
	ITALY	March 10, 1965
*	IVORY COAST	September 10, 1969
*	JAMAICA	February 4, 1969
	JAPAN	August 20, 1964
*	JORDAN	February 12, 1965
*	KENYA	October 11, 1967
*	KOREA	February 24, 1967
*	KUWAIT	February 12, 1965
*	LEBANON	February 12, 1965
*	LIBYA	February 12, 1965
	LIECHTENSTEIN	July 29, 1966
	LUXEMBOURG	February 24, 1969
*	MALAYSIA	May 25, 1966
*	MEXICO	October 25, 1966
	MONACO	February 28, 1965
*	MOROCCO	June 22, 1966
	THE NETHERLANDS	August 21, 1964
	NEW ZEALAND	February 12, 1965
*	NICARAGUA	February 11, 1969
*	NIGERIA	December 8, 1965
	NORWAY	August 31, 1964
*	PAKISTAN	June 30, 1965
*	PANAMA	October 20, 1967

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*	PERU	June 9, 1967
*	PHILIPPINES	November 30, 1966
	PORTUGAL	January 14, 1965
*	SAUDI ARABIA	February 19, 1965
*	SINGAPORE	June 3, 1966
	SOUTH AFRICA	February 8, 1965
*	SPAIN	August 20, 1964
*	SUDAN	April 5, 1965
	SWEDEN	January 18, 1965
	SWITZERLAND	September 16, 1964
*	SYRIA	February 12, 1965
*	TANZANIA	June 16, 1967
*	THAILAND	May 12, 1966
*	TRINIDAD & TOGAGO	January 20, 1970
*	TUNISIA	February 19, 1965
*	TURKEY	May 6, 1968
*	UGANDA	January 5, 1968
*	UNITED ARAB REPUBLIC	February 19, 1965
	UNITED KINGDOM	August 20, 1964
	UNITED STATES	August 20, 1964
	VATICAN CITY	August 20, 1964
*	VENEZUELA	December 30, 1965
*	VIET NAM	February 21, 1969
*	YEMEN	June 29, 1965
*	YUGOSLAVIA	February 24, 1970
*	ZAMBIA	March 20, 1970

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* Developing Countries.

Telecommunication in Transportation: The economic development of any country depends to a very large extent on the availability of an efficient transportation systems. Without efficient transportation products cannot be moved from their source of origin to their ultimate market. In general, transportation includes surface, marine and air transportation systems. In turn, surface transportation can include road and rail transportation, and oil and gas pipe-lines, while marine transportation consists of both ocean going and inland river and canal traffic.

In all forms of transportation, telecommunication support services are vital to efficient operations. For example, it is impossible to envisage the operation of modern railway systems without adequate communications to report the location of trains, to operate signals and to control traffic. Oil and gas pipe-lines are completely dependent on good telecommunications for control and telemetry purposes. The need for adequate and reliable communications enters all phases of the operations of shipping and air services which includes coordination of traffic from and into docking facilities and airports respectively. Communications in support of these latter services can be considered to include radio navigation support system, for example, Loran, Omega and Decca and shipborne and airborne radar.

In the not too distant future the application of geo-stationary earth satellites for position determination, navigation, and communications could possibly lead to major orientation in the way in which communication support services are "meshed" with the major elements in transportation.

Developing countries which do not presently have sophisticated communication systems in transport applications could, perhaps, be in the best position to benefit from technological advances. Nevertheless, where international traffic is involved, certain facilities must conform to a high degree of existing standardization. For example, the technical performance requirements of much of the airborne and airport equipment are rigidly standardized by the International Civil Aviation Organization (ICAO).

Undoubtedly, there is an intimate relationship between the improvement of transportation services and their communications support systems, with the result that the improvements and augmentations in these areas require close coordination.

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Technological Developments and Their Implications: Among the many technological developments of the last two decades, television, wideband radio relay and satellite communication systems have received particular attention in assistance programmes related to the need to improve telecommunications and mass communication capabilities in developing countries. However, for example, satellite communication represents an extreme example in a class of large-scale projects. This class is characterized by three main features.

- A very large investment may produce very large effects, but no results can be obtained until a high threshold level of investment is made.
- Once operational systems of the above class require a very high intensity of utilization which in turn could incur high costs; for example, the development of programming for TV.
- The decision to incur the high initial investment has to be made before one can confirm that an effective utilization for the given environment has been developed.

Most of the developing countries are usually faced with similar urgent economic and social problems, such as, increasing productivity in the agricultural and industrial sector, and containing population growth. Because of this, many developing countries have yet to develop plans for the utilization and implementation of well organized communication networks and television systems which are necessary to communicate in an environment where the population is widely dispersed and the illiteracy is high.

Since most of these countries are yet to use modern communications technology, there is a temptation to conclude that savings can be effected and the countries enabled to take a large step into an altogether new plan of technology. The possibility of implementing modern communication and television systems including programme production facilities is an exciting one which could yield long-range socio-economic benefits and assist in arresting the widening gap between the industrialized world and the developing countries. However, because of the limited exposure to modern technology and the lack of adequately trained personnel in some of the developing countries, the appropriate rate of introduction of modern technology is a vital consideration.

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In the area of mass communication and education, the problems may be more appropriately approached by the use of small self-contained systems which permit production or adaptation of programmes and their use with small audiences as an effective method of using the medium in a particular environment. For example, a portable tape recorder was the first in this kind of approach, but non-visual presentations are very limited in their effectiveness, while a film camera and projector requires a film development laboratory, is costly and requires highly skilled personnel and lacks the facility for instant replay. A closed circuit television record and replay system has most of the desirable characteristics but until recently, the cost and size have been prohibitively large and reliability poor. The Electronic Video Recording (EVR) represents a further promising breakthrough in this area.

To assist the developing countries to achieve their objectives they will require continuing help in the evaluation of the benefits and limitations to be derived from the application of new technology, and in the development of system concepts based on requirements of the individual countries.

A comprehensive report covering the communication developments of the last two decades is beyond the scope of this report. However, in brief, it can be said that the rapid advances in communications would not have been possible without the development of solid state and integrated circuit techniques, leading to small equipment designs with low power requirements, and reduced maintenance costs. With the applications of computer technologies to all aspects of communications, data processing and information systems, a major result will be in shortening the time when developing countries will be in a position to benefit from modern advances in engineering and system designs.

The Reader is referred to the Telecommission Report No. 4(a), which contains an extensive review of technology developments which affect all aspects of communications.

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SECTION IV

FACTORS IN PLANNING FUTURE ASSISTANCE

Communication Equipment

Communication equipments fall into two major categories; equipment used for installation as part of operational systems, and equipment used for training purposes.

In the first category there is capacity in Canada for the supply of automatic switching systems, subscriber instruments, radio and carrier equipments and satellite communication ground stations. The problems facing the Canadian companies are many but the one that is somewhat limiting is the technical incompatibility between Canadian systems and systems used outside Northern America. The Canadian system is compatible and completely integrable with the US system. However, in communicating between Canada and Europe, there are both technical and operating differences.

The ITU is now recognizing two standards, a North American standard and a "rest of the world" standard. This duality places serious limitations on the Canadian suppliers in their pursuit of export opportunities, and on their competitiveness in the provision of equipments within assistance programmes. Canadian companies are faced with two options: (1) to find a market which will readily accept a product designed for the Canadian system or (2) to adapt a current line or develop new equipment. The latter option requires that Canadian suppliers have a research and development activity, which many do not have, particularly the companies which are not owned and controlled in Canada. Some companies, however, have met this challenge and have invested in research and development towards the internationalization of Canadian communication equipments.

Communication Systems Planning and Engineering

Experience has shown that merely supplying equipments and building communication systems in developing countries is not enough. Developing countries have serious problems in supplying the need for technicians, and lower, middle and upper management to operate and maintain modern systems. They require a much higher level of skills than is now available in most developing countries. Too often a soft loan programme associated with the

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provision of new systems does not extend into the subsequent phase of training people to maintain, operate and administer their system efficiently. A follow-through training programme would normally extend over a period of up to two years, depending upon the level of skills available and the ability of the trainees to absorb the new technology.

In addition to the training need, developing countries are usually short of planning expertise, people who can look ahead five to ten years, prepare basic augmentation plans and initiate their implementation. Canadian skill and experience exist in all these areas and the Government should consider making them available to developing countries through assistance programmes. Substantial assistance has been given to many countries by the ITU, and the European countries have already contributed a great deal of skilled manpower, and assisted in setting up communication administrations.

There are some difficulties associated with the provision of technical assistance. First, the assistance available must be provided within a correct appreciation based on a realistic assessment of priorities and the availability of scarce resources and skills in the individual developing countries. Very often, what is asked for may not be what is really needed and it requires a delicate balance to ensure that agreement is reached between the donor and recipient countries. In some cases, assistance may not be available because of the total differences between the social and economic structures in the donor and recipient countries. Second, it is essential that any technical assistance given should be aimed towards making the recipient country self-sustaining. It is not enough that the developed countries do the job for them. They must also train the local people to take over so that the assistance people can return home knowing that their work will be continued and the full benefits of the assistance investment will be achieved. Scholarships for students and trainees to attend places of education and instruction in the donor country have been granted. However, sometimes the trainee does not wish to return to his own country because he has become accustomed to the standards of living in the donor country, which may then be accused of causing a brain-drain from the recipient country. Also sending key personnel away for instruction and training, means that these people have to leave their jobs, which then have to be filled probably by a less qualified person and this creates a problem

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of manpower resources. Although study abroad is excellent for specialized subjects and higher education, it seems preferable to set up instructional facilities in the recipient country, where the instructors and technical assistance personnel from the donor countries can stay for up to two or more years.

In order to help a country to develop its telecommunication systems, there should first be a study of its requirements by a Canadian consultant. This would be in the nature of a feasibility study in order to determine whether the system requested would truly meet the stated needs, and also whether appropriate consideration had been given to other aspects of economic development to ensure the maximum exploitation of an increased telecommunication capability. Studies have already revealed that with so many pressing problems in developing countries, several ministries will tend to acquire their own communication systems without an awareness of the fact that other ministries also intend to implement systems, quite often overlapping each others' interests. A preliminary study could lead to economies by showing that there are benefits from integrating their total communication requirements into one common system. For example, it is quite often possible to integrate the expansion requirements of radio and television services, internal security, and national defence into the expansion plans of the national telephone organization at less cost than that of separate implementations.

After a system study has been completed, serious thought has to be given to the country's resources of skilled manpower to operate and maintain a modern communication system. Canadian planning should ensure that provision has been made for these purposes, which may involve the use of Canadians or others. However, most recipient countries will specify that Canada is to include the training of nationals to operate and maintain the system. If a study shows that adequate recruitment of suitable trainees from the local population is unlikely, the size or complexity of the system may have to be limited accordingly. Another factor of paramount importance is the viability of the proposed system. If, because of optimistic planning, the system becomes an economic burden, it will eventually deteriorate and Canada become liable to support it, perhaps for many years, if only to preserve our reputation and image. Similarly, a scrutiny of managerial plans is, therefore, highly desirable before agreeing to support the implementation of a system in any developing country. Canada has unsurpassed expertise in telephone management and full advantage should be taken of this asset.

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Information Services

Developed technology is a major resource which can be made available to the developing countries through provision of information services. Information will be of greatest value only if these countries have the knowledge that will allow them to absorb, assess, and apply it to their individual development needs. Since the educational level and the availability of trained people are limiting factors in some of the less developed countries, simply making accessible the gamut of available information cannot in itself be considered the total answer. Assistance in the selection and application of scientific and technical knowledge appropriate to their particular problems and conditions will still remain a necessary activity of the developed countries. This is particularly true in the interpretation and adaption of advanced technology.

Advances in communications technology, including information input, storage and retrieval systems, can make a significant contribution to the dissemination of information on a global scale. Two basic constituents of the information needs of developing countries are:

(a) The scientific and technological information which is both the result and the cause of industrial innovation and growth in industrialized countries;

(b) The experience in social and economic development of the donor countries and of other developing countries.

The Development Centre of the OECD recognized this in 1965 when it established the Development Enquiry Service to provide a question-answer service in the field of economic and social development to developing nations. This service attempts to marshall the resources of major international development agencies, such as the ILO and the FAO, along with the experience of major donors, such as the German Foundation for Developing Countries and US-AID.

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The users of this free and fairly rapid service have exposed two outstanding problems. The most obvious is the lack of clarity in questions submitted, which results in much correspondence back and forth to ensure that the question being answered is the one intended. The second problem arises because there is no central agency in any of the developing countries through which questions and answers can be channeled. This results in the same wasteful duplication of effort that exists in the developed nations.

Some time ago, the Development Enquiry Service suggested that efforts be made to establish national clearinghouses within the developing countries. Attempts were made to standardize their proposed structures, but it was eventually realized that cultural differences made this impracticable.

Several donors have considered providing information services aid in various forms:

- the training of documentalists;
- the building of libraries.

Beyond simply making information accessible to developing countries, there is that aspect of information dealing with training and education. Making available the capital equipment, such as facilities for television, films, and audio visual materials, will not ensure effective usage.

Where people must adapt within a very short space of time to totally new cultural and environmental changes, participatory information can be very valuable. The National Film Board, in its "Challenge for Change" programme, has developed film and videotape processes to permit under-privileged people in depressed areas, to probe their social and economic problems on self-help basis. In turn, these audio-visual records are used in restricted presentations to social workers, government officers, etc. During the past three years, this project has been used in Newfoundland villages, in urban slum areas and in Canadian-Indian communities. Two of NFB's staff members have conducted similar projects in California and Connecticut for the US Office of Economic Opportunity. This method could possibly have significant results if applied on a substantial scale to aid programmes.

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Regional Educational and Training Facilities

The establishment of regional training centres is particularly appropriate when a number of small developing countries each have a need for trained personnel to operate and maintain communication systems, and where the establishment of a national training facility cannot be justified. In general, the Canadian International Development Agency (CIDA) is interested in assisting projects of a regional integrated nation. The normal criteria used by CIDA, including the priorities attached to a multinational project by recipient countries, is carefully applied before any decisions are taken. In the field of telecommunications, CIDA would be prepared to investigate specific requests within the framework of its existing programmes.

Consulting Services

Canada has excellent consultants in all fields of telecommunications and the mass communication media. When studies and technical assistance are requested by developing countries, Canadian consulting services in the private sector should be considered wherever possible. While it is recognized that excessive use should not be made of Crown Corporations and Government Departments for this purpose, nevertheless, there are some fields in which the expertise available in such bodies represents a large portion of this resource in Canada. The case is evident for development and encouragement of consultants in the private sector, leading to more viable enterprises and to their greater achievement of international recognition. The Canadian Government Departments concerned with assistance programmes are urged to maintain, expand and diversify their support to the development of consulting services in the private sector.

It should be noted that, whether Canadian Government Agencies or private consultants are involved, the approach to assistance must take into account the best interests of the recipient countries.

Government Assistance to Canadian Industry

There are several arrangements by which the Government provides direct assistance toward the development of Canadian industry, for example, the IRDIA and PAIT programmes. These arrangements were not developed with any relationship to international aid programmes in mind, but were, in fact, developed to encourage innovation and industrial growth, and to benefit the national economy. To the extent that these programmes are successful, they will contribute to the improvement and broadening of the Canadian industrial

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and product base, thereby, widening the scope of possible Canadian response to the needs of developing countries.

Competitiveness of Canadian Suppliers

The technical and cost competitiveness of Canadian suppliers in world markets is basically a consideration in the development of the Canadian export potential; therefore, "foreign market development" cannot be proposed as a major justification for aid. Nevertheless, bilateral assistance provided in telecommunications establishes the presence of Canadian goods and services in recipient countries. Competitiveness, moreover, has a significant meaning to Canadian suppliers of goods and services, in the assistance context, when recipient countries receive assistance through multi-lateral financing agencies in which the contributing countries are not identified with the loans and the specific projects. In this case, international tendering is sought and, in general, the lowest-bidder approach is used, unless requested otherwise.

Basically, on large systems, for example, microwave installations, telephone exchanges and satellite communication ground stations, where design is to customer specifications and quantity production is not a predominant factor, Canadian suppliers are competitive. Canada's telephone management consulting capabilities are second to none in the world and their services are very competitive while offering an exclusive expertise in this area.

Canadian Subsidiaries in Recipient Countries

The most experienced aid-granting nations actively promote and assist the establishment in developing countries of branch offices and plants of the national companies. Whether Canadian government support for the establishment of Canadian telecommunication subsidiaries in developing countries could be an appropriate activity within the Canadian assistance programme as administered by CIDA should be examined. This question has a particular significance for Canada where major elements of the telecommunication industry are foreign owned. Moreover, subsidiary plant development would normally be reserved as a parent company activity.

A subsidiary telecommunication manufacturing plant has already been established in Turkey and is being considered in Greece by a Canadian-owned company. However, little consideration has been given to-date to

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extending the role of CIDA for this purpose. Under present legislation, CIDA is permitted to finance a developing country in the construction of a manufacturing plant, if so requested, but cannot use its assistance funds to finance the equity portion that a Canadian firm might wish to have in such a plant.

If this were possible the advantages to the recipient country would be:

(a) The provision of employment, training, and advanced technological knowledge.

(b) The knowledge acquired in new skills by the local population usually results in the creation of small peripheral manufacturing concerns.

(c) By providing increased local content, the drain on the country's foreign currency is reduced for the purposes of maintenance or expansion of its systems.

The advantages to Canada would be:

(a) If the establishment of a subsidiary plant is offered along with the requirement for a telecommunication system to a country requesting CIDA assistance, the offer is more attractive, particularly, if competing soft loans are available from other donors for the same project.

(b) The recipient country will, in most cases, establish the necessary protection for the new subsidiary and ensure that its future requirements are placed with this subsidiary.

(c) The Canadians operating such a subsidiary will become completely conversant with the country's telecommunication expansion requirements and will be in an excellent position to submit proposals that may result in directed contracts.

(d) The possibilities of follow-up business are greatly increased because of the interest of the local governments in seeing the subsidiary grow, particularly, if the arrangement includes an equity share in the facilities by the local governments.

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Many considerations would be involved in examining the question of Canadian Government support for the establishment of Canadian telecommunication companies in developing countries. Thus, the Study Group Members have concluded that the Government should consider means to support this activity and examine possible avenues for such support, while bearing in mind that CIDA would appear to be an unsuitable vehicle for this purpose.

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SECTION V

CONCLUSIONS

There are several obvious reasons why developing countries need outside assistance in their quest for economic and social progress. The report discusses many of the limitations which confront the developing countries and reviews, in particular, the kinds of assistance which have been provided and is still needed in the fields of telecommunication systems and mass communication media, radio and television.

The reasons for giving aid, however, range from a genuine desire to share the successes of the developed countries to rather pragmatic considerations. Three major objectives in offering aid are readily identifiable:

(1) The Altruistic Objective

Within this category, the motivation may range from the deep desire to share our bounty with others to the more cynical concept of aid as a debt of conscience. Whatever the reason, this type of programme has a selfless character and seeks no specific return on the investment.

(2) The Market Objective

In this category, the goals could be, too readily, considered simple and uncomplicated. Where bilateral aid is provided to a developing country for the implementation of communication systems there is, of course, an element of establishing a Canadian presence in that country, and this in turn can be interpreted as assistance to Canadian industry towards export development. Nevertheless, long-term benefits to Canadian industry will accrue only if subsequent opportunities can be developed to exploit the initial aid-assisted advantage.

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(3) The Cultural Objective

> While this purpose has not been a major consideration in the past, for Canada, it is likely to receive more attention in the future. Culture here is not intended to imply beaux arts for the intellectual elite but rather the improvement of the total quality of life for the individual through various processes of self identity, dialogues, assessment of values, etc.

If the foregoing represents a reasonably valid set of assumptions, then aid programmes will consist of varying mixes of these objectives depending on the circumstances. Irrespective of the major objective, in a particular case, one or possibly both of the other objectives would be important considerations in determining the kind of assistance to be provided.

In the approach to aid programming, Canada has certain unique advantages:

(1) Of all the donor nations, Canada is closer in character to an emerging nation. It is still underdeveloped, and it is constantly faced with the question of trading off its assets at the price of its sovereignty.

(2) Since Canada poses no political or economic threat it enjoys the confidence of most recipient countries.

(3) As well as technological sophistication and well developed scholarship, Canada has the tremendous advantage of lead time.

If these distinctive assets are clearly recognized, it is most important to maintain them in recommendations regarding aid programmes. Since Government at its various levels is Canada's largest enterprise, the resources for aid must involve its departments and agencies in various partnerships with public and private Canadian monopolies, foreign controlled Canadian enterprises, and Canadian controlled business.

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It is not possible nor appropriate to suggest that there should be a specified percentage of the assistance programmes devoted to communications, either in bilateral or multilateral aid to developing countries. It is perhaps correct to state that there are no two equally underdeveloped countries nor two countries with equal potential for development. Although limited categorization is possible, each country must be treated separately, recognizing that priorities for assistance are established by the individual country. Nevertheless, it can be generally concluded that there is a trend which would indicate that communication assistance is assuming greater importance. This being due, perhaps, to two factors, (1) a growing recognition that communication services, ie., conventional telecommunication and mass communications, radio and television, in all its phases is vital to increasing the rate of economic and social progress in the developing countries, and (2) over the past decade much emphasis has been given to establishing capabilities in the major economic sectors, transportation, power, agriculture, etc., and that telecommunication has now become an important priority for the developing countries.

There is a continuing process of multinational groupings taking place as represented by the setting up of new regional development assistance banking facilities. This, in some cases, would suggest a future polarization toward increased regional economic and industrial interdependence. Although it cannot be concluded at this time, that it will become difficult for bilateral assistance to pass from a developed country of one region to a developing country of another region, nevertheless, the new regional groupings could present a challenge to the effective coordination of future bilateral programmes and those of global institutions, such as the World Bank and the UNDP.

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SECTION VI

SUGGESTIONS

In the course of this study, many different suggestions for improving the Canadian Assistance Programmes in Telecommunications were offered. The following are the more important ones:

- in view of the apparent trend in which support in telecommunications is becoming a larger portion of the total assistance to developing countries, that the Canadian assistance programme emphasize the value of improved communications both in the provision of conventional telecommunication systems and mass communication facilities, ie., radio and television, while recognizing that priorities are established by recipient countries.

- that research be encouraged into the relationship between communications and the development process, considering that one cannot generalize about developing countries and draw other than the most general conclusions which would be relevant to all developing countries.

- that the Canadian assistance programme recognize the totally integrated system characteristics of programmed communication projects, (concerned, for example, with education, public information, etc.), by ensuring that appropriate software development studies accompany system implementation and augmentation projects.

- that the Canadian Government should consider supporting the establishment in developing countries of subsidiaries of Canadian companies, particularly, manufacturers in the telecommunication field, and examine possible avenues for such support while recognizing that CIDA would appear, at present, to be an unsuitable vehicle for this purpose.

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- that consideration be given to encouraging Canadian industry, by a greater degree of governmental financial support, to participate in telecommunication training of nationals from developing countries, whether the training be in Canada or in the recipient country.

- that consideration be given by the Canadian Government to making assistance available for the development of consulting services in the private Canadian telecommunication sector, recognizing that regional development banks may prohibit consulting firms and the manufacturing firms associated with them from sequential participation in directly related programmes.

- that before technical assistance and consulting services are provided by Government Departments or Agencies, the private sector should be allowed to express its interest in participating in the projects.

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MULTILATERAL ORGANIZATIONS

ASIAN DEVELOPMENT BANK (ADB)

The agreement establishing the Asian Development Bank came into force on 22 August, 1966, the inaugural meeting was held at Tokyo in November, and the Bank commenced operations on 19 December, 1966. The authorized capital stock was $1,100 million (US). As of 31 December 1967, there were 10 Regional Member Countries accounting for $165 million, and 13 Non-Regional Member Countries making available an additional $355 million. Two additional Regional Countries have joined, Hong Kong and Fiji, bringing the membership total to 34. Canada agreed to provide $25 million (US) to the Special Fund of the ADB for soft loans. The channel of communication with Canada is the Department of Finance and the Minister of Finance is a Member of the Board of Governors.

Canadian funds supplied to the Bank are tied to Canadian procurement but to-date, there have been no telecommunication projects financed by CIDA through this institution. There have been no identifiable telecommunication projects financed by the Bank. Their Technical Assistance programmes have concentrated on Agriculture and Fisheries, Transportation, and Development Banking.

CARIBBEAN DEVELOPMENT BANK (CDB)

The Caribbean Development Bank was inaugurated on January 31,1970. Canada, as one of the non-regional members, allocated $10 million (US) to the capitalization of this institution plus a $5 million (US) contribution (over 5 years) towards the Bank's Special Fund to be used for concessional lending. Because of the recent formation of the Bank, no comment can be made at this time on its possible involvement in telecommunications projects.

INTER-AMERICAN DEVELOPMENT BANK (IDB)

The IDB is a regional hemisphere agency consisting of 21 member nations of the Inter-American System, including the U.S.A. It became operational 30 December, 1959.

The Bank was established with two separate resources - its Ordinary Capital Resources, and its Fund for Special Operations. By the end of 1970, it is expected that the Ordinary Capital Resources will have reached $3,150 million (US) and the Fund for Special Operations $2,321 million (US). In addition, the Bank administers the Social Progress Trust Fund for the United States Government, ($525 million). Through other agreements, the Bank also administers or channels resources for Latin America's development from countries which are not members of the Bank. The Bank administers funds for Canada. As noted previously, CIDA, through the IDB, has provided a development loan to Chile to extend the microwave system and improve other communication systems in that country.

The IDB is acting as the executing agency for the UNDP for pre-investment feasibility studies of the requirements for installing international connections needed to interconnect the individual systems of each of 15 participating countries. (Central American Member Countries are not included in these studies). The Bank will carry out the programme in association with the International Telecommunications Union (ITU) and the Inter-American Telecommunications Commission (CITEL) will play a coordinating role. Interconnections between the various national segments will be through a combination of microwave stations, submarine cable, and satellites. The new system will provide telephone, telex and telegraph services, as well as television and radio broadcasting channels.

As of October 1969, 538 loans had been authorized from all the various funds of the Bank for a total of $3,148.8 million (US). There were no loans specifically identifiable in support of telecommunications. The activities receiving emphasis included Agriculture, Transportation, Electric Power, Industry and Mining, and Housing.

THE WORLD BANK GROUP

The World Bank Group consists of three international financial institutions, the World Bank itself (formally the International Bank for Reconstruction and Development formed in 1945), and two affiliates, the International Development Association and the International Finance Corporation. Each has its own special function, but all are devoted to the same general objective - the promotion of economic development.

The World Bank, the senior institution of the three, makes loans to governments, or with a government guarantee, at conventional rates of interest for high-priority projects designed to increase the output of useful goods and services and to raise standards of living. By May 31, 1970, the Bank had 110 members and had made loans totalling $14,239 million to some 85 countries.

The importance of effective coordination among multilateral and bilateral donors of assistance, and between donor and recipient countries has become increasingly evident over the past several years. The Bank has played a significant role in this respect by bringing together interested governments to form consortia, in the case of India and Pakistan, and by helping to organize other coordinating groups for a number of countries. Twenty-two nations have been associated, either as members or observers, with one or more of the Bank-organized aid coordinating groups. The Bank sponsored aid coordinating groups and assisting countries are shown in Table A-I.

A report by the Commission on International Development was prepared for the World Bank and submitted to its President, Mr. Robert S. McNamara, on September 15, 1969. The Right Honourable L.B. Pearson was Chairman of the Commission. Because of the increasing concern about the future of international cooperation for economic development, a broad approach was followed with the general objective of studying the consequences of twenty years of development assistance, assessing the results, clarifying the errors and proposing the policies which will work better in the future. The report was subsequently published as a book entitled "Partners in Development". The report does not necessarily reflect the views of the World Bank, nor of any government or international organization.

TABLE A-1

BANK-SPONSORED AID COORDINATING GROUPS

ASSISTING COUNTRIES

Recipient Countries	Australia	Austria	Belgium	Canada	China	Denmark	Finland	France	Germany	Italy	India	Japan	Kuwait	Libya	Netherlands	New Zealand	Norway	Spain	Sweden	Switzerland	UK	US
Consortia																						
India		X	X	X		X		X	X	X		X			X				X		X	X
Pakistan			X	X				X	X	X		X			X				X		X	X
Consultative Groups																						
Colombia			X	X		X		X	X	X		X			X			X	O	X	X	X
East Africa				X		X	X	X	X	X					X		X		X		X	X
Korea	X	O	X	X	X			X	X	X		X			X						X	X
Malaysia	X		X	X		X		X	X	X		X			X	X				X	X	X
Morocco			X	X				X	X	X					X			X		X	X	X
Nigeria			X	X					X	X		X			X					X	X	X
Peru			X	X			X	X	X	X		X			X			X		X	X	X
Sudan			X	O				X	X	X		X	O		X					X	X	X
Thailand	X		X	X		X		X	X	X		X			X	X				X	X	X
Tunisia		X	X	X		X	X	X	X	X			X	X	X			X	X	X	X	X
Other																						
Ceylon	X			X		X		X	X	X	O	X									X	X

OTHER AID COORDINATION GROUPS IN WHICH BANK PARTICIPATES

ASSISTING COUNTRIES

Recipient Countries	Australia	Austria	Belgium	Canada	Denmark	France	Germany	Italy	Japan	Luxembourg	Netherlands	New Zealand	Norway	Sweden	Switzerland	UK	US
Ghana[1]				X	X	X	X	X	X		X		X		X	X	X
Greece[2]		X	X	X	X	X	X	X		X	X					X	X
Guyana[3]				X			X									X	X
Indonesia[4]	X	O	X	O		X	X	X	X		X	O			O	X	X
Turkey[2]		X	X	X	X	X	X	X		X	X		X	X	X	X	X

[1]IMF-sponsored Ghana Aid Group [2]OECD-sponsored Consortium [3]Guyana-sponsored Aid Group [4]Dutch-sponsored Intergovernmental Group for Indonesia

X = Member O = Observer

The International Development Association (IDA) formed in 1960 and now with 102 members, finances the same general type of projects as the Bank, selected according to the same standards, but on terms which place a much lighter burden on the balance of payments of the borrowing country. Credits extended by IDA to-date have been for a term of 50 years, with a 10 year initial grace period and no interest charge, only a service charge of one percent. Its assistance, in the main, has been confined to countries where per capita incomes are exceptionally low and which cannot meet all their external capital requirements on the basis of borrowing on conventional terms. At the end of May, 1970, credits amounting to about $2,600 million had been extended by IDA to 54 countries.

The International Finance Corporation (IFC) formed in 1956, supplements the activities of the Bank by making and encouraging investments on commercial terms in productive private enterprises in developing member countries. By March 31, 1970, IFC had made net commitments totalling $400 million to private companies in more than 40 countries.

Membership is open to all governments which are Members of the World Bank. There are, at present, 93 members, including Canada. There is one member on its Board of Governors from each member country. The general operations of the Corporation are vested in a Board of Directors made up of the Executive Directors of the World Bank. On January 1, 1970, IFC's share capital - all subscribed by its member countries, was approximately $107 million. It had also a reserve of $54 million derived from accumulated earnings and is empowered to invest an amount, at present, of about $428 million. Canada's voting power is approximately 3 percent.

Every venture in which IFC invests must hold out a prospect of earning a profit, and must benefit the economy of the country in which it is made. IFC neither requires nor accepts government guarantees of repayment on its investment.

In addition, and as part of its aim of encouraging and facilitating the flow of capital from the developed to the developing countries, the Bank sponsored the establishment of the International Centre for Settlement of Investment Disputes (ICSID). The Centre, which came into being in 1966, provides facilities for the settlement of international investment disputes between private investors and governments.

The 1969 fiscal year was one of considerable expansion for the World Bank Group. The new commitments made by the Bank and its affiliates, the International Development Association (IDA) and the International Finance

Corporation (IFC), to member countries rose to a level substantially higher than in any previous year in the Group's history and 87% above the level for fiscal year 1968. The primary categories for Bank and IDA aid during the 1968/69 period were agriculture, transportation, electric power and industry. The economic sectors where Bank-IDA lending expanded most rapidly were agriculture and education; in terms of geographical areas, the growth of Bank and IDA lending to African countries was particularly marked. The new overall lending peak reflects the Bank Group's determination, as voiced by the President at the 1968 Annual Meeting, to increase still further its contribution to the world-wide development effort over the coming years.

The Bank loans and IDA credits in the 1968/69 fiscal year amounted to $1,784 million, of which $80.7 million (4.5%) was for Telecommunications, concentrated ($71 million) in India and Pakistan. A like percentage was for educational purposes in 10 countries. Table No.A-2 gives a breakdown of cumulative totals to June 30, 1969, of the World Bank loans and IDA credits by purpose and major world areas. It should be noted that "Telecommunications" represents only two percent of the grand total. Considering that the Bank loans and IDA credits for 1968/69 fiscal year in "Telecommunications" was 4.5% of the total, this might suggest an increasing emphasis on the improvement of communications in the LDC's. This conclusion is supported by the recent Bank loan to Yugoslavia for $40 million. This loan will support a seven-year $470 million development programme to improve Yugoslavia's domestic and international telephone and telegraph services. An important item will be a ground station for operation within the INTELSAT network.

A further loan of $11 million was made by the Bank to Singapore in support of a 4 year programme which will nearly double the capacity of the local telephone system in Singapore. This is the Bank's second loan for this expansion programme. Singapore is developing rapidly and foreign companies are establishing subsidiaries, regional distribution centres and manufacturing and assembly plants.

In addition to the flow of official capital to Developing Countries and to multilateral institutions, there is a flow of private capital. OECD has estimated that for 1968 this latter source amounted to approximately $6,000 million with Canada's flow being $94 million. The flow of Net

Bank Loans and IDA Credits by Purpose and Area

TABLE NO. A-2

Cumulative Total, June 30, 1969
(Millions of US Dollars, initial commitments net of cancellations and refundings)

	Purpose	Total Bank and IDA	Bank Loans by Area							IDA Credits by Area				
			Total	Africa	Asia and Middle East	Austral-asia	Europe	Western Hemi-sphere	IFC	Total	Africa	Asia and Middle East	Europe	Western Hemi-sphere
	GRAND TOTAL	$14,792.7	$12,622.4	$1,733.7	$4,214.9	$515.5	$2,405.0	$3,653.3	$100.0	$2,170.3	$386.9	$1,558.8	$92.5	$132.1
29%	ELECTRIC POWER	$ 4,279.2	$ 4,151.4	$ 505.0	$ 849.6	$149.0	$ 641.5	$2,006.3	$ —	$ 127.8	$ 10.0	$ 65.7	$25.7	$ 26.4
31%	TRANSPORTATION	$ 4,601.3	$ 3,899.1	$ 754.8	$1,654.5	$ 57.9	$ 545.6	$ 886.3	$ —	$ 702.2	$197.1	$ 427.8	$ —	$ 77.3
	Railways	1,873.4	1,590.0	388.0	694.1	42.0	272.4	193.5	—	283.4	26.6	256.8	—	—
	Shipping	12.0	12.0	—	—	—	12.0	—	—	—	—	—	—	—
	Ports and waterways	471.2	445.6	133.2	162.0	6.7	98.4	45.3	—	25.6	—	25.6	—	—
	Roads	2,135.7	1,742.5	183.6	755.8	—	155.6	647.5	—	393.2	170.5	145.4	—	77.3
	Airlines and airports	22.0	22.0	—	5.6	9.2	7.2	—	—	—	—	—	—	—
	Pipelines	87.0	87.0	50.0	37.0	—	—	—	—	—	—	—	—	—
2%	TELECOMMUNICATIONS	$ 299.6	$ 180.5	$ 26.7	$ 58.9	$ —	$ 0.3	$ 94.6	$ —	$ 119.1	$ 0.8	$ 118.3	$ —	$ —
10%	AGRICULTURE, FORESTRY AND FISHING	$ 1,508.1	$ 1,108.9	$ 138.4	$ 461.9	$ —	$ 99.8	$ 408.8	$ —	$ 399.2	$ 76.9	$ 272.9	$32.0	$ 17.4
	Farm mechanization	24.4	24.4	5.0	9.0	—	2.0	8.4	—	—	—	—	—	—
	Irrigation and flood control	820.7	612.5	35.0	382.3	—	85.2	110.0*	—	208.2	13.0	163.2	32.0	—
	Land clearance, farm improvement, etc.	91.4	63.0	19.6	32.2	—	2.2	9.0	—	28.4	26.9	1.5	—	—
	Crop processing and storage	33.3	7.4	0.4	2.0	—	4.2	0.8	—	25.9	6.7	19.2	—	—
	Livestock improvement	179.0	153.7	5.3	4.4	—	—	144.0	—	25.3	7.9	—	—	17.4
	Forestry and fishing	31.3	31.3	5.3	14.5	—	6.2	5.3	—	—	—	—	—	—
	Agricultural credit	285.2	191.6	42.8	17.5	—	—	131.3	—	93.6	20.6	73.0	—	—
	Smallholders and plantations	42.8	25.0	25.0	—	—	—	—	—	17.8	1.8	16.0	—	—
13%	INDUSTRY	$ 1,977.7	$ 1,931.6	$ 224.0	$1,020.8	$ —	$ 517.2	$ 169.6	$ —	$ 46.1	$ —	$ 11.3	$34.8	$ —
	Iron and steel	399.0	399.0	—	344.0	—	25.0	30.0	—	—	—	—	—	—
	Pulp and paper	133.7	133.7	—	4.2	—	109.5	20.0	—	—	—	—	—	—
	Fertilizer and other chemicals	141.3	141.3	30.0	57.0	—	54.3	—	—	—	—	—	—	—
	Other industries	252.6	246.2	20.5	5.2	—	185.1	35.4	—	6.4	—	6.4	—	—
	Mining, other extractive	154.1	154.1	101.0	19.5	—	11.9	21.7	—	—	—	—	—	—
	Development finance companies	897.0	857.3	72.5	590.9	—	131.4	62.5	—	39.7	—	4.9	34.8	—
7.6%	GENERAL DEVELOPMENT AND PROGRAM LOANS	$ 1,132.3	$ 552.3	$ 40.0	$ 103.8	$308.5	$ 100.0	$ —	$ —	$ 580.0	$ —	$ 580.0	$ —	$ —
1.6%	EDUCATION	$ 243.8	$ 92.2	$ 24.0	$ 20.8	$ —	$ —	$ 47.4	$ —	$ 151.6	$ 99.3	$ 44.3	$ —	$ 8.0
1.0%	WATER SYSTEMS	$ 142.9	$ 108.8	$ 20.0	$ 44.6	$ —	$ 3.9	$ 40.3	$ —	$ 34.1	$ 1.1	$ 30.0	$ —	$ 3.0
3.4%	POST-WAR RECONSTRUCTION	$ 496.8	$ 496.8	$ —	$ —	$ —	$ 496.8	$ —	$ —	$ —	$ —	$ —	$ —	$ —
	PROJECT PREPARATION AND TECHNICAL ASSISTANCE	$ 11.1	$ 0.9	$ 0.9	$ —	$ —	$ —	$ —	$ —	$ 10.2	$ 1.7	$ 8.5	$ —	$ —
	FINANCING LOAN (IFC)	$ 100.0	$ 100.0	$ —	$ —	$ —	$ —	$ —	$100.0	$ —	$ —	$ —	$ —	$ —

Note: Multipurpose loans are distributed according to each purpose and not assigned to the major purpose. Detail may not add to totals because of rounding.
*Includes Loan No. 559 Guyana, Sea defense project.

financial resources from IDA Developed Countries and Switzerland to Developing Countries and Multilateral Institutions for the period 1961-68 inclusive is given in Table A-3.

Notwithstanding the external assistance, the Developing Countries have financed 85% of the investment made in their economies out of their own resources. However, there are basic obstacles in the Less Developed Countries which place realistic limitations on the achievable rate of growth, particularly in the industrial sector. Significant factors are:

- meager financial resources
- lack of entrepreneurial and managerial ability
- inadequate roads, railways and power
- small domestic markets and difficulties in finding export markets
- absence of known natural resources (in some cases).

UNITED NATIONS DEVELOPMENT PROGRAMME

The UNDP is one of the special bodies of the United Nations. By Resolution 2029 (XX), November 1965, the General Assembly of the United Nations decided to combine two components, the Expanded Programme of Technical Assistance (EPTA) and the Special Fund (SP) to form the United Nations Development Programme (UNDP).

Expert services, technical equipment and fellowships are provided for developing countries under the Technical Assistance Component; pre-investment projects are undertaken by the Special Fund Component.

An Administrator directs the activities of the UNDP. A 37-member Governing Council provides general policy guidance; the Council has responsibility for the approval of projects and the allocation of funds and meets twice each year, in January and June.

The UNDP has become the largest single source of multilateral pre-investment aid to developing nations, helping to carry out essential activities in agriculture, industry, education, training, health and social welfare, public administration, public utilities and services, and development planning. The UNDP is the principal financing organ of UN technical assistance and it has over the years, contributed heavily to communication

TABLE A-3

Flow of Net[1] Financial Resources from IDA Part I Countries and Switzerland to Developing Countries and Multilateral Institutions **Table 3**
(Millions of US Dollars)

Country	Official								Private							
	1961	1962	1963	1964	1965	1966	1967	1968 (Est.)	1961	1962	1963	1964	1965	1966	1967	1968 (Est.)
Australia	71	74	97	104	122	128	167	157	—	—	—	15	15	20	25	30
Austria	2	14	2	15	34	37	39	28	18	17	4	7	14	13	9	46
Belgium	92	70	80	71	102	81	99	93	72	48	95	93	119	97	66	150
Canada	62	54	98	128	124	212	213	213	26	55	32	14	45	55	41	94
Denmark	8	7	10	11	13	26	28	29	25	7	1	21	2	—5	—3	45
Finland	2	2	2	4	2	3	3	3	—	—	—	—	1	8	1	3
France	947	977	851	831	752	745	826	855	463	418	391	529	547	575	516	628
Germany	618	468	437	423	472	486	547	595	221	182	167	284	255	252	594	1,040
Italy	80	106	105	49	88	122	154	150	177	284	216	188	178	510	131	356
Japan[2]	221	168	174	211	353	395	500	507	160	119	94	79	132	229	298	542
Kuwait	66	3	129	119	62	86	—	—	—	—	—	—	—	—	—	—
Netherlands	56	65	38	49	70	94	114	134	144	49	97	69	169	160	115	142
Norway	9	7	21	17	12	13	16	23	18	—	1	6	27	4	15	35
Sweden	8	19	23	33	38	57	60	71	44	19	31	34	35	51	59	54
Switzerland	23	3	6	9	3	3	5	19	187	156	197	101	188	107	130	223
United Kingdom	457	421	415	493	481	526	498	428	442	323	306	426	547	413	343	417
United States	3,447	3,536	3,699	3,445	3,627	3,660	3,723	3,605	1,102	819	880	1,325	1,898	1,360	1,842	2,071
Total	6,169	5,994	6,187	6,012	6,355	6,676	6,992	6,909	3,097	2,497	2,512	3,192	4,172	3,849	4,182	5,875

[1] Net of amortization. Data for South Africa are not available, while aid from Luxembourg has been very small.
Unavailable figures indicated by —. Items may not add to totals due to rounding.

[2] Includes, from 1966 on, estimated amounts of export credits for ships sold to flag of convenience countries going ultimately to developing countries only.

SOURCE: OECD for all countries except Finland and Kuwait, for which communications from their Governments are the source.

development through the UN Agencies. Recently UNDP has moved directly into the communication field by establishing the Development Support Communication Centre in Bangkok. This essentially film based operation is an Asian promotion centre for Project Support Communication, and Development Support Information.

For the implementation of its projects the UNDP nominates Specialized Agencies of the U.N., such as the ITU and UNESCO, as executing agencies.

In June 1969 the Governing Council of the UNDP held a meeting in Geneva, its members stressed the following:

> "First, the Council emphasized the key role which the United Nations should play in development at the beginning of the second development decade in order to help governments to plan and to implement their development projects.
>
> Second, that the Regional Economic Commissions and similar regional organizations should play an increasingly active part in the development planning at the sub-regional level.
>
> Third, the need to co-ordinate multi-national assistance programmes with bilateral assistance by measures taken both at the level of recipient countries themselves and Headquarters of international organizations. Finally, that foremost importance will be accorded to professional training which is regarded as a point of departure for all development."

In recognition of these trends and taking into account the developments in technical co-operation not only within the framework of the UNDP but throughout the world the ITU reorganized its Technical Co-operation Department. Operational and management functions have been delegated to three regional divisions, one for Africa, one for the American and one for Eurasia. In addition, a Training Division has been established as a central point to deal with technical training of telecommunication personnel. Under the UN, the ITU has achieved an enviable record of sound technical assistance. Its telecommunication training institutés, staffed by international teams of experts are models of multilateral co-operation. Along with the ITU, which is concerned with technical planning and training, a major international communication role rests with UNESCO.

The development of information media and the training of information personnel is being carried out by the Communications Department of UNESCO in many countries. UNESCO's activities in mass communications can be summarized as follows: Research, Policies, Media Planning and Training, Application, and Publications. The programme functions at the national, regional and international levels, assisting member states, promoting and assisting regional organizations, holding regional seminars, meetings and training courses, and organizing international meetings on subjects of mutual importance to UNESCO's members.

THE INTERNATIONAL TELECOMMUNICATION UNION (ITU)

The Union was founded at Paris, in 1865, as the International Telegraph Union. This title was changed to International Telecommunication Union in 1934 when the then existing Telegraph and Radiotelegraph Conventions were replaced by the International Telecommunication Convention, which had been adopted at Madrid in 1932. ITU was reorganized in 1947 and entered into an agreement with the United Nations whereby it was recognized as the specialized agency for telecommunications.

The general purpose of the ITU is to promote international co-operation in telegraph, telephone and radio services, to further the development of these services, and to extend their use by the public. The Union has as one of its specific purposes:-

> "to foster the creation, development and improvement of telecommunication equipment and networks in new or developing countries by every means at its disposal, especially its participation in the appropriate programmes of the United Nations."

Within the ITU there are communication systems planning committees, the World Plan Committee and Regional Plan Committees. The objective of these committees is:

> "to develop a General Plan for the International Telecommunications Network to help in planning international telecommunications services. They shall refer to the International Telephone and Telegraph Consultative Committee (CCITT) and the International Radio Consultative Committee (CCIR) questions the study of which is of particular interest to new or developing countries."

In addition, there are Consultative Committees which are required to:

> "pay due attention to the study of questions and to the formulation of recommendations directly connected with the establishment, development and improvement of telecommunications in new or developing countries."

For example, in carrying out the above objectives the ITU is directly involved in two important regional communication pre-investment planning studies. The Inter-American Telecommunications Network Study will lay the groundwork for a telecommunications network linking together Latin American countries. The Inter-American Development Bank which has been named the executing agency for the UNDP will carry out the programme in association with the ITU. The system will provide Latin American countries in the 1970's with an integrated telecommunication network and vastly improve their connections with the rest of the world. The interlinking of the various segments will be achieved through a combination of microwave stations, submarine cables, and satellites.

A feasibility study of an Asian Telecommunication Network has been initiated. The survey, partially financed by the UNDP, will be conducted by a five-man team from the International Telecommunications Union (ITU) in 12 countries of the region of the Economic Commission for Asia and the Far East (ECAFE). The countries are: Afghanistan, Cambodia, India, Indonesia, Iran, Laos, Malaysia, Nepal, Pakistan, Singapore, Thailand and the Republic of Viet-Nam.

The ITU has been named to execute the project, and ECAFE will provide support facilities for the project Headquarters in Bangkok. Under the scheme, the ITU expert team will work with communication experts in the countries concerned in studying the feasibility of a regional network designed to become part of a global plan of ITU to interconnect all telephone systems in the world.

A statement by Mr. M. Mili, Secretary-General of the ITU, at the Eighth Session of the Inter-Agency Consultative Board (IACB) on Pre-Investment Surveys forms Appendix B.

The ITU acts as the Executing Agency for telecommunication projects financed by the United Nations Development Programme under two main categories:

(a) Technical Assistance Component

(b) Special Fund Component

The Technical Assistance Component covers advisory and training assistance through relatively short-term projects in a wide range of technical assistance fields, provision of experts to applicant countries, grant of fellowships and scholarships, organization of seminars, supply of training equipment, etc.

The Special Fund Component covers large projects such as the establishment of training centres and research institutes or the preparation of long-term national telecommunication development plans, assistance being rendered in the form of experts, fellowships, and equipment.

In addition, the ITU administers the Operational Assistance Scheme (OPAS) whereby Operational and Executive Staff are supplied to an applicant country under a cost sharing basis. The applicant country pays the OPAS officer the equivalent salary and allowance for civil servants doing comparable work in that country and the balance is financed by UNDP.

The ITU also administers other related aid programmes,

(a) Funds-in-Trust

(b) Associate Expert Scheme

(c) Funds of UN for Development of West Iran (FUNDWI).

Funds-in-Trust projects are executed and administered by the ITU but are financed entirely by the applicant country.

The Associate Expert Scheme is an agreement between the ITU and several donor countries (Denmark, Sweden and Netherlands) to provide experts whose costs would be borne by the donor countries. During 1968, Sweden supplied thirteen experts, the Netherlands five, and Denmark one. Negotiations now proceeding with the Federal Republic of Germany and Belgium for supply of associate experts.

Representative of ITU's activities in the establishment of Training Centres, the following is a partial listing of those centres which have been set up by the ITU or for which the ITU provided expert assistance:

Africa

Sudan	P&T Training Centre, Khartoum
Algeria	National School for Telecommunication Studies, Algiers
Ghana	Telecommunications Training Centre, Accra
Madagascar	National Institute of Telecommunications & Post, Antanetibé
Congo	National School of Telecommunications, Kinshasa
Nigeria	P&T Training Centre, Oshodi

Asia

Malaysia	Telecommunications Training Centre, Kuala Lumpur
Philippines	Telecommunications Training Institute, Manila
Iraq	Telecommunications Training Centre, Baghdad
Korea	Telecommunications Training Centre, Seoul
Thailand	Telecommunications Training Test & Development Centre, Bangkok
Afghanistan	Telecommunications Training Centre, Kabul
India	Centre for Research & Training on the use of Satellite Communications, Ahmedabad
Saudi Arabia	Telecommunications & Broadcasting Training Centre, Jeddah
Turkey	National Telecommunications Training Centre, Ankara
Indonesia	Telecommunications Training Centre, Bandung
Pakistan	Telecommunications Staff College, Haripur

Latin America

Venezuela	Training Centre for Telecommunications, Caracas
Colombia	Electronics & Telecommunications Training & Research, Popayan & Bogota
Chile	Telecommunications Training Centre, Santiago

THE UNITED NATIONS EDUCATION, SCIENTIFIC AND CULTURAL ORGANIZATION (UNESCO)

As noted previously in this report, the development of information media and the training of personnel is the responsibility of the Communications Department of UNESCO. Its Director-General is authorized to stimulate and assist the development of national mass communication services in conformity with UNESCO aims, and in particular:

(a) to promote the training of information personnel of all media, through the organization of seminars and training courses within institutes of mass communication and through collaboration with professional organizations: and

(b) to participate in the activities of Member States, upon request, in the planning and implementation of programmes for the development of their information media and the training of information personnel.

The programme for the improvement of training facilities for mass communication personnel is being carried out through co-operation with mass communication institutes and centres established within a university framework which are able to play a role on the regional level. The aim of these institutes and centres is to provide graduate courses in communication for students of the region, refresher courses for in-service personnel, post-graduate studies in mass communication research, teacher training in the field of communication, and a meeting place for high-level professionals through symposia and round table discussions of specialized problems in the field of communication, with special emphasis on the role of the media in national development and education. Assistance is provided to these institutes through the provision of experts, equipment and study grants for students of the regions concerned, and through support for research programmes.

The following institutes presently participate in this programme:

1. Centre for Higher Studies in Journalism at the University of Strasbourg (France).
2. Centre for Higher Studies in Journalism at the University of Quito (Ecuador).
3. Mass Communication Institute at the University of Kakar (Senegal).

4. Mass Communication Institute at the University of Lebanon.

5. Mass Communication Institute at the University of the Philippines.

6. Mass Communication Institute at the University College, Nairobi (Kenya).

UNESCO also provides assistance to Member States for organizing specialized professional training in the various mass media.

For example, UNESCO collaborates with an existing national training institute in Asia in order (i) to provide regional training courses for future national training staff; (ii) to develop supporting material and training aids; (iii) to organize intensive short courses on specialized aspects of broadcasting; and (iv) to provide training specialists for assisting in the organization of training facilities on the national level, with a view to ensuring fuller use of the mass media for purposes of national development. Similar assistance is given to Latin America. In addition, UNESCO also assists the development of broadcasting in Africa through the provision of expert services.

Technical assistance may be provided to Member States, upon request and in accordance with normal procedures. As of December 1968, Afghanistan, Burma, Congo (Democratic Republic of), Philippines, and Tunisia were receiving technical assistance support. Activities of UNESCO are extensively covered in the Telecommission Report entitled "Communication and Development in the Seventies", prepared by F.L. Goodship, Communications Department, UNESCO.

PRE-INVESTMENT SURVEYS *

The action which the ITU has been carrying out for approximately two years in connection with pre-investment surveys answers a pressing need which has been felt by the new and developing countries themselves and consequently by the UNDP. We were therefore most gratified to note the remarks made by Mr. Paul Hoffman on this matter at the Seventh Session of the IACB held in Geneva last March when he told us that the UNDP attaches great importance to pre-investment activities for preparing a country to take advantage of rapid changes in science and technology.

More recently, the report which the Pearson Committee has just issued draws attention to the importance of this problem and offers pertinent suggestions for increasing the effectiveness of the efforts undertaken in this area by the specialized agencies of the United Nations.

The International Telecommunication Union, which more than ten years ago took the initiative of setting up Plan Committees at regional and world level, soon realized that its work was incomplete since in most cases it was not followed quickly enough by the execution of the projects which these plans entailed. We, therefore, concluded that, after the countries themselves had prepared integrated plans for the development of their national and international telecommunication networks, it was necessary to go one step further and conduct appropriate pre-investment surveys on the basis of these plans.

We, therefore, heartily welcomed the new policy of the UNDP to encourage such surveys to the maximum possible extent.

We have encountered many difficulties in carrying out our task, the most important of which are referred to in the Pearson Committee's report, and I shall not repeat here what was stressed so cogently by that Committee. I should, however, like to make a few points which were not included in the report for the simple reason that they concern telecommunications specifically.

First of all, I would recall that in all the studies of the economic situation of the developing countries that have been made emphasis is laid on the need to integrate these economies. One of the essential pre-conditions for such integration is the creation or development of an appropriate infrastructure, particularly in the fields of telecommunications, transport and power.

Apart from production factors, transport and communications are undoubtedly among the essential economic prerequisites for a real improvement of productivity and economic expansion leading to a significant improvement in the standard of living of the population.

This basic requirement, which is at the foundation of any technical assistance activity, has been stressed by many international personalities.

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* Statement by Mr. M. Mili, Secretary-General of the ITU, at the Eighth Session of the Inter-Agency Consultative Board (IACB) - New York, 20 October 1969.

Unfortunately, many governments do not always give the necessary priority to telecommunications, so that the efforts undertaken on their behalf are greatly handicapped from the outset.

In many cases this is one of the reasons why it is impossible to attain the objectives fixed for certain projects affecting other sectors of human activity.

Another fact which has been brought home to us but which unfortunately has not always been sufficiently appreciated is that, since the part played by telecommunications in international life is constantly growing in importance, the planning of a national network, even with respect to remote rural areas, should take account of long-term objectives. In some cases, a national circuit may be destined to have an international function because it will form part of an international link, the necessity for which will become very apparent once certain conditions have been met.

This consideration is particularly important in that very often pretty much the same volume of investment is required in both cases.

Another factor to be considered is that the technical specifications for equipment often vary from one country to another. To ensure the integration of national networks in a coherent regional or world system, it is essential that the international standards established by the ITU, particularly in the fields of transmission and signalling, should be srupulously respected.

Finally, in view of the ever more rapid strides that are being made in telecommunication techniques, it is hardly conceivable that a programme of development could be established without requiring, during the period of execution, some adjustments to take account of developments that have since occurred and of the extensions to which they will give rise in future. This certainly does not mean that the planning of equipment programmes has to be carried out in a vague fashion but rather that the pre-investment surveys should be as thorough as possible and that they should be followed rapidly by execution of the projects identified.

The ITU Plan Committees meet regularly every four years to evolve new integrated telecommunication plans for the region concerned. This period of time should be taken into consideration in executing the projects adopted. It is therefore most desirable that the following operations should be completed within the four-year period: planning, pre-investment survey and execution of the projects. Then the same cycle begins again with the same rhythm.

With regard to the pre-investment surveys for which the ITU is responsible, we consider that logically they should be continued beyond the stage of identifying the projects, that is, to the point of defining the technical characteristics and preparing specifications to enable the countries concerned to issue the invitations to tender for the execution of the projects.

Naturally, many countries are not in a position to make these pre-investment surveys themselves. In this case they call upon outside help, private, bilateral or multilateral.

Many firms of consultants offer their services for this work, while the administrations of friendly, more developed countries sponsor pre-investment surveys as a form of bilateral assistance.

We also note with great satisfaction that the World Bank is showing a growing interest in telecommunication projects, especially in Africa and Asia.

The regional banks are likewise interested in those projects.

In short, the importance of telecommunications is now recognized by many financing agencies, which augurs well for the success of the new development decade.

It goes without saying that the interest aroused by telecommunications among so large a number of agencies prepared to assist the developing countries demands some co-ordination to prevent duplication and waste of effort.

Co-ordination is equally essential to arrive at consistent decisions in planning the national and international networks.

To achieve this end it is natural that the bonds of co-ordination between bilateral and international assistance should be strengthened so far as possible.

But it is also advisable to co-ordinate international assistance itself by increased consultation among the organizations interested in the development of the telecommunication infrastructure of a particular country or region and by ensuring the systematic exchange between them of the relevant official documents.

The ITU, of course, is extremely interested in pre-investment surveys relating to telecommunications. As it is not a financing agency, its activity cannot extend to the ultimate stage at which the projects are executed. But it is conscious of the fact that, by closely co-operating with the UNDP, it has adequate resources for carrying pre-investment surveys, properly speaking, to their final conclusion in the best possible conditions.

Since October 1967, therefore, we have been conducting pre-investment surveys in Latin America in association with the Inter-American Development Bank which is the executing agency for the project.

In the ECAFE Region we shall begin a pre-investment survey for the entire telecommunication network in this major region of the world early in 1970.

Finally, since the middle of 1968, the ITU has been engaged in preparatory work with a view to conducting a pre-investment survey for the construction of the Pan-African telecommunication network. Our teams of experts have visited 38 African countries and are now drawing up the final reports which will be submitted in the form of a request to the Governing Council of the UNDP for the funds required for a more penetrating survey. This will enable us to graduate from the stage of proposals to the drafting of technical specifications for the projects to be implemented. In the interest of continuity, we hope that our request will be considered by the UNDP Governing Council at the earliest opportunity.

To conclude this subject of pre-investment surveys, I would point out that it is desirable for the establishment of certain international connections to be financed by the UNDP, as was the case of the Abidjan-Addis Ababa pilot project. This inter-African connection has been so successful that it constitutes a most impressive example of what the ITU can achieve in collaboration with the UNDP in the field of international telecommunications.

Another most important requirement to ensure that our activities on behalf of the new and developing countries are successful is the training of medium-grade supervisory staff.

Nothing will be served by building a modern telecommunication network if the country does not have at its command within the required time national staff able to ensure the normal operation, maintenance and repair of the network.

Our efforts are therefore directed towards the training of this type of personnel. We are particularly encouraged in these activities by the fact that the new and developing countries have shown that they are increasingly aware of the importance of this problem.

Our work is facilitated by the wholehearted support and understanding we receive from the UNDP and from the admirable men who serve as United Nations Resident Representatives in the countries we assist.

APPENDIX C

C O M M U N I C A T I O N

A N D

D E V E L O P M E N T

I N T H E

S E V E N T I E S

Frank L. Goodship
Paris, 1970

AUTHOR'S NOTE

Much of the statistical information and historical data contained in this paper has been drawn from publications of UNESCO. The opinions expressed however are the author's and not necessarily those of the Organization.

C O N T E N T S

COMMUNICATION AND DEVELOPMENT IN THE SEVENTIES

1. INTRODUCTION

Any study of communication has to begin by delimiting itself, since most human activities can be said to involve, or to be dependent upon communication flow. In fact, one contemporary British philosopher, Colin Cherry,defines all societies as "people in communication". This paper is concerned with the relationship of communication to development, which involves in turn the relationship between communication and change. In practice, wherever change is impending or has occurred in human society, there is bound to be a flow of communication. Our concern in fostering national and international development is to ensure that this communication flow is understood, and if possible, directed towards the processes of change.

The paper is primarily concerned with the processes of mass communication, especially in its electronic forms of radio and television. This is not to say that other forms of mass communication are unimportant; the press, the cinema, the paperback book are often very influential. But in the developing countries, radio and television - as immediate forms of communication - are most intimately concerned with social change and most readily applied to national development. Much of what is said about them here will, in any case, relate to other forms of mass communication, though with these the time-lag between communication and response will often be more prolonged.

A study of mass communication is also bound to consider the forms of interpersonal communication. The two are, in practice, not sharply distinguished one from the other. The existence of mass media is often

taken as an index of an advanced, literate and urbanized society; Lerner, for example, found high correlations between urbanization, literacy, media participation and political participation in 54 countries. Interpersonal communications are the traditional, fundamental forms (the Bazaar, the market place, the coffee house). But in reality, the mass media do not communicate directly with an audience of individuals - their communications are filtered, modified and retransmitted by personal and group exchange. So, in order to estimate the potential and efficiency of mass communications, their social environment must be taken into account, and these findings built into all mass communication strategies.

(The modern interpersonal and "impersonal" media: the telephone, telegraph, facsimile and data transmission and reception are assumed to be an indispensible part of modern business and of urban organization. They are not, except insofar as they are mentioned as measures of comparative development and as elements in assigning communication priority, a part of this study.)

Consequently, this paper has five separate objectives. It will first of all consider the function of mass communications in the developing world. Second, it will summarize the present state of communications development in the emergent countries. Third, it will describe the major agencies - both national and international - which are associated with communications development. Fourth, it will try to estimate the needs of these countries in the communications field, and assign to these needs some scale of priorities. Finally, it will make some proposals as to how the most urgent needs can be met, and how both national and international agencies can best assist in the process.

2. COMMUNICATIONS AND DEVELOPMENT

In 1964, Max F. Millikan, the late M.I.T. economist and administrator, had this to say about the impact of communication on the developing world:

> "Of all the technological changes which have been sweeping through the traditional societies of the underdeveloped world in the last decade - changes in the production of energy, in the processes of agriculture, in the techniques of industry, in the nature of weaponry - the most fundamental and pervasive in their effects on human society have been the changes in communication."

It can be taken as argued, and agreed by now that the mass media have a significant contribution to make to national development. Their importance lies, demonstrably, in their multiplying factor - their time/cost efficiency in moving information. The electronic media have a residual advantage in their immediacy - they can address a large population simultaneously. Admittedly, they have a basic weakness in their lack of feedback system - they cannot readily carry on a dialogue and this limits their range of responses - but even here, experiments are being carried out to help improve feedback arrangements.

It may be debated how much the media have achieved in accelerating development or what their degree of efficiency has been, but few people would now dispute that they have achieved a considerable amount. The contribution of radio to development in Australia and Canada is widely recognized and programmes such as Canada's "Farm Forum" continue to be emmulated in a growing number of newly developing countries. There is a good deal of modern scientific evidence of the development role of the mass media embodied in the research of such social scientists as Lerner and Schramm and further support in the practical programme of the international agencies.

In 1946, when the United Nations Educational, Scientific and Cultural Organization was founded, it was given explicit responsibility for promoting the use of mass communication to further the Organization's objectives; in 1958, the United Nations General Assembly called for a "programme of concrete action" to build up mass media in developing countries and followed this up, in 1962, by urging governments to provide in their economic plans for the development of information media. Wilbur Schramm summarized the position in 1963, when he was commissioned to write "Mass Media and National Development" for UNESCO - a complete review of the situation at that time.

In summary, the role of the broadcast media in supporting national development can be divided into three main areas.

There is firstly their generalized role in providing information, entertainment and news within the context of regular public broadcasting. Schramm has outlined the main processes by which change is achieved at the economic, political and social levels; a populace has to become aware of a need which is not satisfied by existing customs and behaviour, so that it is, impelled to invent or borrow behaviour which comes closer to meeting this need. Traditionally, changes of such magnitude have occurred only across a considerable span of time, as a result of many complex social interactions. The role of the media in accelerating change is in introducing innovation, widening horizons and imparting special skills, all of which help to engender a receptive climate from which change can follow. Naturally, the media cannot do this on their own - they need to be part of an integrated approach to development, which allows for the desires and demands which they stimulate to be followed up and satisfied. But their role within this system is an important one; they can focus attention on specific issues, provide a body of information about them and arouse interest. They can confer status on particular individuals and policies, or help to crystallize and canalize attitudes.

In this broad context, virtually all the transmissions of a radio or of a television system may be influential. The impact on an audience is total, because it is largely unstructured; it is attitudes en masse which are being affected. Therefore, the professional skills of the broadcaster become especially important, since the way in which information is imparted and received will depend to a very large extent on the way in which it is organized.

Radio and television can also focus down on more specific tasks. They can be used, for example, as instructional tools - as part of an educational system, in which a number of media (both mass and personalized) combined to teach particular skills,such as reading and writing. Here, the role of the media is more confined, and their effects are more measurable; they are being used for circumscribed tasks. Possibly for this reason, ETV (educational television) is experiencing growing success in the developing countries - often greater than the developed West. It makes considerable demands on broadcasting personnel, since more production and educational skills are called for, as well as a high degree of co-operation between broadcasting and educational authorities.

There is also an intermediate position between the two approaches which is growing in importance. This is in the use of the media for what we can call, broadly, social education - as an agent for transmitting information about family planning, agricultural and industrial techniques, or as a component in strategies of community development, attempts to improve the status of women, industrial training and so on. With this approach, the media are used partly for entertainment, partly for motivation and persuasion; there is relatively little in the way of direct instruction and what there is, is limited, both in duration and scope. A balance of this kind is particularly difficult to find, and usually comes only after repeated experiment. Many of the attempts made to date,have been either over-didactic, or over-trivial.

In theory, then the functions of the media are clear cut, and fairly easily distinguishable. In practice, however, they may often become blurred, for historical or organizational reasons. The way in which a country's broadcasting services are structured is bound to affect the ways in which it makes use of mass media; at times specific applications of radio and television may appear to be in the hands of inappropriate agencies. A few examples should clarify some of the dangers and difficulties which can arise.

The generalized role of the media is the simplest to appreciate; it is the closest in character to broadcasting in the developed West. However, both the control of broadcasting and its programming are differently structured in the emergent world. There is a great diversity in organizational patterns, ranging from government controlled enterprises, through the independent corporation, to the purely commercial station. In many cases, the prevailing local pattern is a mix of two or more of these forms - usually deriving from political and historical traditions. Latin America adheres to the privately-owned commercial pattern, as do the Philippines; most Asian and African countries veer towards government control, and although the public corporations are few (they do, after all, demand a particular strength of purpose from any government which is being asked to abdicate from direct supervision of a major information agency) they can still be found in the developing world - for example, in Ceylon, in Cyprus or in Turkey.

A mix of commercial broadcasting with government control is an especially popular form; it has the advantage of bringing in revenue, while still allowing for state information and propaganda services. In most cases, however, governments are reluctant to withdraw entirely from the scene, in favour either of public corporations or of commercial enterprises; they reserve powers for themselves, even though they do not always choose to exercise them. Consequently, the loudspeakers and television screens

of developing countries usually transmit a good deal of material which is explicitly propagandist or "nation-building" in tone; news broadcasts are frequently a mixture of objective and subjective comment, with predominantly local, even parochial emphasis. Such indigenous material often stands out very sharply when it is set against a regular background of imported American or European entertainment films.

The objectives of radio and television when used for instructional broadcasting are more defined but throughout the developing world two separate organizational models are found,broadly speaking, the European, and the American. In Europe, educational radio and television have normally been the creations of the broadcasting organizations; programmes have traditionally been designed for schools as items of enrichment, supplementary rather than essential to institutional life. In the United States, the pattern for instructional television has been one of direct teaching, created by and for educators, built explicitly into the school or college curriculum but often loosely visualized as a piece of television. In fact, in the East, the two traditions have now come much closer together, as a result of an emphasis upon educational innovation and some degree of interchange between the two of education and broadcasting. The differences are sometimes marked,however, in the developing world, where educational broadcasts may be (as in Ghana) in the hands of the broadcasters, or (as in Singapore) in the hands of an educational authority.

Often, broadcasting tradition can be in conflict with the objectives of instructional television in the emergent world. Television or radio as enrichment, as pieces of supplementary audio-visual decoration, are clearly out of the range of a developing country; its educational problems are likely to be fundamental, and a medium as expensive as television is unlikely to be justified unless it has something major to contribute to

educational development. In virtually all such countries, educational television exists to instruct - to help cover a deficit of qualified teachers, or to introduce new teaching methods and models to a substantial proportion of schools. But, depending upon the tradition from which the ETV service emerged, there is a difference in style, and often in utilization, between programmes.

Instructional television can do two things; it can teach a large number of pupils simultaneously, and it can also offer a range of illustration in the course of this teaching which is beyond the scope of the conventional classroom. Gradually both strengths are being drawn upon, but at the moment, a programme in American Samoa often looks very different (in terms of organization, visualization and so on) from a programme in Malta or El Salvador. The gap is being closed as more teachers learn broadcasting skills and vice-versa but at the moment few areas of programming are satisfactory in both instructional and audio-visual terms.

The third role of the media, as a force in social development, is less easy to analyse because it is so much more recent a phenomenon. In the UAR, for example, television and radio broadcasts are addressed to groups of industrial or agricultural workers for group viewing and listening; they are mostly magazine type programmes, with a good proportion of items of general interest but also containing information about new farming techniques or industrial processes. Farm radio broadcasts in India are of much the same order. There is a growing commitment to using broadcasting for development of this kind, and it is an area which the German Government has recently approached, in a bilateral aid programme based in Singapore but intended to help develop adult education programming

throughout South-East Asia. Perhaps the major difficulty faced here is one of programme utilization. There is rarely a satisfactory network of groups or associations within a developing country to which programmes can be addressed for group viewing or listening; out-of-school education has not reached this degree of systemization, and in consequence a media programme is often limited in its impact.

All three development functions of radio and television have been applied for some years now, with varying degrees of success. Both national and international agencies have been involved in each area, sometimes as partners, more often independently. At the national level individual governments have tended to develop arrangements of their own, entering into bilateral agreements with specific countries. At the international level, the main agencies concerned have been those of the United Nations family - in particular, UNESCO. It is a field in which, while a good deal has been achieved, it has often been realized in a highly fragmented way, and different agencies and schemes have sometimes duplicated or cut across each other's boundaries. Perhaps, this is inevitable in the early stages of development; certainly there is a current impetus towards cooperative ventures at a regional level, which should help improve efficiency.

Enough should have been said by now to suggest that any programme for the use of radio and television in the interests of development needs to take account of two separate elements. First, it has to be quite clear in its objectives - in the specific application of the media which it is proposing, and in its expectations. But equally important, it has to take account of existing patterns of broadcasting organization, and within this context, to be completely realistic in its prescriptions.

Consequently, the next section of this paper will be devoted to a review of the current situation in broadcasting development, before going on to establish needs and priorities for the future. It will look at the position in the developing countries themselves, at the contributions of the major nations concerned in the field, and at the role of both regional and international organizations.

3. THE PRESENT POSITION

Even in the context of the greatest period of industrial growth in world history, for communication one decade could well be described as the, "spectacular Sixties". In ten years, more radio and television equipment - production, transmission, distribution and reception - was produced and used than in the entire period since Marconi's discoveries.

The first Development Decade was, above all, the transistor decade. The number of radio receivers - since the early 60's almost entirely "all-transistor" - has increased by 100, 120 and 150 percent in South America, Africa and Asia respectively.

Keeping pace with the transistor revolution, the number of radio broadcasting transmitters in the world has more than doubled.

Television was a phenomenon of the Sixties in most developing countries. In Africa there were four countries with television in 1960 and 22 by 1967. In Asia during the same period, the number rose from 12 to 25, and by the end of the decade only Afganistan, Burma, Ceylon and Nepal did not boast at least one television transmitter.

It was in the Sixties too, that the last physical frontier to universal communication was dramatically crossed; the launching of a communication satellite. By 1962, its attendant developments were to demonstrate the possibility of a system of communication satellites which could transmit a reliable broadband (sound and vision) signal to every corner of the earth. Unfortunately, however, for much of the world the Sixties did not quite add up to the communications millenium.

In 1970, seventy percent of the world's people had no access to news or information other than by the "word-of-mouth" tradition of the village. For them a "low cost" receiver is still a term without meaning and an ambition with little hope of fulfillment. For their governments the communication satellite now seems to be but one more demonstration of technology's capacity to produce tools ideally suited to the needs of countries which can least afford them.

A brief look at some representative developing countries will give more precise dimensions to the problems of communication and, perhaps, some clues to their solution.

INDIA

The world's largest democratic nation embodies all the problems of development in a scale commensurate with its size; in a phrase, beyond comprehension to most other nations.

And despite enormous intellectual capacity, abundant technical skills and strenuous efforts to overcome exchange problems through development of local industry, India can count less than one percent of its population as radio owners. Large areas of the country - although relatively lightly populated, have no reliable radio reception at all. There is one television transmitter and 6,000 receivers.

Under its fourth Five Year Plan, India intends to spend $700 million on communication development of which $620 million will go to telecommunication. The present 1.1 million telephones will be augmented by a further 760,000. Microwave links (to which Canadian aid has recently contributed) will be extended by over 4,500 miles.

Over and above the telecommunications expenditure, the Fourth Plan has provision for $53 million in radio development. Most of this sum will be spent on medium-wave transmitters to extend and improve radio coverage

for up to 80 percent of the population.

Commercial broadcasting which was begun on an experimental basis in 1968 will now be extended on a regional basis.

Receiver and component production in India is controlled by the Ministry of Industries, Directorate General of Technical Development, but is carried on by more than twenty private and government firms. All components for transistor and tube receivers are made in the country and imports are restricted to raw materials and a few sub-miniature parts. Production output is by quota and preference is given to low-cost models. A million receivers retailing for less than $10 each is within the capacity of existing plants.

Television was started in India in 1959 with a small, experimental station in New Delhi. The second station is scheduled to open - in Bombay - over 10 years later. During the remainder of the fourth Five-Year Plan stations are planned for Srinagar, Calcutta, Madras and Kanpur-Lucknow. Delhi's station will be expended and Bombay's signal will be relayed to a transmitter in Poona.

Provision for a station to be associated with the ITV-UNDP communications satellite training centre in Ahmedabad is also made under the extension of this engineering training project.

The six stations alone are budgeted for an investment of $8.5 million with a foreign exchange component of $3.5 million.

In order to meet the manpower needs of the television expansion programme a Television Production and Technical Operations Training Centre is being established in Poona to turn out 200 qualified men and women per year in all television categories but engineering. This scheme is under UNDP Special Fund assistance in cooperation with UNESCO.

Television receiver production licenses are presently held by only a few plants. Principal of these is the State-owned Bharat Electronics Ltd. Picture tubes are being manufactured by Bharat in collaboration with NEC, Japan. The only licensed design at the moment is a product of the Central Electronics Engineering Research Institute, Pilani. At the end of 1969, a 23 inch receiver cost 1,900 rupees ($250) exclusive of local taxes. Plans were announced, however, for an all solid-state receiver which would minimize power requirements for reception in non-electrified areas.

As early as 1965 the idea of a communication satellite for India was discussed in international meetings. By 1968, two independent study teams concluded that a satellite could not only solve most of India's major national communication problems but it could do it in a fifth of the time and half of the cost of any alternative system.

It is not the intention of this paper to enter into the debate which preceded the signing of the 1969 NASA/India scheme to conduct a one-year experiment with the ATS-7 satellite. The satellite has now been delayed from 1972 to 1975 but the relative merits of an instantaneous national scheme over a build-up on a regional basis, may cease to be an issue as a result. The more basic problems facing Indian communications development are those which are endemic to the sub-continent: a huge population to be served, 15 major languages to contend with and a chronic shortage of foreign exchange.

While the transmission and reception problems of broadcasting are inseparable, it is apparent that almost any solution to the first will precede a satisfactory answer to the second. Improved medium wave coverage will mean that radio receivers can be further standardized and costs of production reduced.

Failing another technological breakthrough equivalent to the transistor, the good five-dollar radio receiver is feasible but a lower price unlikely.

For a substantial part of the Indian population today, this still leaves a personal receiver outside the realm of hope.

For radios to be as common in India as they are in Japan a significant rise in India's living standard will be necessary. Alternatively, the Government would have to give a whole new priority to radio production and distribution.

Television sets except among the wealthiest classes will continue to be an institutional and community instrument for the foreseeable future.

Meanwhile, the steady spread of wide-band microwave and coaxial cable, increased emphasis on industrial partnerships to produce good quality broadcasting equipment, and a focus on two or three competing research institutions seems like the best road to the communication development.

Programme manpower requirements should be efficiently met when the TV training centre is completed in Poona. If this training systematically reinforces the contact between television producers and the Indian people then the best possibilities of communication will be realized.

Malaysia

Radio broadcasting was begun in Malaysia in 1930 when it was the British Protectorate of Malaya. Television was started under a crash programme of Canadian technical assistance in time for the independence day celebration of 1963. Radio Malaysia employs over 1,500 people to produce 400 hours per week in a total of 16 languages but principally in the Malaysian language.

A staff of over 500 produces nearly 80 hours of television on two networks from the largest and most modern television studios in Asia, outside of Japan (CIDA provided the design, building and engineering supervision costs).

All of West Malaysia is covered by radio - mostly on medium wave

and the greater part of West Malaysia is covered by television carried by an extensive microwave system. East Malaysia has radio in all the major centres by medium, shortwave or FM. Television is planned for Sabah in the near future with Sarawak to follow. Colour television is being considered for West Malaysia. In 1968, there were nearly half a million licensed radio receivers and 120,000 television sets. Both figures may be as much as 50 per cent under today's real totals.

To summarize: by international standards, Malaysia is a country rich in broadcasting resources. Much remains to be done in the East but rapid progress now is making up for the past neglects. The weaknesses of radio - and particularly, television in Malaysia, cannot be attributed to hardware. In much of the radio service and most of the television services, however, it is the "software" which is found wanting. Programming cannot be said to reflect a strongly Malaysian character and many of the educative possibilities of the media are being neglected. This is a situation which will soon be changed.

At the beginning of 1971, Malaysia will open its National Broadcasting Training Centre. The purpose of this Centre is to make training in all categories a systematic part of the broadcasting operation; to develop the skilled staff necessary for expansion in East Malaysia, to raise the standard of existing operations and, in the long run, to improve broadcasting's capacity to answer Malaysian needs.

The National Centre is also foreseen as the nucleus of the Asian Broadcasting Training Institute. This long-desired goal of the Asian Broadcasting Union will shortly have a full-time planner - provided under UNDP-UNESCO technical assistance. The background and purpose of the National Centre are discussed in a later part of this paper.

Given the strength of its existing technical infrastructure, the plans of expansion and systematic development of its personnel, Malaysia Radio and Television may well become examples for other mass communication organizations. The Ministry of Telecommunication's Training Centre in Kuala Lumpur, established in cooperation with UNDP/ITU is already a model of its kind.

Malaysia imports all its communication hardware needs, including radio and television receivers. A high degree of specialization would evidently be necessary, however, to warrant the establishment of a local electronics industry. Much more densely populated and essentially non-agricultural areas of Asia, Hong Kong, Singapore, etc. seems more suited to the manufacturing role of this field.

Continuing development of East Malaysia's communication infrastructure is now the priority. Political stability and favourable markets for its principal export products are the background against which Malaysia hopes to meet its main educational and social challenges. Further technical and professional training focussed on educational exploitation of the media is the principal requirement.

While selecting India and Malaysia as representative of Asia, the author must acknowledge that while common problems of communication development exist in Asia, there are obviously more contrasting details than can possibly be listed in a paper of this nature. Indonesia, for example, is a study in contrasts; an archipelago of 3000 islands, 300 miles in length; a population of 60 million in Java and a handful in West Iran; an incomplete national radio network competing with over 100 provincial stations and over 500 amateur stations running on a part-time commercial basis.

systematically in education. A start is being made and any amount of assistance can be absorbed. Withe the consortium approach now initiated, this assistance can be best assured of positive results.

AFRICA

Where it all began. Wire-less, telecommunication; perhaps more than a million years ago, in a language which grew so sophisticated that hundreds, perhaps thousands of years before the telegraph, it would make the primitive efforts of Morse seem retrogressive.

The drums of Africa still talk across a retreating band of forest and savannah were the microwave and even the cable pairs have not penetrated. And, as short haul carriers, the drums have much to commend them in economy and efficiency.

The oldest radio transmitter in Africa was built in 1926, soon after the first in Europe and America. After this beginning in Kenya however, communication made little progress until the last decade and all lines led to and from London or Paris. Broadcasting in the Gold Coast was the most developed before independence, anticipating the rapid expansion of the media in Ghana.

Today, transmitters, microwave networks, radio and television studios and receiver assembly plants can be found - in various degrees of concentration in all corners of the continent. But progress is relative; there are still less than five radio receivers per 100 people, taking the continent as a whole. Television reception except in U.A.R., has not reached a stage of penetration where it can be called an important communication influence. Ghana alone, among south-of-the-Sahara countries has a national TV network.

Meanwhile, in Côte d'Ivoire one of the most comprehensive educational use of television yet attempted, is about to come into effect. Under the aegis of UNESCO, the World Bank, Canada, and other bilateral agencies, television will take up much of the main burden of elementary education. Only in little American Samoa, a laboratory case by most standards, has television attempted to produce such a sweeping educational reform. Operational responsibility for the project, a major part of the equipment cost and practically all the technical assistance personnel are being provided by France.

Most of the problems associated with the spread and effective use of communication in Africa, however, are more directly economic. Equipment is costly, installation often difficult and maintenance standards are often low. Not surprisingly, technicians whose economic outlook does not include a telephone or television set are poorly motivated to care for either. This is not to suggest that the training of African technicians is a futile task; on the contrary. The Ghana Telecommunications School, for example, the Ghana Broadcasting Engineering Training School, and the CIDA sponsored Trades Training Centre in Accra, are all full, flourishing and making an invaluable contribution to the country's communication systems. But technical skills tend to be under-rated in Ghana as they are in so many countries where the education systems and technology did not grow out of the culture but were implanted by foreign administration. Consequently,

a graduate engineer, whose theoretical knowledge may be impeccable but whose ability to repair a telephone or television set is nil, enjoys a much higher standard of living - hence a telephone and television set - than the man who must keep them running. The evident injustice is more likely to be felt in a country where social mobility is a new phenomena which is the case in much of Africa.

The creation of a new class of "super technicians" is probably the best way to insure that good candidates will be attracted to the career, that morale will be maintained and that high standards of efficiency will be met in communication and in other technological fields. Such socio-economic adjustments have rarely been planned although governments, as the principal employers and planners have the possibility of making technology more efficient than it has been so far in Africa - and to accelerate development in the process.

The introduction of science and technology at an early stage of education would also help to offset some of the present academic bias and produce graduates more susceptible to technical training. The creation of communication clubs in secondary schools would provide the opportunity for an early exposure to communication technology and programming concepts. The school club idea would also lend itself well to bilateral technical assistance and if there was a connection between schools in the bilaterally cooperating countries an extra dimension of constructive participation would be added.

Tanzania is one of the African countries to make a decision against television although Guinea, Mali, Gabon, Chad, Togo, Dahomey and some of the other smaller states do not yet have TV. Tanzania's policy is based on the proposition that the country could not afford a full network and would not be able to produce much of its own programming. Both assumptions are supported by the great majority of television operations in Africa. Only Algeria, Ghana, Morocco, UAR, Uganda and Zambia have major networks while Kenya, Nigeria, Libya and

Côte d'Ivoire have partial networks; the rest are one, or at most, two-station operations. No country in tropical Africa produces half of its own programmes (although Ghana once produced 80 percent) and some produce as little as 10 percent.

Systematic development of local staff, the only basis upon which indigenous production can hope to expand, is not yet a feature of African broadcasting. Only Ghana, Kenya, Libya, Nigeria and UAR have full-time training centres although Algeria expects to begin a major educational radio-television training scheme soon and Côte d'Ivoire, Ethiopia and Uganda have regular part-time training. The Kenya Institute of Mass Communication is the only plant in Africa designed from the beginning for radio and television training.

One new feature of communication in Africa which is bound to have an impact in the future is the provision of university courses leading to a communication degree. The Universities of Senegal, Nigeria and recently, Kenya offer undergraduate courses, the first and last emphasizing journalism - broadcasting as well as press - and the second is research oriented with a strong bias toward radio.

International links within Africa are one of the great areas of neglect in the communication world. A telephone call from Lagos to Accra must still pass through London and a call from Abijan to Dakar must route through Paris. An east-west continental link was innaugurated only in 1969. Under a UNDP Special Fund project, however, the first full-scale survey for African telecommunications will begin shortly.

Another UN agency, UNIDO hopes to promote receiver production on a regional basis in Africa. UAR, Algeria, Côte d'Ivoire, Ghana, Kenya, Malawi and Burundi all boast receiver production plants but only in the UAR, is there component manufacturing. The UNIDO Plan is aimed at producing a design suited to African needs (which vary but have important common factors). The production of a different range of components would then be assigned

to each co-operating country with final assembly taking place in one country or divided among all the participants.

Also on the regional level there are new initiatives for co-operation in communication training. The communication course already mentioned in Senegal (CIDA assisted) regularly draws students from the francophone West African countries. The University of Kenya course serves students from East Africa. The Kenya Radio-TV Institute is also designed for East African participation. Assisted by a UNESCO regional programme the Institute of Communication of Lagos University is planning a regional management course for West African broadcasters, early in 1970. It is hoped that Lagos will eventually become the base of a permanent radio and television engineering and programme training centre for the sub-region and participation by bilateral aid sources is anticipated. URTNA, the African broadcasting union, has sponsored several seminars and courses and the Commonwealth Broadcasting Conference has recently completed its first regional course - held in Ghana with assistance from CIDA and ODM. The Arab States Broadcasting Union has plans for a co-operative course in 1971 and hopes for a permanent regional training institute in Jordan. Algeria's planned ETV training institute is foreseen as a regional centre for the Magreb.

This brief look at African communication inevitably excludes much; external broadcasting for example. External broadcasting is of marginal value in any contest and a great consumer of energy - human and electrical, to the benefits accrued. The omission here is not an oversight. This review has, however, tried to stress the positive without ignoring the fact that problems are abundant and formidable. The great barrier to communication in Africa is language; the more so since the possibilities of a common language evolving - such as took place in East Africa with Swahili - has now been virtually eliminated. The mass media now, ironically, reinforce the polorization of non-communication between the two great imported languages.

Latin America and the Caribbean

If there is one word to describe radio and television in Latin America, the word is "saturation". In Mexico (1964 figures) there are 395 AM medium-wave commercial radio stations, 15 shortwave and 15 FM commercial and 27 commercial television stations - the latter largely owned by one corporation. There are also three medium wave, 10 shortwave, and one television station operated by various state governments, ministries and universities. The Mexican example is typical of broadcasting from Mexicali to Tierra del Fuego.

In this tower of Babel and hard-sell, communication is largely a subliminal experience and the few achievements in public service broadcasting emerge as brave if plaintive voices.

In recent years, there have been fruitful experiments in the use of television for literacy and primary education but few of these have been sustained. The example of Brazilian footballer Pele as a literacy-by-television promoter was once accepted as a model for the medium. Colombia, assisted by the Ford Foundation and a large contingent of Peace Corps has used television extensively as primary school curriculum reform and direct-teaching medium. Also with American assistance, El Salvador in 1969 launched a major educational television scheme. In Peru, notably at Arequipa, there has been long association of the universities with educational use of the media. As in Mexico and Chile, it is typical of Latin American broadcasting that responsibilities for educational and public service use of media should be left to university owned and operated stations. None of them is sufficiently well endowed to do the job effectively.

Hope for sweeping reform now lies, figuratively speaking, 22,300 miles out in space. Brazil, with the help of a UNESCO/ITU study team has already taken a detailed look at the use of a satellite to implement telecommunication, radio and television on a national scale. In 1970 it is hoped to begin a two-year study of the educational and communication potentialities of a regionally-shared satellite in all the Andean countries. This would also be a UNESCO/ITU study and its depth and regional concept would make it by far the largest yet undertaken.

When a Jamaican broadcaster was once asked by a Commonwealth colleague why there was not greater co-operation among the English-speaking islands of the Caribbean, his reply provided a picturesque geography lesson. "I don't know man; why isn't there greater co-operation between Jersey and Malta?" The physical reality of Caribbean communication was brought home again in the 1967 CBC Feasibility Study; the Caribbean is a vast area and most of it is water, ergo the cost of a wide-band link throughout the Caribbean is prohibitive.

At the end of 1968, UNESCO sent a survey mission to the Caribbean to ascertain the possibility for regional co-operation in news and broadcasting exchanges. In June 1970, one of the principal recommendations of the mission's report was implemented and the Caribbean Broadcasting Union came into being. It is clear that the broadcasters of the West Indies mean to promote a regional perspective; to build under CARIFTA, the sense of common purpose which has eluded the Caribbean throughout its history. It is apparent too that this will be done without outside help, if at all possible. The Caribbean's largest island is, however, another matter.

Cuba had one of the first colour television stations in the world. That was 11 years ago. Today, Cuba concentrates the limited foreign exchange available for broadcasting into keeping a monochrome service going and building up educational television. With UNICEF financial assistance a Canadian firm is now installing a cable distribution TV system in the major teacher training schools near Havana. Larger schemes in the east of the Island are also planned.

Regional Associations

More than 100 years ago the first regional association in telecommunication was formed in Europe. Today the International Telecommunication Union has four permanent organs, and 120 member states around the world. The oldest broadcasting Union, the O.I.R.T. was launched in 1946. The youngest, the C.B.U. was formed in mid 1970.

Their purpose is to provide a forum for exchange of information, ideas and programmes and to act as a unified voice in international forums affecting their regional interests. Apart from the ITU which is concerned solely with technical matters at the international level and the International Broadcasting Institute which is a private members' organization interested largely in research, there is no international broadcasting association to which all or a group of the Union members belong. The feeling among most broadcasters is that the ITU and UMESCO serve all the international purposes of broadcasting which are necessary at this time.

The value of the regional associations is proven by their existence but it would not be a fruitful exercise within the context of this paper to go into a detailed background or their history, objectives, etc. They are noted as follows, chronologically with their founding dates. A short statement of their principal activity at the present is included.

The International Television and Radio Organization (OIRT) is the union of Eastern European broadcasters with headquarters in Prague. Its chief regular activity is Intervision, the Eastern version of Eurovision with which it exchanges some programmes. It also negotiates for satellite hook-ups through Eurovision. OIRT is an associate member of URTNA.

European Broadcasting Union has 25 members in Europe and 30 associate members of which the CBC is one of the oldest. Its largest single international activity is as principal organizer of a world-wide educational broadcasting conference every four years. The next is scheduled for Mexico in 1971.

Union des Organizations Radiodiffusion et Television National d'Afrique (URTNA) was founded in 1962 and has organized a few activities outside of its annual meeting. It maintains an administrative headquarters in Dakar and a monitoring centre in Mali. The three working languages of the Union are Arabic, English and French. Some of its members also belong to the EBU, others to the Arab States Broadcasting Union.

Asian Broadcasting Union (ABU) was formed in 1964, has 22 members ranging in size from NHK, Japan to the Tonga Broadcasting Commission. Twenty associate members include the CBC and the major American commercial networks. The ABU maintains an engineering and technical headquarters in Tokyo, publishes a regular news letter and technical review. Its main objective now is the building of a regional training centre in Malaysia.

The Inter-American Broadcasting Association unlike the ABU does not represent national organizations but commercial broadcasters in the USA and Latin America. Its objectives are primarily to promote free enterprise.

The Arab States Broadcasting Union was founded in 1970 as part of the Arab League. It has plans for programme exchange, seminars and a training centre in Aman.

Caribbean Broadcasting Union was also launched in 1970 with the principal aim of promoting a regular exchange of programmes and personnel in the region.

Commonwealth Broadcasting Conference is in fact the oldest of all the associations having first met in 1945. But it is not a regional association and not a legal entity like the Unions. Only Commonwealth members (37) attend the Conference (each two years) and there are no associate memberships or observers. The one-man secretariat is in London. The Conference has emphasized training as its main substansive activity and it recently launched its first regional course in Ghana.

Community of French Language Programmes organizes programme exchanges among French language broadcasters (including CBC) and gives an annual prize for the best dramatic work.

International Catholic Association for Radio and Television and the World Association for Christian Communication are not regional in the geographic sense but they have been active collaborators in training and jointly sponsor a centre for broadcasting training in Cameroon.

These then are the principal associations representing the broadcasting media. They have each, in their way, contributed to the advancement of radio and television and helped to promote a sense of broadcasting's mission to serve the public good. With the exception of the EBU it cannot be said that any of the associations are wealthy or capable of the training programmes, co-productions, engineering development projects to which they would aspire.

The Unions - and in this respect the ABU is perhaps the strongest - also demonstrate the capacity for fruitful cooperation among developing countries. The pages following discuss some of the principal contributors to bilateral assistance in communication. It seems an appropriate juncture to draw attention to the potential for a major breakthrough in communication if all or several of these contributors joined the unions in building and supporting a communication development centre in each of the regions.

United Kingdom

The United Kingdom has the longest history of providing assistance for broadcasting projects, through the activities of the BBC, which extend back to the pre-war period. From its pioneer days in the thirties, the BBC acted as a source of advice and training for countries entering broadcasting for the first time; it also regularly accepted overseas trainees for working attachments and encouraged them to join its domestic training courses whenever places were available. At the other end of the scale, the BBC was frequently involved in the setting up of new radio stations in colonial territories (beginning with Nigeria in 1927) and many existing services still retain the BBC's organizational imprint.

Over the last decade, the UK's response to broadcast development has inevitably become less paternalistic, and there is far more coordination between the agencies involved. The BBC maintains an overseas training programme (with the backing of the Ministry of Overseas Development) and it has a special training studio and supporting staff in London to deal with overseas television trainees. Engineering students are accepted for domestic engineering courses, run at the BBC's Engineering Training School in Evesham.

The BBC is equally active in the field of secondments. Production and engineering staff are regularly assigned to overseas establishments as part of the UK's aid programme and have been heavily involved, in recent years, with broadcasting development in such countries as Libya, Turkey, Jordan, Guyana, Singapore and Malaysia, sometimes providing in-service assistance and sometimes helping to develop (as in Malaysia) specialized training schools. Commonwealth cooperation is also preserved through the Commonwealth Broadcasting Conference.

The reputation of the BBC is well-known and has at times approached a mystique. Other countries have attempted to emulate its organizational structure as well as its production and engineering methods. But the BBC has ceased, in the last decade, to act as of divine right in the broadcasting field; instead it has regulated its assistance and advisory services within the general context of UK technical assistance. Assistance is spread as wide as finances allow and not, as with France, generally confined to ex-colonial territories.

British technical assistance in the broadcasting field is not, however, confined to the BBC. A number of bilateral aid programmes have provided broadcasting equipment (limited - as usual - to items of British manufacture); recent examples are the provision of studio equipment to Malaysia under a Special Aid programme, to help create a new National Broadcasting Training Centre, and to the Institute of Mass Communication, University of the Philippines.

In the field of educational (instructional) television, the UK has operated through a separate agency - the Centre for Educational Television (Development) Overseas. Since the early sixties, this centre has provided regular training courses for ETV producers, and marketed low-cost programme materials for new stations, in the form of 'kits' which can be adapted to suit local educational requirements. It has also produced a considerable series of training films describing production techniques and provided an information service, as well as an international magazine, "Educational Television International". Of equal importance has been the secondment of experts to help develop particular educational television services; training courses have been mounted in many parts of the world (South-East Asia, the Middle East, Latin America) and consultants have been attached, for periods of up to two years, to ETV services in such countries as Ethiopia, Ghana, Jordan and Singapore.

In the UK, assistance to broadcasters is now centralized within the Ministry of Overseas Development (itself a relatively new Ministry, set up to integrate aid programmes in general). The BBC acts as an agent for the Ministry in general broadcasting affairs; in the field of educational broadcasting, a new body, the Centre for Educational Development Overseas (formed through an amalgamation of CETO with OVAC and CREDO - other bodies concerned with overseas visual aids programmes and curriculum development schemes) now spans the whole field of educational technology. Since the Ministry of Overseas Development is the focal point in the UK for relations with UNESCO and the BBC is a member of the European Broadcasting Union and an associate member of the Asian Broadcasting Union, as well as the prime mover in the Commonwealth Broadcasting Conference, Britian is well placed for correlating its bilateral programmes with regional and international developments.

Finally, technical assistance, in the broadcasting field, is not confined to government or quasi-government organizations. Manufacturers of technical equipment have often (sometimes through necessity) involved themselves in training schemes and planning operations for broadcasting, as a kind of sales incentive and some commercial organizations have entered the field in more fundamental ways. Grandad Television, for example, was one of the first companies to develop television in Africa, and the Thomson Organization, which has broadcasting as well as newspaper interests, runs - through the independent Thomson Foundation - a training establishment in Glasgow for both production and engineering personnel, as well as mounting short-term training courses in such areas as Pakistan and Latin America.

France

Like Britain, France became involved in the development of communication infrastructures abroad as a result of being a colonial power when telecommunication - and particularly radio - was first introduced.

Unlike Britain today, however, French technical assistance in communication is limited almost exclusively to former French colonies. Language is, of course, the main reason for this limitation.

Since the beginning of radio in the French colonies (to all intents this means Africa and Madagascar) communication has been the responsibility of an agency of Government. Before the Second World War when all stations in France were commercial, SORAFOM was the organization entrusted with the equipping of local radio stations in the colonies and also with the provision of programmes. Some indigenous staff was trained.

After independence was granted to France's African states, SORAFOM was replaced by the Office of Cooperation for Radio in Africa - OCORA - an agency of the Foreign Ministry. Subsequently, OCORA was moved to the ORTF.

In the earlier period - even post-independence - the radio stations were manned almost entirely by French personnel and much of the programming emanated from Paris. African staffs were developed, however, through a regular training programme in Paris and extensive post-graduate experience for radio engineers.

Among the francophone countries of West Africa, only Côte d'Ivoire has a substantial television operation. French technical assistance has played a major part in its beginnings, however, and more recently, France has joined with the World Bank and other agencies in one of the more revolutionary applications of television yet to be attempted.

An experimental project for the intensive use of television in education has been carried out for three years in Niger. French programme personnel and sociologists have been actively involved in the UNESCO-assisted television pilot project begun in 1963 in Senegal. One of the few television stations in the world to be closed down was also assisted in its establishment by French Aid. But Haute Volta Television in Oagadougou was soon seen to be unviable and little effort has been wasted on training men to run it.

French Government policy toward communication in Africa has been dramatically emphasized in recent announcements of plans for a communication satellite.

Government communication consulting agencies have drawn up the engineering and programming proposals for a scheme which would provide direct reception by augmented television receivers from Dakar in the West to Antananarivo in the East. The aim of this project would be to provide a high standard of in-school and adult educational television programming to all francophone countries in Africa.

While this enterprise is still in the project description stage, it does illustrate the advanced state of French communication capacity and the importance which successive governments have given to the educational-development role.

U.S.A.

As the world's largest broadcaster, outstipping by far any other country in transmitter power, number of stations, number of radio, television and colour television receivers, the United States has naturally had a profound influence on communication techniques, practice and policy throughout the world.

In defining the role of communication in development, in measuring the impact of communication, in providing a scientific structure for communication research, American scholars, social scientists and communication theorists have dominated the field to the exclusion of all but a handful outside the U.S.

American governments' policy and USAID involvement in the promotion of communication development has not, however, been as consistent as that of the other major aid-giving countries.

Commercial broadcasting, which has served American enterprise so well at home, has a very chequered reputation in developing countries. The intensity of commercial radio and television competition in Latin America, Thailand and the Philippines has at times reached near-chaotic proportions in emulating the American example. There is a growing consciousness, however, that a more ordered and constructive use of broadcasting was possible in these countries and America has not been reluctant to support and encourage these developments.

Previous USAID practice favoured contracting to non-government agencies - often universities but sometimes commercial organizations specifically designed to provide a technical assistance service - and sometimes sell equipment and programmes. RTV International, for example, has provided management services and training assistance to such countries as Ethiopia, Kenya and Jordan. RCA International provided a similar service to the beginnings of television in Nigeria.

As far back as 1964, President Johnson enunciated an American policy in supporting international communication development. The Ford Foundation in India, Kenya, Colombia - to name but three - has given action to the theories of Schramm, Lerner, etc. in communications assistance. In Colombia, the Peace Corps was used to provide a massive support-feedback system for a concentrated application of educational television.

The experience of American Samoa - the first place in the world where the majority of the education input was provided by television - has more recently been applied to El Salvador where USAID experts and equipment are helping to bring about far-reaching changes in the education system.

Major capital inputs, however, could not be said to be a characteristic of American communication aid. High level advisory services provided by the Ford Foundation, USAID or private concerns, and assisted university places for foreign students studying communication, are today the principal forms of grant aid in the field. It must be borne in mind, however, that the US is by far, the largest contributor to the international agencies of capital and technical assistance and communication is an increasingly important part of these agencies' activities in development.

Any consideration of America's likely future role in communication development must inevitably be dominated by the satellite. American pre-eminence in this field will not be diminished within the present decade but American policy on the use of satellites for national and regional purposes is bound to undergo profound changes.

On the international level, pressure by INTELSAT members has already reduced the dominant role of COMSAT and further reductions, including non-American management personnel, are intended. As ground stations increase in number and potential alternatives emerge through European space capacity, continued adjustment in the American position will no doubt follow. Meanwhile, a number of influential US figures have strongly advocated a more generous policy in respect to developing countries and less of a business-oriented posture than is presently adopted by COMSAT and its legislative backers.

The NASA/India agreement which would have made available the ATS-7 synchronous satellite scheduled for 1972 has now been delayed until 1974 to be used by India one year later. This news has been greeted with dismay in many quarters where it was hoped that the Indian satellite would dramatically demonstrate the advantages of this new technique. Those who have advocated a conventional terrestrial system in situations such as India's are strengthened in their argument that a satellite is too susceptible to political/economic vagaries to be the basis of a national communication system.

Feasibility studies expected to be undertaken by UNESCO/UNDP/ITU in the near future include a regional educational TV satellite proposal for Latin America, and multi-purpose satellites for Indonesia and for the Arab States. Such studies have in the past, used American design, construction and launch projections as the engineering parameters. These are freely available, of great reliability and the product of a few leading American engineering/manufacturing firms. In considering the future of America's role in communication development, the enterprise of such corporations should not be underestimated.

Federal Republic of Germany

Among the nations whose contribution to communication is unconnected with a former colonial obligation, the Federal Republic of Germany is by far the most significant. The two foundations which present the major political parties of West Germany, the Deutsche Stiftung fur Entwicklungslander (German Foundation for Developing Countries) and the Friedrich Ebert Stiftung have been the most active organizations in the world in the promotion of communication training.

Since 1960, the contribution of the Federal Republic of Germany to communication in Asia and Africa have included the following:

Sudan	-	radio transmitters, studio equipment and training
Ethiopia	-	radio transmitters, studio equipment and training
Togo	-	radio transmitters and training
Dahomey	-	radio transmitters and training
Ghana	-	television film production and training
Turkey	-	television equipment and training
Pakistan	-	television equipment and training
India	-	television equipment and training
Indonesia	-	television equipment and training
Singapore	-	television equipment, film production, training
Ceylon	-	radio network

As well as these substantial capital grants, West Germany has been an active collaborator with the Food and Agriculture Organization in sponsoring farm broadcasting courses and the Friedrich Ebert Stiftung has cooperated extensively with UNESCO in the planning of regional training establishments in Asia and Africa.

The growing West German experience in the communication-assistance field is, perhaps, best revealed in Singapore where FRG capital resources and technical assistance will underwrite an imaginative long-term programme. This will include the building of a second-channel television station,

an adult education film production and training project for the Asian region and the financing of an Asian regional communication research clearing house. The eminent Indian communication research specialist, Dr. Lakshman Rao has been appointed to head this centre.

At an early stage, West German communication aid was centred on the provision of broadcasting equipment - of which she produces a variety of high quality systems including: Siemen's Telefunken, Fernseh, etc. - and training of foreigh students in Germany. The latter activity inevitably meant six months or more of concentrated German language courses. Today, however, the emphasis is much more on German experts working in the field.

German equipment is still supplied in abundance and sold in many cases to round out television systems, radio installations, etc. in which German equipment forms the basic installation. German engineering and engineering training is highly regarded and the reputation is maintained by these projects.

German engineering and programme trainers were responsible for the television station in Rawalpindi. The television installation in Ankara is principally German and most of the engineers are German trained. More recently, the FRG has undertaken to build India's second television station - in Bombay. The first Indian station, in New Delhi, has a majority of Indian equipment.

The regional approach, first attempted by FRG assistance in Africa is based upon the production of technical-training films in Ghana which are distributed to other English-speaking countries in the continent. The use of Ghanaian performers and a style of teaching determined from the Ghanaian use of the film makes these films more acceptable in Africa than any which are produced abroad.

The Singapore projects are modelled on the Ghanaian experience. Here the adult education films will be mainly produced in Singapore and student producers from other Asian countries will be brought to Singapore for training. Production may also be undertaken in Indonesia, however, where local situations are required and where the FRG is undertaking a major programme for the government television system.

Since the inception of the Colombo Plan, Australia has been an active contributor to the development of radio and television. The country's own development has been so profoundly influenced by communication, it would be surprizing if this were not the case. Naturally, Australia's chief involvement has been in South-East Asia but many African broadcasters have also received training at the Australian Broadcasting Commission's radio and television training centres. Rural radio and educational radio broadcasting have been the principal areas of training contribution. Australian experts have been sent to Malaysia, Ceylon, Singapore, Indonesia and, of course, to New Guinea and other South Pacific Trust territories. Australia is an active member of the Asian Broadcasting Union and the ABU's Secretary-General is the former Director-General of the ABC.

Scandinavian Countries

Norway, Sweden and Denmark share similar, although by no means identical views, on what should be the structure and function of broadcasting. Sweden, as the largest is, however, particularly conscious of the part which communication has played in the country's social and industrial achievements. East Africa has been a special area of interest to these countries and Norway and Denmark have contributed capital, equipment, and technical assistance experts to communication development and training in Kenya and Tanzania. Sweden has also undertaken to assist educational television development in Cuba.

Canada

The telegraph together with the railway provided the first reality of Canadian confederation. Concern with strengthening these first tenuous bonds has been marked by uniquely Canadian responses to the advent of each new communication medium. The Canadian Broadcasting Corporation and National Film Board of Canada are object lessons in the use of communication for national purposes.

The lesson has not been lost on countries which benefit from Canada's various bilateral programmes; the CBC and NFB have been popular organizational models, as well as regular sources of technical assistance expertise.

The Ghana and Malaysia Television organizations were established with the help of CBC engineers and producers; the former case including more than 250 man/months of expert assistance and an equal amount of training to Ghanaians in Canada. Nigeria, Sierra Leone, and countries of the Caribbian have called upon Canadian communication assistance. Major capital inputs to communication (microwave) have been made in India and Turkey. More recently, a mixed communication team has gone to Tanzania.

Canada's recent decision to orbit the world's first domestic sychronous satellite is consistent with the country's record for communication enterprise; the desire to develop the Canadian north was a major factor in this decision. Developing countries will be keen observers of the satellite project as Canada's use of communication for development enters a new era.

Technologically advanced, wealthy and uncombered by an imperial past or rigid present, Canada is a welcome participant in a wide variety of francophone as well as English speaking bilateral programmes. But Canada also has strong links with international organizations and the interest and activities of these agencies in communication forms an increasing part of the development scene.

The International Organizations

Communication between nations has been recognized throughout history as a pre-condition of peace. The Achaen League of Greek city states was built on a regularized system of communication designed to obviate mutually-debilitating wars. Twenty-five years ago the United Nations Organization witnessed civilization's prodigal return from near-Armageddon to the reinstitutionalization of dialogue. It is not surprizing then, that the longest established international organizations are those concerned with communication - the International Telecommunications Union and the Universal Postal Union.

Today there are numerous international organizations working with large and small permanent secretariats - or none - each responding to a need among professional groups to share and enhance their common interests. Some of these organizations, the International Film and Television Council, for example, have broad objectives to facilitate collaboration among national and private film organizations. Others are more highly specialized, like the International Institute of Film on Art.

The last record on international associations in the mass media showed 31 primarily concerned with the press, 22 with film and 10 with radio and or television.

Each of the UN specialized agencies has a communication function, to encourage wide understanding of its goals as an organization or to use the media for specialized instruction within the agencies' field of competence.

The Food and Agriculture Organization has been an active organizer of rural broadcasting seminars and training courses in many parts of the world.

UNICEF has made large financial contributions to educational television aimed particularly at assisting teacher training and primary schools.

The United Nations Development Programme is the principal financing organ of UN technical assistance and it has over the years contributed heavily to communication development through the UN Agencies. Recently however, INDP has moved directly into the communication field by establishing the Development Support Communication Centre in Bangkok. This essentially film based operation is an Asian promotion centre for Project Support Communication, and Development Support Information. The objective of PSC is to encourage the integrated use of media in development programmes. DSI means to inform UNDP member countries of development in the world, its problems and achievements.

The ITU, as earlier noted, was established 80 years before the UN system came into being. Under the UN umbrella, the ITU has built up an enviable record of sound technical assistance. Its telecommunication training institutes, staffed by international teams of experts are models of multilateral co-operation. But outside of the ITU, which is concerned solely with the "hardware" aspects of the media, major international communication role falls to UNESCO.

UNESCO's activities in mass communication can be summarized as follows: Research, Policies, Planning, Training, Applications and Publications. The programme functions at the national, regional, and international level, assisting member states, promoting and assisting regional communication organizations and holding regional seminars, meetings, and training courses, and organizing international meetings on subjects of mutual concern to UNESCO's members.

Finally, the organization has a regular programme of publications including training manuals, country and regional reports, professional and statistical summaries, books on subjects of current interest like space communication. A cross section of UNESCO's communication activities will illustrate the scope of the Organization's work. The following are among the current programmes.

Level	Place	Project
National	India	UNDP Special Fund 3-year project to assist establishment and operation of national TV training centre, Poona.
National	Turkey	Four-man, 3-month expert mission to prepare long-range plan for development of national television.
National	Malaysia	Four-man, two-year project to assist in establishment of national radio and television training centre.
National	Nigeria	Two-year project to organize and assist in African regional mass communication training.
Regional	Korea	Asian training course in the use of mass media in family planning.
International	Paris	Seminar on the mass media and violence.
International	Paris	Meeting to establish regional clearing houses for communication research.
Publication		Radio Production for Development (a manual for radio training in developing countries)

From its variety of experiences in every region of the world UNESCO has, over the last twenty years, accumulated a substantial knowledge of communication and development. From its own communication staff and from the expert ranks of its more than 120 member states, the Organization, together with ITU provides planning and advisory capacity which is unavailable from private or national organizations.

It is in this context that UNESCO has argued for a system's approach to national integrated communication planning: e.g., the continuous planning for the systematic development of the communication sector as a whole and for the design and application of all the communication sub-systems which are necessary to perform the variety of communication functions necessary to society.

It is a concept which has not yet reached the attention of many national economic planners. But the realization of communication's place in development is growing and UNESCO's long-term programme will emphasize communication policy and economic studies to meet anticipated planning requirements. Meanwhile, there are needs and priorities in communication development which must be met on demand. These are discussed in the section following.

4. NEEDS AND PRIORITIES

Previous sections of this paper have described some of the contexts in which broadcasting media can assist and are assisting in the development processes. The following pages will attempt to establish some scale of needs and priorities for each of the applications of broadcasting which have been isolated - general public programming, instructional and educational broadcasting and social development. Before doing this however, it may help to set broadcasting again within the broad context of development.

Development is, above all, the sustained improvement of productive capacity - whatever qualitative measure of social achievement is used. When a society can, or should, as Galbraith suggests, cease to use this standard then it can also be said to be "developed".

There are two current doctrines of development which attract the support of economic theorists. The "big push" theory contends that there must be an across-the-board effort in all sectors of the economy lest one neglected sector should undermine the successes of the others. The "selective growth" strategy states that spreading the minimal resources of a developing country too thinly, to cover all sectors, will prevent any one of them from achieving significant growth. Whatever doctrine is upheld by economists, it is generally agreed that the objective in sustained productive capacity is a minimum increase of 2 per cent, per year, per capita, without external subsidy.

The means of reaching this "take-off" point will obviously vary from country to country depending upon natural resources and the political and social circumstances. There is evidence that resources alone will not produce the desired result.

It is also generally acknowledged that such development cannot occur unless assisted by the developed countries, who, although they represent only a third of the world's population, nevertheless control five-sixths of its output.

Among the various forms of assistance which may be offered, aid in strengthening mass communications is a key sector - since communications are not only part of modernization itself, but are equally important in increasing information flow and in creating or reforming educational systems. The account of communication which appeared in Part 3 of this paper was concerned with three separate areas of interest: the efforts and problems of the developing countries themselves, the assistance rendered by the developed countries, and regional and international groupings and initiatives.

In the field of radio and television broadcasting, assistance in communication development has characteristically been offered in five main categories, i.e.:

a) the provision of equipment, facilities and financial aid
b) training
c) the production, distribution and exchange of programme materials
d) regional and international cooperative ventures
e) research and research applications

a) The Provision of Equipment and Facilities

The provision of hardware - in the form of equipment, or indirectly through loans or other financial assistance - is the most common and longest-established form of support given to developing countries. Radio and especially television broadcasting are highly cost-effective when they are deployed to maximum capacity but they require a considerable level

of initial investment - a level frequently outside the resources of an emergent country. In Part 3, it was shown that a large number of broadcasting services have been developed only through practical assistance of this kind, mostly under bilateral arrangements.

There are obvious advantages to the donor country in this approach which may receive maximum acclaim for the minimum effort. If assistance is offered in the form of equipment, it will normally be confined items of the donor country's manufacture. There is therefore an incentive for the recipient, at some later time, to renew its equipment from the same source and to establish close links with the donor country's traders.

This is a perfectly valid position, and a useful function of aid. But there are some drawbacks to such an arrangement which should also be acknowledged. If assistance is to be viewed, not purely as a form of commercial investment, but also as a disinterested part of an aid programme, a donation of equipment will only be of value if it is handed over to trained technicians and producers; special training arrangements are therefore called for. It will be effective only when used as part of a coherent broadcasting policy; some consultation with the recipient government and careful monitoring of the development programme is also demanded. These points will be developed at greater length in Part 5 of this paper; for the moment however it should be enough to point out that the provision of equipment or finance, on its own, is unlikely to produce very convincing results. From a business point of view alone, some further involvement will pay dividends: poor workmen traditionally blame their tools.

b) Training

Throughout the broadcasting field, training is needed at all levels of experience, ranging from technical and engineering skills to management and analytical techniques. The UNESCO survey of training needs in Asia,

carried out in 1968 revealed, for example, that by 1972 an estimated 35,000 people would be engaged in television and radio, all of them requiring professional training.

It has already been shown that both national and international contributions in this area have been sporadic and largely uncoordinated. Experts have been sent from national or international agencies, to help develop organizations scattered throughout the world; many training courses have been devised, usually over short periods of time, to help train producers and technicians in specific skills. Scholarships and fellowships are regularly available for producers and others to attend courses in the West, or to be attached to Western broadcasting organizations.

There is no doubt that such initiatives have been helpful, but they suffer from several limitations. In the first place, students from different broadcasting organizations - and often students from the same organization - have been exposed to training programmes devised according to different philosophies and have learned many different broadcasting techniques. Most countries in the West have individual approaches to the techniques of radio and television; these arise quite naturally out of cultural variations. They are not likely to disturb the experienced practitioner in the field, who can read between the lines and see the underlying assumptions behind a particular practice. The novice, however, (especially the novice from a developing country who has no frame of reference from which to proceed) is less likely to make such find judgements, and there can be genuine misunderstandings and confusions when he returns to his home environment.

It may be too that the student from a developing country who receives his training in a foreign environment will be unable to transfer what he had learned to his own situation without a good deal of difficulty.

He will have learned to work with equipment of a particular type, in a particular work situation; unconsciously he will have assimulated a variety of practices, from Trades Union operations down to production logistics, which will not necessarily match the requirements of his own country.

In recent years a new philosophy of training has emerged which runs generally as follows. Basic training is best given in the student's own country; he will then be learning in a real-life situation and problems of communication or transfer of learning will not be raised. More advanced training can be secured, later in his career, at a regional level, where economies of scale can be effected through regional cooperation and new techniques introduced but where the student is still generally in touch with the culture and traditions of his home. Foreign training and study tours are best reserved for the most advanced student, who has enough experience of broadcasting to relate what he sees to his home environment, filter out what is useful and reject what is irrelevant.

If this philosophy is accepted (and it is now becoming commonplace) it follows that cooperation between national, regional and international agencies is essential. If a number of countries are involved in training for professional skills, they have to be willing to adopt a common language and set of techniques - deriving from the situation in which they find themselves and not from accepted practice in the U.K. or Canada or Germany. Again this is a point which will be extended in Part 5 of this paper.

c) <u>The Production, Distribution and Exchange of Programme Materials</u>

In the past, one contribution which many Western countries have felt that they could make to national development has been in the provision of general-purpose programme and insert materials, distributed free or at minimum cost. In some cases this has amounted to little more

than a commercial enterprise; most broadcasting companies of any size maintain a sales department which markets (either through agents or through its own representatives) selected products on an international scale. Occasionally, special rates are offered for "pioneer" broadcasting organizations, in the hope that these will continue to buy a product once their finances are more secure. Governments, similarly, produce informational or propagandist films for distribution abroad, normally free of charge.

This idea has also been extended to cover the production of instructional materials (and general educational materials) by the developed countries for use in the emergent world. Often these are complete films, or series of films, dubbed into English or into local languages, for direct transmission on local screens. A different initiative was taken, in the U.K., by the Centre for Educational Television Overseas, when it produced 'kits' - basic components for television programmes, on a variety of subjects ranging from mathematics to English language instruction - which could be converted into programmes, at negligible cost, by local broadcasting organizations.

There is clearly a place for the production of centralized materials of this kind, but it has often been overstated. It is the experience of many broadcasting organizations that films completed in the West, even when they are produced in 'international' versions with a track left blank for a local commentary, are rarely created precisely enough to suit a local situation. The CETO 'kit' concept, while certainly more flexible, still left only a limited margin for local variations to be made. Probably the most useful assistance which can be given in this area is in the provision of a range of 'insert' materials for programmes, to be built up according to the demands of each specific country, but not structured in advance. At the moment, such materials are difficult and expensive to come by, because

of copyright limitations throughout the world and because of the absence of any centralized form of cataloging. This is an area where national and international agencies could profitably come together to create a reservoir of visual and aural illustrative materials, which could be drawn upon at will.

Some attempts have already been made to develop appropriate methods regionally. The South East Asian Ministers of Education Secretariat (SEAMES) has begun a centre for the development of educational methods and the Friedrich Ebert Stiftung is now setting up a base for preparation of adult educational methods in Singapore. But the field is still in its infancy.

d) Regional and International Cooperative Ventures

There has been, in recent years, a much greater emphasis on regional and international broadcasting schemes though it has not always provided very satisfactory results. Relatively few countries are so confident of their own national progress that they can easily subscribe to a regional programme, particularly if to do so involves some sacrifice of autonomy. Yet when such projects as satellite communication are mooted, the logistics are such that they become feasible only at a regional or international level.

The development of regional schemes is a prolonged affair. They are usually created through the particular initiation of an international organization (such as a UN agency) or of a regional organization (such as SEAMES or the ABU). The normal arrangement is for the host country to contribute land and buildings and to bear the domestic recurrent costs of heat, light, caretaking etc., with other support coming from user countries (after an initial period of financing which may stem from international agencies such as UNDP). It is not always easy to convince the host country that the advantages which it can expect to derive from a regional scheme are commensurate with what it is putting into the project; equally, it is not always easy to persuade

user countries to take full advantage of it when complete. Regional projects need careful nursing, both during and after their developmental periods. But they are bound to stablize, if only because certain kinds of progress (e.g. satellite development, advanced production and technical training) can come only from regional cooperation.

The regional projects which are most likely to succeed are those which arise out of the region itself, created by its member countries and not imposed externally. The new regional project for broadcasting training in Asia, for example, is being constructed out of demands articulated by the Asian Broadcasting Union - an association of Asian broadcasters which is not dominated by any international or extra-territorial agency. The most likely fields for future regional projects are, in fact, those of broadcast training, the use of satellites, the creation of library networks for television and radio, and the development of national programmes and information services.

d) Research and Research Applications

In discussing communications development, it has been natural to concentrate first on the practical attempts which have been made to introduce, extend and re-inforce the mass media. But the influence of the media is bound to depend upon other factors outside their contents and the competence of those who work within them. Sociologists have made a number of studies of communication flow, and have stressed the importance of 'opinion leaders' in the community, in mediating the output of broadcasting and other media. A mass communication is part of a network - its transmission is followed by a series of inter-personal communications in which the original message is modified, glossed and frequently changed. For this reason, an understanding of the process of communication itself is vital. Indeed the effectiveness of mass communications in developing countries has been limited partly because of a lack of knowledge about such fundamental questions as the

level of penetration of the media, the pattern of traditional communications, and the implicit and explicit relationship between traditional and modern communication forms.

In the developed as well as in the developing world, research is a most difficult area to finance. For obvious reasons, donor governments are more willing to embark upon concrete aid programmes with immediately recognizable results than upon more abstract programmes of investigation and in consequence the formulators of communication policy are often groping in the dark, with little in the way of secure principles on which to build.

The priorities in research and its applications are, generally, the same in the developing world as elsewhere. There is, firstly, the need for more in the way of clearing houses (such as the recently created AMIC in Singapore); centres in which results of existing projects can be collected, tabulated and compared, so that their findings can be applied in practice. Second, there is a continuing need for new research projects, and field applications in pilot form - particularly those with a special relevance to development. More has to be known about the communication process and its application to social change - the mechanics which govern information transmission and the dynamics of the acceptance, or rejection, of innovation. In more defined areas, more has to be known about the use of mass media for instructional purposes - either independently, or as joint multi-media combinations. The problem of feedback, mentioned earlier in this paper, is especially important - what provisions can be made, within a mass instructional or educational system, for medium and audience, teacher and pupil, to respond to each other, and develop a process of empathy normally reserved for interpersonal communications? Many experiments have been designed to improve the sensitivity of the media to individual demands and capabilities - in providing talk-back facilities, linking students with computer configurations, multiplexing media channels so that simple forms of linear and branching teaching

programmes can be applied. There is no shortage of questions - but there is a shortage of institutions equipped and financed to carry out research programmes, and of competent field workers to administer them.

As mentioned earlier, Unesco has recognised this need for research oriented to the economic and cultural setting in which the results can be applied. As a first step, the Organization has nominated and subsidised an institution in each of the major geographical regions for the purpose of promoting sociological research in communication. But the "seeding" capabilities of Unesco are by no means enough to ensure that the value of research will be recognized by media practitioners.

From the foregoing, is it possible to develop some general policy formulations, to guide the apportionment and administration of aid for broadcasting development? The final section of this paper will attempt to do so; at the same time it will also pay particular attention to the difficulties which are characteristically faced by both donor and recipient. The relationship between these two is inevitably delicate. It is as well for any aid programme to be built upon realistic and pragmatic grounds.

5. POLICY FORMULATION

The problems associated with programmes of technical assistance can be characterized in two ways.

There is firstly the relationship between the country or agency involved in technical assistance and other agencies engaged on similar or related work. Secondly, there is the relationship between donor and recipient.

The major demand on the first count is for cooperation and coordination. It is unfortunately true that, in the past, some projects have been developed under bilateral agreements, which have been productive in themselves, but could have been far more durable had they been related to other national or regional schemes. There is, for example, no common set of production methods in the Asian region simply because each new broadcasting organization has been created by a separate training agency. This situation is already causing difficulties at the level of advanced regional training; trainers and trainees do not always speak a common language.

A national agency may well feel that the problems of coordination with a single government under a bilateral programme are sufficient in themselves, without undertaking to cooperate with regional or international agencies. The bureaucratic procedures of each agency involved are likely to differ, as are their management structures. This can impose delays and frustrations. Yet without such cohesion, however difficult it is to achieve, the potential of the broadcasting media is bound to be diminished. It is not possible to communicate, unless the communication codes are understood.

It has to be understood that there is no single model for communication development. There is a tendency, when broadcasting experts are sent

abroad to advise on development, for them to reproduce the same kind of environment to which they are accustomed at home. But the fact that, for example, the CBC's pattern of organization is successful in Canada does not mean that it can be satisfactorily transported to Africa or Asia. Every new communication model should arise out of a specific situation and not be imposed - in the context of management structure and policy formulation down to operating styles.

Coordination is an easy virtue to preach and much more difficult to legislate for. In the context of aid, as in other diplomatic spheres, areas of influence are often carefully guarded. While communication between aid-granting nations of similar political philosophy has grown in recent years, the objective and result has been to reduce competition and duplication; rarely is there a willingness to forego clearly-defined and recognizable areas of contribution.

The need for coordination is not confined to relationships between donor agencies; it is equally important to the dialogue between the agency providing technical assistance, and the recipient country.

The relationship between donor country and recipient is potentially fraught with difficulty - resentments are easily set up which are always latent in the relative positions of the two. The donor may set out with the best intentions but he is not necessarily in the best position to know what the form of his assistance should take. Conversely, the developing countries themselves will not always have a very clear notion of what is meant by modernity and they will often be particularly resistant to ideas and techniques devised originally by and for the West. There may be resistance to

importing Western personnel, or in justifying action programmes which seem to their originators, entirely logical. Often, the more complex and coherent the programme appears the more it can be resisted, and both tact and a facility for improvization are called for.

The details of an aid programme, in broadcasting as in other fields, can be consolidated only after a lengthy period of reflection, and repeated discussions with the country involved. It has to acknowledge that communications development is dependent upon a complex of factors - economic, technical, social and political - which may often be outside the control of the planners (both of the donor agency and of the recipient). If situations beyond broadcasting have to be changed, allowances must be made for the changes to take place, and adequate time allocated; if no change is possible, the final plan must be scaled down and properly phased, to match that reality. In many cases, sophisticated plans have been put forward for broadcasting development which are quite outside the range of the society conceived. Sometimes these plans have been accepted, by governments who are anxious at any cost and who do not wish to offend the donors. In the event, these have either failed, or have been re-drafted to suit a lesser perspective.

The pace of communications development is generally likely to be slower in an emergent country from that in the developed West. Mass media may be meaningful to the modernizing elite, but they will be must less so to the tradition-bound masses. A Western country which embarks upon broadcasting for the first time has a complete infrastructure - economic, political and technical - on which to build; in the emerging world this is rarely the case. There is a range of practical questions to be asked. Is there an adequate reserve of trained personnel available to maintain a braodcasting network? Will radio or television receivers be accessible for the bulk of a population, or can special precaustions be taken to make them so (e.g. by a low-cost receiver production programme, or the provision of community reception centres)

A new communications framework in the developing world may be fighting traditional networks to which it is not properly adjusted; if this is the case the new media will stay, temporarily at least, out of the range of the general population.

The donor agency has, in fact, to maintain an extremely delicate balance. It has to review every situation in objective terms while at the same time resisting an inclination to impose solutions of its own devising. It will face pressures from a number of opposed sources ranging from the recipient country which is anxious for assistance and capital investment, to its own commercial lobbies, representing manufacturers who want to sell equipment as widely as possible. In many cases, it will find information hard to come by, in order to judge the merits of the case and it may also find it difficult to persuade a recipient to expend money and resources on collecting essential data, on carrying out research or mounting utilization programmes, because of the low priority which they put on such apparently non-productive services. It is unfortunate, for example, that in the majority of countries where instructional television has been introduced, little or none of the budget has been expended upon research programmes to check the validity of the material offered or upon training teachers in media use.

Some countries have, in the past, taken the easy way out; they have injected large sums of money, masses of equipment, and have then left the recipient country to sort out its programming and training requirements. At times, some lip service has been paid to the idea of training, by seconding a few experts for a period of months or weeks, to negotiate the difficulty of opening a service, but these have rarely been left in post for an adequate length of time (nor have they been encouraged to develop methods and management patterns which are appropriate to the society concerned). A good deal of broadcasting in the emergent world is sub-standard because no sustained programmes of training are offered for

local personnel and because it is not adequately recognized that the professional skills of broadcasters affect the quality and accuracy of the messages offered.

It is really of the greatest benefit to donor agencies to act as disinterestedly as they can. Experts seconded to a new service ought to be allowed a free hand, without too much involvement with embassies or high commissions; left to their own devices, they will develop allegiances to the country and organizations which they are assisting which cannot be misunderstood as a political manoeuvre. A government which is seen not to be exerting any form of pressure or exacting a quid pro quo for the assistance which it is providing is much more likely to be respected and encouraged. Similarly, equipment donated, if it is of any use will prove itself and will be bought again when replacements are in order. It is also as well to remember that developing countries, like donor agencies, have bureaucracies with idiosyncratic quirks. It is best to study procedures in any country to which assistance is being given, and to attempt to conform to their patterns as closely as is practicable.

Offset arrangements, "soft loans" on equipment and supply purchases and other policies toward the support of private enterprises fall outside the terms of reference of this paper. "Trade follows aid" is an honourable maxim however and no suggestion made here should be construed to be anti-commercial or lacking awareness of the realities of trade.

The most experienced aid-granting nations actively promote and assist the establishment of branch offices and plants of their national companies in developing countries. In the long run, the impact of this kind of enterprise may be more "developmental" than many disinterested aid projects where no-one involved has a personal, financial stake in the outcome.

The growing recognition of communication's rôle in development is bound to move radio and television out of the "social overhead" category where so many economic planners have traditionally placed it. This being the case there will be a new look at the importance of providing receivers as cheaply as possible, hence to manufacturing them locally where they are now only imported. The same applies, with less immediate significance to transmission equipment.

Licensing arrangements subsidized by aid are a possible answer. The building of plants, provision of training and management personnel for communication equipment manufacturing can be aid assisted. In some cases this may make the difference in a developing country expanding its communication or not or in choosing one manufacturing partner over another.

The following set of prescriptions are intended as rudimentary guidance in the classic government-to-government technical assistance situation. The underlying principles, drawn from long experience "in the field" are not altogether inappropriate for commercial projects.

1. Any request for assistance with communication needs to be examined, in the country of origin, by experts in the professional field as well as by diplomatic or aid agency representatives.

2. The request has to be reviewed in the light of the total situation within the country - taking into account whatever is known of its state of development generally in the technical, economic and political spheres.

3. The project proposed has to be an entirely realistic document, phased and structured, according to the pace of work known to prevail in the country concerned, and taking into account the reservoir of trained personnel likely to be available, both at the planning stage and in the future.

4. The proposal has to be prepared in the closest possible association with the authorities of the country itself.

5. While it is understandable that aid programmes will be linked with the commercial and political interests of the donor country, these cannot be paramount - and where they exist, they should be made explicit.

6. The agreement, implementation and execution of assistance programmes has to be kept as flexible as possible - with the bureaucratic procedures of the recipient country borne in mind, as well as those of the donor agency.

7. It is perfectly reasonable for a donor country to insist upon being provided with full information in order to judge the validity of a request - and also reasonable for it to argue strongly for research programmes, utilization exercises etc. wherever a project seems to depend for its success upon these being followed through.

8. Assistance cannot be confined to hardware. Expert advice and training are required, for sustained periods rather than for short crash courses.

9. The best experts available are needed for programmes of this kind; once appointed, they should be left as free and autonomous as possible.

10. A national project gains a good deal if it is related to comparable regional projects and to accepted philosophies of development as being practised in other spheres and by other agencies.

These ten points may seem to amount to a counsel of perfection; however, if they are followed through, as closely as is practicable, the results should not only justify the project in question but should guarantee it a viability well beyond the period of development.