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Director, Telecommunication Development Bureau

**PARTNERS FOR DEVELOPMENT: NEW OPPORTUNITIES FOR
THE TELECOMMUNICATION SECTOR**

The attached strategic report was prepared at the request of the Telecommunication Development Advisory Board and draws on inputs from diverse sources including contributions of TDAB Vice Chairmen Mr. James Bond (World Bank), Ms. Martina L. Bradford (Lucent Technologies) and Mr. Anthony DeBono (Investcom). It was reviewed by the Second WTDC-98 Preparatory Meeting (Geneva, October 1997) and by the Telecommunication Development Advisory Board at its ninth meeting (Geneva, February 1998). It is presented to the Conference for information.

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**PARTNERS FOR DEVELOPMENT: NEW OPPORTUNITIES FOR
THE TELECOMMUNICATION SECTOR**

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Executive summary

This document is intended as a seed document to aid delegates to the 1998 World Telecommunication Development Conference (Malta) in their consideration of the Strategic Plan of the ITU Development Sector. When the Telecommunication Development Sector was established and enshrined in the Constitution and the Convention of ITU (Geneva, 1992) an integrated and strategic approach to the challenges of telecommunications was set in place. The original stakeholders in this initiative, governments, the private sector and international and regional organizations have had four years of working together to face these challenges. In recent years they have been joined by new stakeholders including non-governmental organizations and the user community. Decision-makers in other economic sectors - in education, health and community services, in environmental protection and humanitarian relief - have begun to accord a high priority to telecommunications in their programmes.

The growing interest in telecommunication development, and its crucial role in the broader issues shaping the information society, calls for a careful assessment of today's situation. The strategic plan, covering the next four years of the work of ITU-D, is an important element in the evolution of society worldwide. Among many trends, three characterize the telecommunication sector as far as development is concerned. The first, regulatory reform, already a priority at the 1994 WTDC, has progressed at an unprecedented rate driven by new technologies and services, new players and the emergence of a multilateral trade framework. At least 24 public operators have been privatized since 1994, and an additional 30 are anticipated by the year 2000. The second, the creation of a Global Information Infrastructure, underpinning the emerging information society was outlined at WTDC-94 by United States Vice-President Al Gore. There is now worldwide recognition that services based upon information and communication technologies are an essential element of economic growth. Telecommunications is a crucial conduit for these services and for the content - information, knowledge and entertainment - that they carry. The issue of access to such services and information has appeared as a major agenda item in international fora, and will be a major issue at WTDC-98. The third, the recent agreements on trade in telecommunications service, concluded through the World Trade Organization, have profound and far-reaching consequences for the provision of international and national telecommunication services. Over forty developing countries, as well as six of the European transitional economies took part in the WTO negotiations and many of these have offered fully competitive markets.

These global trends open up promising new avenues for the Development Sector to accelerate the growth of telecommunications worldwide. One of these avenues is the growing interest of the private sector in investment in telecommunications. The World Bank estimates that the total investment in the developing world and in the transitional economies of Eastern Europe and the former Soviet Union will have to double from its present level of \$30 billion per year, to \$60 billion per year. The sources of funding for these investments will increasingly be the private sector. Retained earnings of the Sector, the traditional source of financing, are not sufficient to finance the required growth. Financing techniques, such as build-lease-transfer (BLT) and build-operate-transfer (BOT) are expected to become more widely adopted. However, regulatory regimes that reduce unpredictability will be essential if the comfort level for investors and debt financiers is to be raised. Other concerns, such as non-competitive licensing and procurement procedures, will need to be addressed if the full potential of private sector investment is to be realized. Still other issues, such as the international telecommunication settlement arrangements, will be addressed in the Second World Telecommunication Policy Forum on Trade and Telecommunications (Geneva, March, 1998).

Financial matters are of direct concern to the effectiveness of ITU-D. Private capital flows are already five times greater than official development aid resources, significantly changing the traditional project management role of the BDT. The catalytic role proposed for the Sector in 1994 has proven to be an effective means of contributing to telecommunications growth. In this role, the BDT has developed a strategy for collaborating with the private sector in projects to create an environment in which competition can flourish and new private sector investment can be attracted to the developing world. The catalytic role has also proven effective in partnering with non-governmental organizations. For example, disaster relief and mitigation is an area where NGOs can be in a position to implement services at the local level where ITU-D and its partners may be unable to participate directly. Through the Development Sector, ITU Members and Sector Members can participate in programmes and study groups to bring even greater influence to bear on the development of telecommunications than has been possible in the past.

Part of the ITU-D catalytic role is to stimulate and encourage the introduction and application of new technologies towards socio-economic and cultural development. The BDT has been instrumental, in bringing together the countries and international operators in Africa ONE, an undersea cable for regional and global connectivity for Africa as well as continuing other infrastructure building blocks such as RASCOM and PANAFTTEL. In addition, they have organized the group of experts advising on the benefits to the developing world of GMPCS and arranged for five workshops on GMPCS aimed at the needs of developing countries. Building on the interest of telecommunications applications in other economic sectors, the BDT has been active in the fields of environmental protection, tele-education, tele-health and disaster relief and mitigation.

The Development Sector, traditionally ITU's focus for addressing the "gap" in telecommunication between the developing and industrialized world, has shifted its attention to broader issues of access to telecommunications services. Strategies for improving access to people who are underserved by telecommunications and the benefits it brings have produced significant advances in rural telecommunication development. The long-standing pessimism concerning the provision of services to rural and remote areas has been turned around over the past four years. New technologies, new players and different business approaches have led to the realization that given the right environment rural communications can be profitable and self-sustaining. The BDT, in partnership with others, has been a major catalyst in the development of Multipurpose Community Telecentres and other means of local access to services.

There has been a long standing recognition in ITU of the importance of training, development and capacity building as a fundamental underpinning of telecommunication development. Sector reform, the challenges of the information society and the new trade environment place even greater priority of the need for policy makers, regulators and operators to acquire the needed skills to manage in the new environment. Innovative means are called for to provide technical training in a highly dynamic and changing technological environment. In this connection, the BDT has been at the forefront in the use of electronic technology and networking to meet training needs using, for example, its Virtual Training Centre as a means of transferring knowledge within the Sector.

The experience of four successful years has given the Development Sector a solid basis from which to forecast its priorities for 1999-2003. Four strategic priorities are suggested:

- Direct assistance through contracting with the BDT for project execution. Among other things, this provides assistance to countries to create the necessary policy, strategic, regulatory, legislative and investment environment to enable the successful development of telecommunications.

- Resource development and mobilization, including financial and human resources, technology, information and expertise for telecommunication development. The highly successful Telecommunication Finance Colloquia have provided a strong base for progress in this area.
- Partnership arrangements which benefit all partners, avoiding purely commercial approaches and concentrating on long-term benefits as opposed to short-term gains. A wide range of potential partnerships is now possible both within the ITU family and with other organizations and entities.
- Information sharing, including the establishment of a "network" of knowledgeable contacts and sources worldwide from which to gather information and knowledge appropriate to the development of telecommunications.

Reflecting the global trends, and the changing situation facing ITU-D, the Sector has adopted new strategic directions for the new millennium.

First, strengthening the capability and capacity of the BDT so that it can provide world-class knowledge, information and advice to developing countries to enable them to make significant improvements in telecommunications in their countries. This involves information exchange, technical expertise, products such as the World Telecommunication Development Report and models of investment, harnessing information from the private marketplace and the ability to respond to requests in high priority areas (e.g. international agreements and national regulation).

Second, maximizing the catalytic and value-added role of the Development Sector by increasing Sector Membership, promoting the participation of new partners such as user's organizations and NGOs and strengthening the regional presence.

Third, optimizing the resources of the Development Sector by improving the structure of the ITU-D Sector, making it more flexible and adaptive, reducing internal costs making optimum use of the resources available and adopting a more commercial approach. This would also involve improving the impact of the work of the study groups by organizing, for example, expert groups and regional groups on priority Questions.

Fourth, by being more responsive, improving the products and services provided by BDT, stressing relevance and timeliness of client services. Making ITU-D faster, leaner and more cost-effective, speeding up its processes and seeking innovative ways to lower its internal costs. Increasing its development impact, differentiating and tailoring BDT's responses to its clients, in particular to promote the incubation of national private sector development. Executing programmes and projects under contractual arrangements with governments and operators.

Introduction

This document is intended as an input to the 1998 World Telecommunication Development Conference. It has been prepared using a "bottom-up" preparatory process, integrating the experience gained during the implementation of the 1995-1998 plan, the recommendations of the Reflection Group and in particular the views of the Telecommunication Development Advisory Board (TDAB). It is intended as a seed document to aid in the consideration by the Conference of the Strategic Plan of the ITU-D Sector which will, in turn, become an integrated part of the ITU Strategic Plan. This Strategic Report should, therefore, be considered as a companion piece to the ITU-D Strategic Plan.

Preamble

The Buenos Aires Declaration (1994) (first WTDC - Buenos Aires - March 1994) stated that "Telecommunications is an essential component of political, economic, social and cultural development. It fuels the global information society and economy which is rapidly transforming local, national and international life and despite physical boundaries is promoting better understanding between peoples. Thus, ITU Members have the duty to provide for communications to be made available to all individuals, groups and peoples. A dynamic area of economic activity in its own right, telecommunications underlies practically all areas of economic activity and facilitates trade."

Since 1994 new technological developments in telecommunication and information technologies (including television and sound broadcasting), such as the deployment of GMPCS and the Internet have continued to emerge. But it is not only technology that is shaping the information society. The potential of interactive communications has caught the public imagination. What was a somewhat dull, prosaic sector has become the darling of the media.

These developments have the potential to close the diverse development gaps between developing and developed countries and within individual countries. Telecommunications also plays an important role in social, economic and cultural development, in the protection of the environment and in humanitarian relief.

Telecommunications may, however, unintentionally perpetuate these development gaps without a more determined, integrated and strategic approach to the challenges of telecommunication development by governments, the private sector and international and regional organizations. It was this that the Constitution and the Convention of the International Telecommunication Union (Geneva, 1992) was intended to address when the Telecommunication Development Sector was established. Its goal was to discharge the Union's dual responsibility as a United Nations specialized agency and executing agency for implementing projects under the United Nations development system or other funding arrangements so as to facilitate and enhance telecommunications development. The Mission of the ITU-D Sector is defined in the Article 21 of the Constitution (see Annex 1).

This document reflects a wide variety of inputs, but in particular the views of the Telecommunication Development Advisory Board (TDAB) and the Reflection Group¹. The TDAB is a forum for exchange among development partners and for advice to the Telecommunication Development Bureau (BDT) on telecommunication development strategy. The Reflection Group also provides advice, but is open to all Members of the Development Sector. It is charged with reviewing the Development Sector's work and making recommendations on its working methods.

I Telecommunication development: A strategic overview

1 New challenges - new opportunities for social, economic and cultural development

The two major conferences of ITU held in 1994, WTDC-94 (Buenos Aires) and the Kyoto Plenipotentiary Conference, devoted much attention to the rapidly evolving telecommunications environment. Particular attention was paid to the restructuring of the Telecommunication Sector

¹ See Document 8 (the report by the Chairman of TDAB) for the Terms of Reference of the TDAB and the report of the Reflection Group.

(the Sector), including the separation of operational and regulatory functions; corporatization and privatization of operators and the liberalization of various market segments. A scant four years later restructuring remains a major characteristic of the Sector, but two other trends, the emerging information society and the agreements on basic telecommunications and on technology, concluded through the World Trade Organization, are poised to exert a comparable impact on the Sector. These three aspects are likely to have a overwhelming effect on telecommunications development.

a) Regulatory reform

During the past four years, regulatory reform has progressed at an even faster rate than before, due in large part to the introduction of new technologies and services, new players and the evolution of a comprehensive multilateral trade framework. The evidence is striking:

- at least twenty-four public operators have been privatized since 1994 and an additional 30 are anticipated by the year 2000;
- some 43 independent regulators have been set up since 1994 and more than twenty-five countries have indicated their intent to create independent regulators before 1999; and
- more than 100 countries have modified or introduced new legislation and/or regulations since 1994.

b) The Information Society and the Global Information Infrastructure

At the WTDC-94 United States Vice-President Al Gore outlined the potential of the Global Information Infrastructure as the underpinning of the future information society. The information society would be knowledge-based, and allow communications to take place anywhere, anytime. Since 1994 there has been worldwide recognition that services based upon Information and Communications Technologies (ICTs) are an essential element of economic growth. Telecommunications is the main conduit for access to these services and to their content. The issue of access has become a major consideration in ITU development activities and a major agenda item in fora such as ISAD, the G-7 and the World Bank's Global Knowledge 97.

The emerging information society has two aspects. On the one hand ICTs are revolutionizing the way business is done offering new and innovative ways to approach development activities. This has profound effects on the training, planning, information and other day-to-day activities of the ITU Development Sector. On the other hand, the emergence of a global information society is creating a new imbalance in development between industrialized and developing countries. Political, technical, cultural and financial factors are working together to aggravate this imbalance;

c) Trade agreements

The General Agreement on Trade in Services and the recent agreement on Trade in Telecommunications Services, concluded through the World Trade Organization, have profound and far-reaching consequences for the provision of international and national telecommunication services. The information technology agreement signed by 40 member countries of the WTO, and aimed at the elimination of tariffs on information technology and communication products by the year 2000 could bring considerable benefits to the telecommunication sector. The current high levels of import duties on information technology and communication equipment are an obstacle for many countries.

Competition is rapidly becoming the rule rather than the exception, and sixty-nine governments made commitments to liberalize certain market segments at the World Trade Organization's Group on Basic Telecommunications. Most of those countries made specific regulatory commitments.

While in the past, national telecommunication companies operated as monopolies, modern policy and regulatory frameworks are creating open markets with private investment (including foreign investment) being encouraged. One result of this trend is that development programmes can be expected to rely less on technical assistance and more on trade agreements.

Over forty developing countries, as well as six of the European transitional economies, took part in the WTO negotiations. Many of these have offered fully competitive markets. Implementation of the WTO agreement places pressure on all countries to open their markets on the committed dates, and to ensure compliance with the regulatory principles endorsed in the negotiations. Developing countries who have yet to make market access offers under the Agreement will face pressure to do so. The General Agreement on Trade in Services provides important opportunities for developing countries to input into the evolution of the dispute settlement mechanisms. The Agreement further recognizes safeguard mechanisms for their evolving market conditions".

Mr. Renato Ruggiero, Director-General of the WTO remarked that the Agreement "... goes well beyond trade and economics. It makes access to knowledge easier. It gives nations large and small, rich and poor, better opportunities to prepare for the challenges of the 21st century. Information and knowledge, after all, are the raw materials of growth and development in our globalized world."

d) The balance sheet

On balance, when comparing the overall situation between 1994 and now the picture gives rise to some concern. The traditional "gap" between developed and developing countries has narrowed slightly in terms of access to basic telephone services, but has widened at a fast rate as far as advanced telecommunication services and access to information are concerned. These issues are discussed extensively in the World Telecommunication Development Report: Universal Access (1998) which provides a wealth of comparative information as well as suggesting possible strategies. As the following sections will show, telecommunications development may be well situated to bridge the gap - with the help of the ITU Development Sector - and new approaches to the analysis of the problem may open up some promising new avenues to address the development challenges.

2 The financing of telecommunications in the era of restructuring

a) Financing telecommunications investments in developing countries

The state of the telecommunications infrastructure underlying the information infrastructure in the emerging economies is well documented². Voice and business communications networks are highly under-developed in the developing and emerging economies, compared with the OECD countries. Developing countries have 3.6 telephone lines per 100 inhabitants, compared to 50 lines per 100 inhabitants in the developed world. Statistics for pay telephones, fax and data terminals and ISDN lines show a similar disparity: OECD countries are 10 to 20 times better equipped than the developing world. Going beyond the telecommunications infrastructure, there is evidence that information systems, business communications services and global connectivity are often poorly developed as well, and the base of skilled information workers is small.

As the information revolution builds momentum, it will require an unprecedented amount of capital investment in emerging economies. The World Bank estimates that total investment in the developing world and in the transition economies of Eastern Europe and the former Soviet Union

² e.g. World Telecommunication Development Report, 1998: Universal Access. ITU

will have to double from its present level of \$30 billion per year, to \$60 billion per year. The sources of funding for these investments will increasingly call on the private sector. Attracting private sector capital has become increasingly competitive. Investors are more rigorous in their decisions, more specialized in their investment approaches and are faced with an increasing number of alternative investments both within and outside of the telecommunications industry.

To date, most telecommunications sector assets have been paid out of retained earnings of telecommunications operators. This financing profile will change over the coming years. The telecommunications sector has a high profit potential in every country in the world. However, experience suggests that, in developing countries, retained earnings of the sector are not sufficient to finance all the new projects because networks are under-developed and do not currently generate enough cashflow. A number of financing techniques are now being employed including project finance in which two main techniques may be suitable for telecommunications:

- the first is the build-lease-transfer method (BLT), particularly applicable to projects which involve additions to existing networks and from which a specific stream of revenues cannot be easily separated;
- the second is the build-operate-transfer (BOT), where a consortium owns the project for a specific period of time and where revenues derived from the project repay the debt and provide return on equity. At the end of it the consortium turns ownership over to a local owner.

There are many options for financing telecommunication investments, many of which have been addressed in the Finance and Trade Colloquia. They include mechanisms such as joint ventures, fostering competition, and the creation of special funds for the extension of telecommunication into rural and remote areas.

Project finance is expected to become more relevant for the telecommunications sector because high spent up demand (and high potential profitability), coupled with increasingly prevalent regulatory mechanisms that reduce unpredictability, will raise the comfort level for investors and debt financiers alike.

While the need for capital in the telecommunications sector may appear staggering, funds are available to those who understand and monitor the capital markets and employ creative financing structures which meet the demands of investors. One can expect to see many of the newer techniques applied in the developing markets, particularly where economics and financial markets are stable and open and the structure of the telecommunications sector is guided by market forces.

However, the realities of the developing world show that there are certain factors which might limit the full benefit of these new financial arrangements. The use of price ceilings and constraints on true competition in many countries are examples of such limitations. Another limitation which may need to be addressed concerns non-competitive licensing and procurement procedures.

b) International telecommunication settlement arrangements

The current method of settling accounts among international telecommunication operators, dominated by the so-called "accounting rate method", is at the very heart of the international telecommunication system which has ensured the orderly and steady development of international telecommunications for over 140 years. This system is no longer able to satisfy the needs of a growing number of alternatives to the traditional arrangements, resulting from advances in technology and the growing trend in liberalization. Liberalization of telecommunication markets and alternative means to settle international telecommunication accounts will inevitably put

pressure on above-cost accounting rates. Revenues from the international service will most certainly drop and network operators that have to depend on such revenues to develop their networks will be forced to make adjustments.

The current international debate on call-back, refile and benchmarks has serious implications for the developing world. In addition, the FCC imposition of price-caps on the rate US carriers can pay for calls terminating overseas can be expected to have significant effects on other countries. These issues are part of the agenda of the Second World Telecommunication Policy Forum on trade and Telecommunications (Geneva, 16-18 March 1998).

c) **Financial resources available to the Development Sector**

The recent Financial Colloquia have explored new funding arrangements. These will be covered in a full report on the Colloquia at WTDC³. The implications of the changing financial situation on the Development Sector is as follows:

- Private capital flows are now five times greater than official development aid resources. This significantly changes the role of the BDT as far as the financing of telecommunications is concerned.
- A persistent drop in official development assistance flows over the past years, coupled with a reorientation of priorities (excluding the telecommunication sector) set by UNDP's Executive Board and a lack of priority given by recipient developing countries to the sector when seeking UNDP assistance.
- The consequent drop in project execution funding which has been only partially offset by a rise in funds-in-trust and voluntary contributions, thereby reducing the financial resources available to the Development Sector.
- Recognition that the funds available to ITU for telecommunication development will remain limited when compared with the needs of developing countries, requiring ITU to play a catalytic role.
- Categories of financing which must be addressed by the Development Sector, i.e.
 - 1) Project funding
 - 2) Technical assistance
 - 3) Investment.

3 Partners in telecommunication development

Over the past four years new stakeholders have begun to play a role in telecommunication development. These include, among others, governmental agencies responsible for the delivery of services (e.g. education, health, customs), the private sector (large and small companies), non-governmental organizations (NGOs), development agencies, international organizations and consumers. Various reasons have led to this development, including globalization, the opening up of markets to competition, an increased awareness generally of the benefits of information and communications technology and its widespread adoption. During the same period there has been an acute reduction in the budgets of many government and non-governmental agencies raising the level of interest in partnering as a way of maximizing scarce resources. While there are many new players in the field, two groups of players are of particular importance - the private sector and

³ See Document ...

non-governmental agencies (NGOs). The former, in an era of freer competition, act as the engine of economic growth and development, the latter as a direct link with the user community (the "last mile"). In addition, particular attention needs to be paid to consumer and user interests.

The private sector

As the effects of overall sector reform with all its constituents are felt in the telecommunication sector, the role of the domestic and foreign private sector is becoming increasingly important for telecommunication development. The BDT has responded to the challenge, particularly with respect to the private sector in the developing world, and an agenda for successful collaboration with the private sector is emerging which might include:

- promoting and helping national private sectors;
- partnering with and training of partners at the national level;
- encouraging partnerships between national and foreign private sector;
- learning to work with the private sector;
- getting the private sector to work with ITU.

Participation in programmes and projects which have the potential of opening up business opportunities is an important motivation for companies based in industrialized countries to partner with ITU-D and others in the developing world. The rapid and widespread deployment of telecommunications technologies and services, in which the private sector plays the leading role, depends in large part on the introduction of competition into the market in place of monopolies and state management of communications. Private sector companies will, therefore, look for a regulatory environment which is friendly to competition and which encourages capital investment, from all sources, to fuel market growth. The private sector is attracted to the environment that is created as competition takes hold. Economic benefits abound: demand increases, traffic grows, the overall size of the market expands, innovative new services appear, and new revenues are generated for all players in the market, both new entrants and incumbents.

Private sector interest in the developing world will be biased to the extent that partnership with ITU-D can create conditions where competition can flourish. The fundamentals for competition must be established at two levels: the global level, through agreements such as the WTO Basic Telecommunications Services Agreement and the national level, through legislation that provides a framework for fair competition, privatization and deregulation. Projects which lead to an improvement in the competitive environment at the national level as well as projects assisting new private initiatives in the developing world should therefore be of primary concern to the ITU Development Sector.

The non-governmental sector

Non-governmental organizations have been a feature of the ITU scene for many years. However, as government budgets for development have decreased, other NGOs have begun to show an interest in the benefits of telecommunications as a means of making more effective use of scarce resources. There are estimated to be some 3,000 international NGOs worldwide, but few are expected to have a serious interest in telecommunications or contribute to the commercial viability of the sector, nor are many likely to want to participate in ITU meetings.

However, those that have a direct interest in telecommunications can benefit greatly from partnership in ITU-D field activities and can, in return, ensure that telecommunications services are structured to serve the needs of people at the local level. An area of particular importance is disaster relief and mitigation where NGOs are often in a position to implement services at the local level where ITU-D and its partners may be unable to participate directly.

The benefits of NGOs working with ITU have been effectively demonstrated by the experience of the International Teletraffic Congress (ITC) who both provides assistance to, and receives assistance from the BDT. This does not require financial support, but shared effort in the organization of seminars of benefit to both the members of the BDT and the ITC.

WorldTel

WorldTel is a commercial transnational telecommunication funding and development entity. It is created on the initiative of ITU and has been endorsed by Council in its resolution 1081 on 30 June 1995.

The primary objective of WorldTel is to contribute to the closing of the global communication gap. The ITU resolution instructed the Director of BDT to provide support on commercial terms to WorldTel for the identification of projects and the delivery of programmes in the field of preinvestment studies, training etc. The Secretary-General is to maintain effective liaison with WorldTel.

On the basis of the above provisions ITU/BDT have established an understanding allowing BDT to take a proactive role in the identification of projects, in the lesser developed regions of the world for the consideration of WorldTel to provide equity investment to permit network expansion.

The consumer

While there has been some representation of consumer interests in the work of ITU through organizations such as INTUG, much more needs to be done, particularly with respect to users and consumers in the developing world. The growing importance of trade in telecommunications, and the provision in the GAT for discussions with users will provide a framework to address this need. To some extent the views of users in the public sector have been addressed in the ITU/UNESCO report entitled "The Right to Communicate: At What Price" (May, 1995).

The ITU Development Sector: A meeting place for Member States and Sector Members of ITU

The Development Sector is in a unique position to become a forum for telecommunications partnering. It is the forum where all ITU Member States and Sector Members can participate in programmes, study groups and help achieve the strategic aims of the Development Sector. In addition, working with its members, ITU-D can enter into partnerships at the national and field level involving other international organizations, the private sector and NGOs to bring significant influence to bear on the development of telecommunications.

4 The introduction and application of new technologies towards socio-economic and cultural development

There are a wide range of technologies which have matured in the past four years which offer particular potential for the developing world to "leapfrog" into modern services appropriate to their needs. Some, such as GMPCS, offer the potential of wide-spread national and international communications at reasonable cost. Others, such as multipurpose community telecentres, are aimed

at local and community use. Rural communications can benefit from wireless technologies as well as broadband transmission over existing copper wire loops made possible by the use of Digital Subscriber Line (DSL) techniques. Together, this wide range of technologies and systems offer a cornucopia of opportunities. Some examples of current interest in the telecommunications development field are:

a) Africa ONE - Undersea cable for regional and global connectivity for Africa

The Africa ONE submarine cable, along with other infrastructure building blocks will contribute, along with RASCOM and PANAFTEL systems, to bringing the information infrastructure to Africa. Coordinating Committee meetings held in Cairo (1995), Marrakesh (1996) and Geneva (1997) have shown that the Africa ONE architecture and design capacity allows a highly flexible routing and can handle extreme traffic patterns. It also has the capability of built-in automatic restoration. These features are ideally suited to overcoming the long-standing problem of inter-African telephone traffic being transited through centres outside the continent at a very high cost (300 to 400 million \$ per year). Thirty countries and international operators have now signed the Memorandum of Understanding for the Africa ONE submarine cable system; and more than ten others are expected to sign shortly. The system is planned to be operational beginning year 2000.

b) GMPCS

Satellite technology has the potential to provide many of the answers to today's enduring telecommunications problems - especially in developing countries where the cost of landline services may prove prohibitive. Satellites can provide almost instantaneous access to services to all types of terrain and to underserved remote and rural regions. Today, with the advent of new satellite technologies, and GMPCS systems that enable end users to access the satellites directly, the possibilities are even greater. Advances have been made in all aspects of satellite technology: including satellites, space stations, launch vehicles, transmission, user equipment etc. Taking advantage of satellite technology for the maximum benefit of developing countries is the current challenge.

Box One: Scoping the Potential of GMPCS for the Developing World

The GMPCS Memorandum of Understanding set out the general framework and principles being agreed for the free circulation of GMPCS terminals.

ITU-D, under Opinion 5 of the first World Telecommunication Policy Forum (WTPF), set up a group of experts to advise the developing countries on how best to benefit from GMPCS systems.

I. The Group of Experts met four times in April, July, September and December 1997. The Group:

1. Proposed a "Checklist of factors" to be taken into account by the developing countries in the process of introducing GMPCS services; this Checklist was adopted by all Members of the Sector.
2. Recommended the organization by the BDT of a cycle of GMPCS workshops to introduce and explain GMPCS technology and services to the developing countries and to create an interactive forum for discussion between the industry, the system operators and the developing countries.
3. Drafted the BDT Director Report to the next WTDC-98 on the implementation of Opinion 5 of the WTPF. This report analyses the regulatory, technical, operational and socio-economic issues associated with the introduction of GMPCS services on a global or regional basis.

II The BDT and 17 GMPCS operators successfully organized and implemented five regional GMPCS workshops which were held successively in Damascus (Arab countries), Manila (Asia and Pacific countries), Arusha (African countries), Mexico City (American countries) and Kiev (Central Europe and CIS countries). The results of these workshops can be summarized as follows:

- Lectures, presentations and discussions have covered the technical, operational and socio-economic issues of the "Checklist of factors" as finalized by the GMPCS Group of Experts.
- Some 500 participants attended the five workshops, representing 105 countries and 10 international and regional organizations.
- The workshops established an open interactive exchange of views between the GMPCS operators and the developing countries.
- The administrations acquired a better knowledge of the GMPCS systems and a more accurate understanding of the issues involved and of the benefits they can derive from the introduction of GMPCS services.
- The GMPCS operators reached a better appreciation of the priorities and needs of the developing countries, of their expectations and vision insofar as how GMPCS services can contribute to the development of telecommunication services.
- The significance and implications of the WTPF Five Opinions was better apprehended, in particular with regard to Opinion 4 on the Establishment of a Memorandum of Understanding to Facilitate the Free Circulation of GMPCS User Terminals (GMPCS-MoU).
- Signing of the GMPCS-MoU was promoted with some parties signing it during the workshop or immediately thereafter.
- As part of the envisaged follow-up actions, the BDT will prepare, in close cooperation with all GMPCS operators, a "GMPCS Reference Book" which will summarize the workshop discussions, results, conclusions and answers to questions raised and will list the key documents or studies pertinent to GMPCS to help developing countries decision makers in the introduction of GMPCS services.

c) **Other applications**

The BAAP, including the work of the Study Groups, placed considerable emphasis on the applications of telecommunications services in social and community services. For example, applications for environment protection and sustainable development (United Nations General Assembly Resolutions 47/190 and 51/181), tele-education and tele-health can extend educational, health and other social and community services to those beyond the reach of traditional services. With the increased emphasis on global and national information infrastructures, and the growing realization of the importance of knowledge in the information society, the application of telecommunications to these services takes on a particular importance.

Other applications such as in disaster communications (UNGA Resolutions 44/236, 52/168 and Kyoto Plenipotentiary Resolution 36), peace-keeping operations and democratization (UNGA Resolution 52/69 further emphasize the widespread of telecommunications. ITU and the UN Department of Humanitarian Affairs will be holding an Intergovernmental Conference in Tampere, Finland (16-18 June 1998) on Emergency Telecommunications to consider an International convention for application of telecommunication technologies in disaster mitigation and operations.

BOX Two: Protection of the environment

Within the framework of implementation of Resolutions No. 8 and No. 35 adopted respectively by the World Telecommunication Development Conference (Buenos Aires, March 1994) and by the ITU Plenipotentiary Conference (Kyoto, September-October 1994), the BDT convened an International Symposium on the role of telecommunication and information technologies in the protection of the environment (Tunis, Tunisia, 17-19 April 1996).

The symposium which brought the telecommunication and environment communities together for the first time addressed a wide range of issues related to the subject successfully and called on the BDT in particular to elaborate a Global Project "Telecom-Environment" for the benefit of the developing world.

With the support of the ITU Development Sector in particular, the BDT is trying to implement pilot projects from :

- Tunisia: two projects:
 - 1) Establishment of a terrestrial and space telecommunication infrastructure for the "Elbiâ 21" integrated information system on the environment and sustainable development.
 - 2) Establishment of satellite-based network for the remote monitoring of sea water quality.
 - Senegal: a project on support for natural resources management: telecommunications and bush fire control.
 - Benin: a project for natural disaster warning system.
- Pilot projects from some other developing countries are expected.

d) Telematics pilot projects

The World Telecommunication Development Conference (WTDC/94, Buenos Aires 1996), adopted the Programme No. 9 - Integrated Rural Development, as part of the Buenos Aires Action Plan. The overall goal of this programme was to promote development of rural telecommunications and, more specifically, to catalyze the development of ICT by means of pilot projects, including Multipurpose Community Telecentres (MCTs), as means of providing access to ICT and user support. This includes access to telematics services and applications, which meet the needs of the rural population through computer networks, and particularly the Internet. The programme set out to evaluate the sustainability of MCTs and the social, economic and cultural impact of provision of access to ICT in rural and remote areas.

BOX Three: Telecommunication and Distance Education

In many cases the necessary educational resources, both infrastructure and skilled teachers, are not available to meet the current demands and further, rapid population growth and increasing expectations and requirements in the future will soon overwhelm those which do exist.

Telecommunications technology presents a powerful answer to this dilemma, enabling virtual classrooms of large capacity and distributed to all corners of the country, while making also the best use of the available instructional elements and teaching resources. Interactive television is an excellent tool to deliver instruction, giving both learners and teachers the same interaction and communication capabilities experienced in face-to-face situations. Modern digital telecommunication services, terrestrial, radio and satellite, can offer to educators the transmission capacity, while existing computers and television equipment offer economical and reliable ways to implement systems appropriate for the education environment. The needed pedagogical methodology and software resources are similarly at an advanced state. Major developments in education are thus possible and ITU-BDT views these applications of telecommunications to societal needs, to be of critical importance.

The BDT is working in close collaboration with the Communication, Information and Informatics (CII) Sector and Learning Without Frontiers division of UNESCO to develop pilot projects in developing countries (e.g. India, Morocco, Cap Verde, Bangladesh).

The knowledge-base arising from the application of the generic project in each country will be shared among all and thus enhance future applications.

BDT resources and staff provide practical guidance and technical assistance to administrations planning and implementing distance-education systems, in the form of consultations, workshops, seminars and documentation.

BOX Four: Applications to Medicine and Health

A. The BDT convened the first World Telemedicine Symposium for Developing countries in Cascais, Portugal from 30 June-4 July, 1997. The Symposium addressed the role of telemedicine in developing countries, its introduction, the need to inform decision makers of its potential, its financing and the use of partnerships in pilots projects.

The Symposium called on the BDT to play a major role in fostering the application of telecommunications in health care in developing countries through actions such as identifying appropriate technologies and means to use technologies to optimize scarce health resources in the developing world.

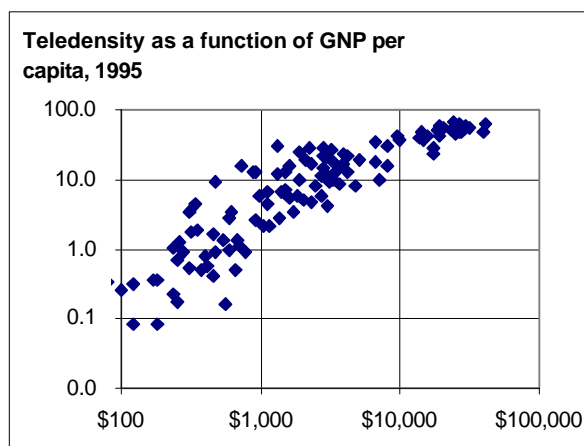
B. The BDT is already participating in telemedicine pilot projects. In Mozambique, two central hospitals, one in Maputo and one in Beira have been connected in January, 1998 by a telemedicine link using the existing telecommunications infrastructure. The user interface is state-of-the-art, but is simple and can be used by any technician or doctor familiar with the Windows95/NT operating system after a short introduction.

5 The least developed countries: The Unmet Challenge

Most analyses of the plight of the least developed countries over the past two decades has been in the context of the "gap". The telecommunications gap, postulated in the Maitland Commission's The Missing Link, has now been joined by the information gap and the knowledge gap. They share a common conclusion, that the situation is getting worse - the gap is widening rather than closing. Aside from a growth industry in articles and studies on bridging the gap, the record has been abysmal. Yet the focus on the gap masks the whole story. In India, now a newly industrialized country, local call boxes meet a real need for thousands of people who may have had no aspiration to own a phone of their own. The reality "on the ground" reveals a less pessimistic picture than the statistics.

It is useful to recall that the criteria used to define the LDCs, the countries in greatest need were initially per capita GDP, share of manufacturing in total GDP, and the adult literacy rate, to which were later added the augmented quality of life index, the economic diversification index and population size. The number of countries included in the list of LDCs had reaching 48 by 1994 with only one country in the last 25 years , Botswana in 1994, being able to "graduate" from the LDC group as their level of development rose. Against this background comparisons countries at a more advanced stage of development may not be useful.

FIGURE 1
Teledensity as a function of GNP per capita



Note: X and Y axis logarithmic scales

Source: World Telecommunication Development Report, 1998

In some countries, particularly in the Asia-Pacific and Latin America regions, rapid development of telecommunications is associated with general economic growth, regulatory reform and investments by the private sector.

In other countries, particularly in the Africa region, where economic growth has stagnated and telecommunications has not yet been extensively restructured with the exception of a few countries, progress has been uneven and in general modest.

In countries where development has stagnated, new strategies will need to be devised to bring about universal access and harmonization and expansion of services in the context of the global information infrastructure.

These issues are covered in the World Telecommunication Development Report 1998: Universal Access.

6 Rural telecommunications development

The long-standing pessimism concerning the provision of telecommunications services to rural and remote areas has been turned around over the past four years. A number of emerging factors have modified the traditional approach to serving rural (and remote) areas. First, the worldwide recognition that Information and Communications Technologies (or ICTs) are an essential element

of economic growth has encouraged decision-makers to pay more attention to telecommunications: the main underpinning of access to these services. Second, people working in economic sectors that have a stake in rural areas, such as agriculture, health, education and tourism, are becoming partners in contributing to the commercial viability of rural telecommunication-based services.

This is strategically of great importance to the telecommunications sector since new customers will increase the probability of the commercial viability of telecommunications services.

Third, there is now wide acceptance that the provision of telecommunications services in rural and remote areas is generally profitable and that there are a wide range of innovative and entrepreneurial financial approaches that can be used to implement such services. Fourth, there has been an enormous growth in the choice of technologies and the judicious and appropriate choice of technologies can provide low-cost and viable options for serving rural areas.

While these changes have brought new optimism to the potential of bringing service to rural areas, there has been a worldwide consensus that there is a major policy issue to be addressed. The issue of access has become a major consideration in the ITU development activities and in fora such as ISAD and Global Knowledge 97. It is necessary to build upon this momentum and place access (and its relationship to development) squarely in the centre of the issues to be addressed at WTDC-98.⁴

Study Group 2 has made five recommendations for communications for rural and remote areas which form the basis for future strategies in this area. These are:

- 1) The need for models to permit the comparison of technologies suited to rural and remote areas so that appropriate solutions can be determined.
- 2) The need for national rural telecommunication development initiatives as part of a planned, orderly, progressive, multiyear programme - managed on a commercial basis.
- 3) The promotion of the application of telecommunication facilities for developing various sectors of rural infrastructure and rural economy.
- 4) The setting into place of appropriate regulatory structures as a means of encouraging the extension of telecommunication services to remote and rural areas. And
- 5) The need to take advantage of a wide range of innovative and entrepreneurial financial and promotional approaches, to minimize costs and maximize revenue in providing telecommunications to rural and remote areas.

The Global Knowledge 97 Conference contained a number of sessions which endorse these recommendations.

BOX Five: Multipurpose Community Telecentre

The concept of Multipurpose Community Telecentres (MCT), championed by the BDT, has gained wide acceptance as a means of providing access to telematics services in rural and remote areas and in deprived urban areas. MCT pilot projects are underway in Benin, Bhutan, Mali, Mozambique, Honduras, India, Suriname, Sudan, Tanzania, Uganda and Vietnam. In most of these, other development agencies have joined the BDT as partners. Significantly, national partners in all of these are prepared to invest and share the risk involved in such pilot projects with the international community.

⁴ The World Telecommunication Development Report 1998 examines universal access.

For ongoing and planned MCT pilot projects seed money from ITU has generated additional funding from international partners amounting to three times the amount pledged by ITU. Including the contributions expected from national partners in these projects the multiplication factor is in the order of 6 times.

Some development agencies, such as IDRC, are planning to fund additional pilot MCT projects on their own and at least one country, South Africa, is planning to implement MCTs on a large scale with some 200 planned in the next few years.

- Strategic alliances are needed between other stakeholders, including the government, international organizations, the local private sector, NGOs, and the communities themselves. The challenges ahead include: buy-in from local communities, innovative tariff structures, serious commitment, options for partnerships, appropriate content to meet the needs of the community, and training. In this connection, the importance of gender balance, and recognition of the important role of women in development is essential.
- Measuring the impact of telecommunications on rural and remote areas, particularly where multipurpose local services are introduced, can be difficult. New tools for understanding the role of knowledge and information in society are beginning to show promise and might be helpful. For example the information society index (ISI) can be used to assess the capacity of individual countries to access, absorb and effectively utilize information. This work offers a number of applications and future extensions that could be of considerable interest for commercial firms and government policy makers. In addition, some of the methodologies being used for Knowledge Assessment (KA) are useful tools for assisting countries to analyse their capabilities for participating in the knowledge revolution.

7 Capacity building - sustaining development

The institutional and human resources capacities of developing countries must be addressed if the challenges of the information society, sector reform and the new trade environment are to be met. Sustainability of these capacities rests to a large extent on the building of human resources and the development of local competence. Capacity building must also take into account broad global concerns which are emerging in other agencies in the UN system. These include gender balance, youth (opportunities for the new generation) and sustainable employment.

There has been long-standing recognition within ITU of the importance of training and the development of appropriate skill sets to enable telecommunication employees to meet the challenges of the changing telecommunications environment. The need to acquire these skills sets is particularly acute in the developing world, since it is there that many of the earlier challenges have yet to be fully met. Efficient management is crucial to development and some 30% of the BAAP activities are concerned with management related aspects. Well managed operations attract investment and lead to the successful commercialization of telecommunications operations.

ITU, in WTDC-94 Document 5, noted that "the new policy environment circumscribed by strengthened competitive, commercial and customer-oriented modes of operation within and across national borders call for more business-oriented abilities and sensitivities on the part of both managers and staff".

From the point of view of human resource development within companies, ITU highlighted a set of major issues emerging from the restructuring of the sector which will require new skill sets. These include a knowledge within corporations of:

- (i) policy formulation, institutional and regulatory evolution; and
- (ii) market and business oriented investment and finance strategies;

The theme was, picked up in the BAAP as follows:

"To cope with ... changes in technology and market structures, human resources development must be intensified in the developing countries to upgrade in particular the skills of staff in the telecommunication organizations and to enhance management capabilities in order to implement business oriented management structures".

The work of ITU-D Study Group 2 (Question 5/2) Human Resources Development and Management Working Group Report reiterates these priorities. The SG 2 report points to the additional complexity in the market-place leading to new choices and new expectations for all types of users. New customers can be expected to be increasingly more demanding vis-à-vis policy makers, regulators and operators. The magnitude and rate of change is unprecedented and has significant HRD implications because the roles of all sector participants are being redefined.

Policy makers, regulators and operators alike will require new skills and knowledge to define and manage the reform of the sector. The need for both managerial and technical training will be very high and dramatically different in nature. For operators, the most significant training implication will derive from the need to change the mindset of all employees from that of a (monopolistic) supplier to one that is focused on a new customer hungry for new supply alternatives and choices. Managing change and transformation will become the major task and the main responsibility of senior managers everywhere. Innovative means will be required to provide technical training in a highly dynamic and changing technological environment.

The Report states that management training should focus on changing the organizational culture to one that can successfully operate in the new environment. Full time involvement by all senior managers to lead as well as manage the change is an absolute requirement for a successful transformation. This task cannot be delegated. Although still important the availability of technology and financial resources will not result in a successful reform or transformation and should not be the initial focus. The probability of a successful reform or transformation that does not start at the very top of an organization is almost zero, A lot of valuable resources can be wasted when a major change is attempted without being led and managed by senior managers (director general level) senior civil servants (ministers).

In view of the above the SG 2 report recommends, *inter alia*, that the BDT

- Focus the major portion of its activities and resources on helping senior civil servants and managers to lead and manage the required reform and/or transformation.
- Organize high level (ministers, director general level) regional workshops designed to help them "build the case for change".
- Provide consulting services.
- Help organizations in the design of their reform/ transformation plan.
- Assist in providing ongoing evaluations of how well the transformation is proceeding as well as correction measures if necessary.

- Help governments in the design of regulatory agencies as well as the associated training of resources.

The SG 2 Report concludes that the education and training of a larger, majority of the sectorial workforce is the central lever of telecommunications development and must be addressed in the most efficient manner. It is through higher quality human resources that we can maximize developmental impact well ahead of the availability of technology or capital.

The priority of training has been a major factor in the development conferences preparatory to WTDC-98. For example, the Regional Telecommunication Development Conference for the Arab States (AR-RTDC-96) held in Beirut in November, 1996 produced a recommendation entitled Improvement of Human Resources Management and Development (HRM/HRD) in the Arab States which includes the need to:

- ... derive maximum benefit from training centres through developing a policy for the marketing of training, the specialization of training centres with a view to their operation within a training framework and the use of distance-learning technologies;
- maintain and reinforce ... the human resources cooperation network existing between the Arab States], in order to establish cooperative programmes to help the organization of the region in improve the quality of their human resources;
- with national training centres, and in coordination with the regional training centres to be established to make the necessary efforts to modernize ... methodologies to train people, using as much as possible the facilities provided by information technologies and telecommunication networks.

BOX Six: The Virtual Training Centre (VTC)

The BDT has been at the forefront in the use of electronic technology and networking to meet training needs in the developing world. From an initial pilot project in 1995, the Centre is now poised to play a major role in knowledge transfer within the telecommunications sector. Its current inventory of activities include:

- A Distance Learning Course on Spectrum Management for Latin America (soon to be extended worldwide)
- Three hundred additional courses available in the VTC
- Workshops on the use of Information Technologies in Training

A virtual Training Centre hub has been established in Malta at the Maltacom Training College.

II Towards an ITU-D Sector strategy

The basic factors to be taken into account when defining a strategy for the ITU-D Sector were noted in the Buenos Aires Declaration and are contained at Annex 2. As outlined above, much has happened in the four years since WTDC-94. The BDT has continuously adapted to these changes and these adaptations are an essential factor in considering future strategies.

On the basis of the Sector's experience to date, and in order to carry out its catalytic role effectively, the Sector needs to clearly focus its activities on five major facets of telecommunication development: telecommunication sector reform, technologies, management, finance, and human resources. Further, the Sector needs to address these facets through four main modes of action:

- a) Direct assistance
- b) Resource development and mobilization
- c) Partnerships
- d) Information sharing

1 Laying the foundation: The BDT success story

A substantive role for telecommunications development within ITU took a long time to materialize. From small beginnings at the 1959 Plenipotentiary Conference (Geneva), through three more Plenipotentiaries and the Maitland Commission it took thirty years for development to achieve the same status as the two traditional sectors dealing with standardization and radiocommunication regulation. If indeed the world telecommunications system is one of mankind's great achievements, then extending its benefits to the other two-thirds of mankind must surely be an important objective. Even after its creation following the High Level Committee report, at the 1989 Plenipotentiary (Nice), its Programmes and orientation had to wait until 1994 and the World Telecommunication Development Conference (Buenos Aires) before its present form and structure fell into place.

Viewed in this light the successes of the BDT in the scant four years of its existence (some of which are highlighted below) deserves to be a source of pride to the Members of the Union. Among the many successes for the Development Sector, The World's Telecommunication Development Reports, the fourth of which is currently being prepared for WTDC-98, have received worldwide acclaim.

The Plenipotentiaries, in creating the BDT, had foreseen a limited budget (some 6.7 million Swiss francs per year) as seed money to generate activities and projects with a multiplier effect. The wisdom of the Plenipotentiaries has been borne out with the significant results achieved in numerous countries, including through the twelve programmes, bearing no relation to the small budget. These results have been achieved through the collective unilateral, bilateral and multilateral efforts with BDT playing a catalytic role. This approach, with BDT operating on a limited budget rather than attempting to increase its work-load, has clearly been proven to be the way to go.

The task of charting a strategic direction for the Development Sector must always be viewed in the context of the enormity of the challenge - of extending access to the benefits of telecommunications and the services it can enable, to two-thirds of the world. Two aspects of this challenge form a fundamental obligation of the Development Sector and must be integrated into the forecast which follows. The first is the need to give special attention to the needs of the Least Developed Countries (LDCs). The second is to give priority to activities addressed to countries with specific and urgent needs.

The experience of four successful years has given the Development Sector a solid basis from which to forecast its priorities for 1999-2003. The reports of the Development Sector Study Groups, which have been a major source of this Strategic Report, provide a springboard for moving into the second four-year period. During this period, priorities will certainly continue to shift, reflecting the dynamic nature of the telecommunications sector itself. While carrying out its functions in accordance with the Constitution and the Convention, the strategic priorities of the Development Sector for the period 1999-2003 could provisionally be defined as follows:

2 Direct assistance - Project execution - Contracting

Technical cooperation in the form of projects or direct assistance, continues to be an important role for the BDT. Projects basically belong to the beneficiary countries with BDT acting as the executing agency. Increasingly, funds come from the countries themselves as well as other sources such as special voluntary programme, and the TELECOM exhibition surpluses following Resolution 11 of the Plenipotentiary Conference (Kyoto, 1994) and Council Resolution 1111 (June 1997) . Much can be done through partnerships, but universal access, some aspects of rural telecommunications and LDC priorities cannot be met easily in this way because there is no obvious expectation of profit. In close collaboration with ITU, WorldTel started showing promising results in Africa, Asia and Latin America.

Within this constraint, the Development Sector continues to provide assistance, at the global, regional, subregional and country level, to developing countries, to strengthen, expand and harmonize their telecommunication networks and services by:

- 1) assisting countries to create the necessary policy, strategic, regulatory, legislative and investment environment that will allow and enable the successful development of telecommunications, by mobilizing the support of key decision-makers in all sectors;
- 2) assisting the telecommunication sector to develop and strengthen its institutional capacity;
- 3) assisting those who are involved in the telecommunication sector to acquire the necessary and appropriate knowledge and expertise in the latest developments in telecommunications.
- 4) responding effectively, rapidly and in a flexible way to requests for technical assistance by LDCs and countries in special need of assistance, as well as countries in transition and other developing countries, including through cost recovery as applicable;
- 5) maintaining and strengthening the Special Voluntary Programme for Technical Cooperation based on financial contributions, expert services, or in any other form of contribution to meet as many of the telecommunication requests of developing countries as possible;
- 6) continuing efforts to apply United Nations General Assembly Resolution 52/103 and other resolutions relevant to assistance to refugees in collaboration with the organizations concerned.

BOX Seven: ITU/BDT as Catalyst

Until late 80s domestic telecommunications in Bhutan were virtually non-existent.

1989 was the turning point : ITU completed a Master Plan for Bhutan, under UNDP funding, paving the way for a comprehensive development of both domestic and international telecommunications.

Soon after, the Royal Government of Bhutan started implementation of the Plan with Japanese financial grant assistance. With subsequent UNDP funding, ITU continued its technical assistance with a field survey, and detailed design of the planned network, supervision of network construction and preparation of maintenance organization and plans.

ITU assisted the Department of Telecommunications to establish a Training Unit, a Repair Unit and a Frequency Management Unit, significantly enhancing the sustainability of operation and maintenance of the country's telecommunication infrastructure.

The final stage of the Master Plan is expected to be completed in 1998, but already Bhutan has in place an advanced telecommunication infrastructure, consisting of a reliable digital microwave network, linking digital exchanges installed in all major localities in the country with the international gateway exchange and satellite system, located in the capital city of Thimphu. More importantly, Bhutan already has skilled people to operate and maintain its system.

3 Resource development and mobilization - Partnerships

Resources to carry out the mandate of the Development Sector continues to be a major concern, particularly as traditional development funds are decreasing. Fortunately, other sources are now becoming available, such as voluntary contributions and the surplus from TELECOM exhibitions. The Development Sector places a high priority on the development and mobilization of resources, including financial and human resources, technology, information and expertise for telecommunication development, through constant action to:

- 1) identify sources of financing. Strategically the BDT's role in assisting with the financing of telecommunications can be approached in four ways:
 - i) Sources of funding for projects.
 - ii) Technical assistance.
 - iii) Investment.
 - iv) Partnering;
- 2) develop human resources management tools and systems;
- 3) develop and manage information databases of interest for the development process.

BOX Eight: Telecommunication Finance Colloquia

Organized by the BDT in partnership with national bodies, regional telecommunications and financial institutions and with the financial assistance of commercial entities, five Colloquia on commercial aspects of telecommunications have been held in various regions of the world. These are:

- Abidjan (March, 1996) for Africa
- Amman (September, 1996) for the Arab States
- Brasilia (July, 1997) for the Americas and Caribbean
- New Delhi (November, 1997) for Asia & Pacific
- Geneva (December, 1997) - for Central and Eastern Europe
- St Petersburg (February, 1998) for CIS countries

Findings of these Colloquia have provided new insights into:

- the conditions for attracting investment;
- importance of the investment required for the development of the Sector;
- setting up specific agreements between the participants.

4 Partnerships

Partnership arrangements is one of the most promising potential strategies for telecommunications development. The challenge is to promote partnerships which benefit all partners, avoiding purely commercial approaches and concentrating on long-term benefits as opposed to short-term gains. The participation of non-governmental organizations (NGOs) in the work of the Development Sector is of particular importance given the human and financial resources available to such organizations and their high level of activity in the developing world.

The Development Sector plays a catalytic and facilitating role in encouraging all the actors in telecommunications to work together in telecommunication development. More specifically, it promotes and facilitates the active involvement of developed countries and the international community in the development process by:

- 1) engaging in strategic partnerships and to extend services and cooperation to all Member States and Sector Members, with special emphasis on the least-developed countries inter alia through technical cooperation projects aimed at sustainable telecommunication development;
- 2) working in collaboration with the other Sectors, the Member States and the Sector Members, the organizations of the United Nations family and the regional telecommunication organizations towards a global approach to telecommunication development and improved cooperation at the regional level.

Partnerships with new stakeholders in the application of telecommunication services

The continued focus on applications to rural-based economic activities such as agriculture, health and education opens the door for new participants in the work of the Sector. In this connection, consideration should be given to the formulation of recommendations to WTDC-98 to engage planners and decision-makers, from other sectors, in the planning and implementation of telecommunications-based solutions to rural problems. Promoting the horizontal (trans-sectoral) dimension of telecommunications in the overall socio-economic development process through application projects (telemedicine, tele-education, environment protection etc.) conducted cooperatively with other specialized organizations in their respective domains of competency is a practical result of such initiatives.

Resource constraints will clearly limit the scope of activities within which meaningful results can be achieved, but some trans-sectoral activities have particular promise. These include pilot project activities (including evaluation) of community-based, access oriented communications facilities. This might build upon the excellent work already initiated by the Development Sector e.g. the implementation of telecentres at all levels ranging from the simplest telephone call box to more sophisticated communications centres.

Partnerships with other Sectors of ITU

Partnerships within ITU, while a well-established practice, offer particular opportunity. Examples are participation in the second World Telecommunication Policy Forum (WTPF) to be held in March, 1998, prior to the WTDC. This Forum will be on the general theme of trade in telecommunication services, and more specifically, on "policy and regulatory issues related to preserving and strengthening the financial foundations of the telecommunications industry in the emerging liberalized environment (i.e. issues related to tariffs, accounting and settlement payments, and investment)".

BOX Nine: A Spectrum Management course using the Virtual Training Centre

Leading experts from ITU-R worked with the BDT to deliver a VTC distance learning course on Spectrum Management in Latin America from 16 June to 29 August, 1997.

It included 80 hours on basic aspects of spectrum management and a one-week long course on more advanced aspects.

It demonstrated that non-industrialized countries are eager to benefit from distance learning technologies.

Partnerships with other international or regional organizations

The Development Sector has begun to establish strategic alliances and cooperation arrangements with other concerned international and regional organizations: World Bank, WTO, UNDP, UNESCO, WHO, UNEP, UNCTAD etc. in order to act more selectively and focus on those areas where each organization has a comparative advantage.

In this connection, the Declaration on Universal Access to Basic Communication and Information Services, approved by the Administrative Committee on Coordination (ACC) of the UN, is of particular interest. The Declaration urges governments, the private sector and multilateral and bilateral development organizations to make it their top priority to expand domestic telecommunication infrastructure to rural areas and to connect them to reliable international networks at affordable costs. The executive heads of the organizations of the UN Common System are committed to working together to promote universal access to basic communication and information services. A number of applications have been identified where pilot projects might be carried out to improve access.

Another example where opportunities for partnering may occur is with the World Bank. It is a significant financing source for infrastructure, private and public, in the emerging economies and acts as a catalyst in attracting financing from other sources. In addition, through their Information for Development Programme (infoDev), a grants programme engaging a consortium of bilateral government donors, private corporations and the World Bank itself, it enables governments, peoples and enterprises in the emerging economies to experiment with innovative pilot projects.

A further opportunity for partnering lies with UNCTAD and issues concerning access to telecommunications-based services. It has been suggested that UNCTAD, in close collaboration with ITU, could carry out analytical and practical work to allow interested members to better assess the various possibilities they may have to access trade-supporting telecommunications -based services at better prices and on more favourable conditions. The situation of smaller firms and under-equipped areas (especially in LDCs) might be given priority attention.

ITU's participation in the Convention on the Provision of Telecommunications Resources for Disaster Mitigation and Relief Operations is of particular concern to the developing world. It provides the opportunity of working in partnership with other UN agencies, such as the UN Department of Humanitarian Affairs, as well as with international operators such as INMARSAT.

Partnerships with the private sector

Encouraging the private sector to participate in the activities of the Development Sector is already well established and has met with considerable success.

BOX Ten: A Guide for the Computerized Subscriber Management System

Preparation of a Guide and CSMS software models for LDCs and other developing countries.

Interested partners are:

European Marketing Liaison (UK)

France Telecom-Sofrecom (France)

Two BDT experts from developing countries are on the team and bring the perspective of the real needs of developing countries.

Aimed at engineers in charge of the maintenance and computerization of subscriber line networks, the scope of the Guide includes:

- The Functions of a CSMS
- The role and importance of Outside Plant Maintenance (OSP)
- Integration of CSMS into the OSP operation
- Methodology for introducing a CSMS.

Building on successful partnerships

- continuing to participate fully in UNDP activities as a UNDP executing agency, as well as with other development agencies inside and outside the United Nations system and other arrangements such as funds in trust, cost sharing and Telecom surplus funds;
- continuing participation in UNESCO's International Programme for the Development of Communication (IPDC), in the Communication, Information and Informatics (CII) Sector as well as other related programme Sectors.

5 Information sharing

Given the deregulation, privatization and structural reforms taking place around the world, a solid and consistent programme is needed to help the developing countries introduce effective legal and systemic regulatory frameworks. The gathering, sharing and dissemination of information on these issues is a key role of the ITU-D Sector. This includes:

- 1) establishing a "network" of knowledgeable contacts and sources worldwide from which to gather information and knowledge appropriate to the development of telecommunications;
- 2) extending and improving the dissemination of information on the development of telecommunications worldwide, establishing a "global information system" with on-line access for the development partners and continuing to provide authoritative and up-to-date information through the World Telecommunication Development Report, Development Indicators, databases, country profiles etc.;
- 3) continuing to promote the value of telecommunications to overall social and economic development through studies, publications and other forms of information dissemination;
- 4) giving every possible encouragement to increasing the role played by telecommunication and information technologies in promoting environmental protection and sustainable development;
- 5) transferring knowledge on the development of telecommunications, either by individual group training or by the provision of fellowships to acquire such knowledge.

6 Sector renewal - New tools to do the job

It must be recalled that the Telecommunication Development Sector, in carrying out its functions, works through Telecommunication Development Conferences, their associated Development Study Groups and the Telecommunication Development Bureau. This Strategic Report must provide inputs to the three component parts of the Development Sector, but other reports, such as the Report of the Reflection Group which is reflected in the report of the Telecommunication Development Advisory Board⁵ will also have a major impact, in particular on the work of the Study Groups and on the BDT.

In considering the strategic directions which might be followed by the Development Sector in the next four years and beyond, a number of broad guidelines are suggested.

The Strategic Plan should position the Development Sector to address the major overall trends outlined in the first part of this Report. It should

- evolve from the experience gained by the Development Sector in its first four years: building on strengths, eliminating ineffective activities and allowing continuity;
- strengthening the catalytic function of ITU-D in promoting and supporting partnerships between private and public stakeholders to deliver timely development results;
- reflect the differences inherent in the different regions of ITU, adapting approaches to fit the particular strengths of each of the regions and subregions;
- capitalize on flexible and innovative approaches to opportunities to maximize the competitive advantage of ITU-D activities and resources.

This suggests an activist and proactive approach to ITU-D activities in the coming four-year period. Major strategic directions in which such an approach might be taken are:

Strategic direction one: Information for telecommunication development

Strengthening the capability and capacity of the BDT so that it can provide world-class knowledge, information and advice to developing countries to enable them to make significant improvements in telecommunications in their countries. This would involve such steps as:

- strengthening the competency of the BDT in the field of telecommunication policies in terms of research, documentation, information exchange and assistance in order to act as a clearing house on national laws, regulations, licensing and joint venture arrangements etc.;
- strengthening the technical expertise in key areas, combining high technical skills with a macroeconomic vision and global experience;
- strengthening the BDT information management system to deliver the best possible products: World Telecommunication Development Report, Development Indicators, models of investment, models for meeting the requirements of the new Trade Agreements, etc.;
- harnessing the information existing in the private market place;
- equipping the BDT to respond to requests in high-priority areas: international agreements and national regulation, negotiations in the presence of global operators, new and convergent technologies, tariffs and finance and related issues.

⁵ See Document ...

Strategic direction two: Maximizing the catalytic and value-added role of the Development Sector

- increasing Sector Membership by improved information, liaison and promotion;
- promoting the participation of new partners such as user's organizations and NGOs;
- strengthening the regional presence by increasing the decentralization of functions and authority to field offices and by strengthening the coordination functions of headquarters.

Strategic direction three: Optimizing the resources of the Development Sector

- improving the structure of the ITU-D Sector, making it more flexible and adaptive, reducing internal costs and making optimum use of the resources available;
- improving the impact of the work of the Study Groups by organizing for example expert groups and regional groups on priority Questions;
- adopting a more "commercial approach" including cost recovery.

Strategic direction four: Responsiveness

- improving the products and services provided by BDT, stressing relevance and timeliness of client services;
- making ITU-D faster, leaner and more cost-effective, speeding up its processes and seeking innovative ways to lower its internal costs;
- increasing its development impact, differentiating and tailoring BDT's responses to its clients, in particular with regard to the promotion incubation of national private sector development SME);
- contracting the BDT: execute various programmes and projects for the benefit of governments and operators under contractual arrangements (ex: Latin America.)

Annexes: 2

ANNEX 1

Mission of the Telecommunication Development Sector

The mission of the ITU-D Sector is as follows:

- 1) (1) The functions of the Telecommunication Development Sector shall be to fulfil the purposes of the Union as stated in Article 1 of this Constitution and to discharge, within its specific sphere of competence, the Union's dual responsibility as a United Nations specialized agency and executing agency for implementing projects under the United Nations development system or other funding arrangements so as to facilitate and enhance telecommunications development by offering, organizing and coordinating technical cooperation and assistance activities.
- (2) The activities of the Radiocommunication, Telecommunication Standardization and Telecommunication Development Sectors shall be the subject of close cooperation with regard to matters relating to development, in accordance with the relevant provisions of this Constitution.
- 2) Within the foregoing framework, the specific functions of the Telecommunication Development Sector shall be to:
 - a) raise the level of awareness of decision-makers concerning the important role of telecommunications in the national economic and social development programme, and provide information and advice on possible policy and structural options;
 - b) promote the development, expansion and operation of telecommunication networks and services, particularly in developing countries, taking into account the activities of other relevant bodies, by reinforcing capabilities for human resources development, planning, management, resource mobilization, and research and development;
 - c) enhance the growth of telecommunications through cooperation with regional telecommunications organizations and with global and regional development financing institutions, monitoring the status of projects included in its development programme to ensure that they are properly executed;
 - d) activate the mobilization of resources to provide assistance in the field of telecommunications to developing countries by promoting the establishment of preferential and favourable lines of credit, and cooperating with international and regional financial and development institutions;
 - e) promote and coordinate programmes to accelerate the transfer of appropriate technologies to the developing countries in the light of changes and developments in the networks of the developed countries;
 - f) encourage participation by industry in telecommunication development in developing countries, and offer advice on the choice and transfer of appropriate technology;

- g) offer advice, carry out or sponsor studies, as necessary, on technical, economic, financial, managerial, regulatory and policy issues, including studies of specific projects in the field of telecommunications;
- h) collaborate with the other Sectors, the General Secretariat and other concerned bodies in developing a general plan for international and regional telecommunication networks so as to facilitate the coordination of their development with a view to the provision of telecommunication services;
- i) in carrying out the above functions, give special attention to the requirements of the least developed countries.

ANNEX 2

Excerpts from the Buenos Aires Declaration

The following factors, to be taken into account when defining a strategy for the ITU-D Sector, were noted in the Buenos Aires Declaration. Significant new developments since 1994 are noted in italics):

- 1) ITU strategic cooperation for the development of telecommunications must recognize the varying levels of development in developing countries. While encouraged by the convergence between medium and high teledensity countries, there is still a growing divergence between medium and low teledensity ones. This fact underscores the need to pay special attention to the requirements of the least developed countries. It also points out the need for well-differentiated and tailored responses to the various types of developing countries (LDCs, transition economies, countries affected by conflicts or natural disasters etc.).
- 2) Given that the telecommunication requirements of most developing countries are vast, and the resources available to meet them limited, governments should establish appropriate telecommunication policies and regulatory structures.
- 3) The development of telecommunications may be fostered by liberalization, private investment and competition in appropriate circumstances. Their introduction in any restructuring exercise should be compatible with national development goals and with improving service to underserved areas. Such a restructuring should include a regulatory system which will:
 - create a stable and transparent environment to attract investment;
 - facilitate access of service providers to the network with a framework that promotes fair competition while protecting network integrity;
 - ensure the provision of universal service helping to achieve integrated rural development as well as promoting innovation and the introduction of new services and technologies; and
 - guarantee the rights of users, operators and investors.

Restructuring should promote partnerships between telecommunication organizations in developing and developed countries that equitably take account of the interests of developing countries.

- 4) ITU has a special role to play in advising policy-makers on the options available in tailoring policies and regulatory structures to fit a country's particular requirements. ITU should work in close cooperation with regional telecommunication organizations and international, regional and national development and financing agencies. In an environment where the imbalance in negotiating power between global operators and small developing countries has reached striking proportions, ITU will need to contribute to safeguarding the international public interest. ITU should aim at a "Global Development Contract" with a view to balancing economic forces and avoiding to add to the present gap in access to basic telecommunications another gap between the information haves and have nots.

- 5) Since the resources available through multilateral cooperation will not be sufficient to meet the requirements of developing countries, ITU must play a creative catalytic role in concert with all the entities forming part of its wide family, and with global, regional and national organizations and agencies, and the private sector. These development, financing and investment agencies, both global, regional and national, are urged to attach higher priority to the development of telecommunications in developing countries.
 - 6) The studies carried out in the ITU Radiocommunication and Telecommunication Standardization Sectors play a significant role in the transfer of knowledge and technology. Close cooperation between these Sectors and the Telecommunication Development Sector is necessary to bring about new dynamism to this transfer.
 - 7) Development strategies should encompass information technology and sound and television broadcasting via terrestrial and satellite systems as key factors in promoting economic, social and cultural development. (...)
 - 8) No telecommunication network can be designed, installed and operated efficiently without appropriately skilled staff at all levels. Human resources development and management require innovative approaches to meet the challenges of the rapidly changing telecommunication environment.
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