



INTERNATIONAL TELECOMMUNICATION UNION

**Telecommunication policies and their  
repercussions at the level of institutional,  
regulatory and operational aspects of services**

**BDT**

TELECOMMUNICATION  
DEVELOPMENT  
BUREAU

**ITU-D Study Groups**

First Study Period (1995-1998)

Report on Question 2/1



# PUBLICATIONS OF ITU-D STUDY GROUPS

## Study Period 1995-1998

### Study Group 1

- Report on Question 1/1** Role of telecommunications in economic, social and cultural development
- Report on Question 2/1** Telecommunication policies and their repercussions at the level of institutional, regulatory and operational aspects of services
- Report on Question 3/1** Impact of the introduction and utilization of new technologies on the commercial and regulatory environment of telecommunications
- Report on Question 4/1** Policies and ways for financing telecommunication infrastructures in developing countries
- Report on Question 5/1** Industrialization and transfer of technology

### Study Group 2

- Report on Question 1/2** Special concerns of developing countries in relation to the work of the Radiocommunication and Telecommunication Standardization Sectors
- Report on Question 2/2** Preparation of handbooks for developing countries
- Handbook on *New developments in rural telecommunications*
- Handbook on *New technologies and new services*
- Handbook on *National Radio Frequency Spectrum Management and Monitoring System – Economic, Organizational and Regulatory Aspects*
- Report on Question 3/2** Planning, management, operation and maintenance of telecommunication networks
- Report on Question 4/2** Communications for rural and remote areas
- Report on Question 5/2** Human resources development and management
- Report on Question 6/2** Impact of telecommunications in health-care and other social services
- Report on Question 7/2** Telecommunication support for the protection of the environment
- Report on Question 8/2** Public service broadcasting infrastructure in developing countries
-



# Telecommunication policies and their repercussions at the level of institutional, regulatory and operational aspects of services

## Contents

		<i>Page</i>
	Acronyms and Abbreviations .....	1
1	Review of the question .....	3
	1.1 Issues raised .....	3
	1.2 References and sources .....	4
	1.3 Survey results .....	4
2	Background on existing policies and regulatory models .....	4
	2.1 Provider of telecommunication services .....	4
	2.2 Market structure for services and infrastructure .....	6
	2.3 Regulatory characteristics and frameworks .....	7
3	Comparative analysis.....	9
	3.1 Model A – Traditional monopoly .....	10
	3.2 Model B – Monopoly modernization .....	10
	3.3 Model C – Limited competition .....	14
	3.4 Model D – Full competition.....	18
	3.5 Model E – Global competition .....	19
4	Providing universal service .....	20
	4.1 A dynamic and evolving definition .....	20
	4.2 Universal service benefits .....	21
	4.3 A political priority .....	22
	4.4 Who should be entitled to universal service?.....	22
	4.5 Financing universal service.....	23
	4.6 Examples of national policies on universal access/service .....	24
5	Implementing reforms .....	26
	5.1 Driving forces for telecommunication reform and economic development.....	26
	5.2 Legislative reforms.....	31
	5.3 Structural reforms .....	34
	5.4 Regulatory reforms.....	37
6	Conclusion.....	51
	Annex 1 – Bibliography.....	52
	Annex 2 – Selected results from the 1996/97 Telecommunications regulatory survey.....	53
	Annex 3 – Contributions received for the report of Question 2/1 .....	57

---



## REPORT ON QUESTION 2/1

**Telecommunication policies and their repercussions at the level of institutional, regulatory and operational aspects of services****Acronyms and Abbreviations**

<b>BDT</b>	Telecommunication Development Bureau (ITU)
<b>BLT</b>	Build-Lease-Transfer
<b>BOT</b>	Build-Operate-Transfer
<b>BT</b>	Build Transfer, or British Telecom (Chapter 3, Section 4)
<b>BTO</b>	Build-Transfer-Operate
<b>COFETEL</b>	Comisión Federal de Telecomunicaciones (Mexico)
<b>CONATEL</b>	Comisión Nacional de Telecomunicaciones (Venezuela)
<b>EU</b>	European Union
<b>FCC</b>	Federal Communications Commission (United States)
<b>GATS</b>	General Agreement on Trade in Services
<b>GBT</b>	Group on Basic Telecommunications
<b>GDP</b>	Gross Domestic Product
<b>GII</b>	Global Information Infrastructure
<b>GMPCS</b>	Global Mobile Personal Communications by Satellite
<b>GNP</b>	Gross National Product
<b>HRD</b>	Human Resources Development
<b>HRM</b>	Human Resources Management
<b>IMF</b>	International Monetary Fund
<b>INMARSAT</b>	International Mobile Satellite Organization
<b>INTELSAT</b>	International Telecommunications Satellite Organization
<b>INTUG</b>	International Telecommunications User Group
<b>IPO</b>	Initial Public Offering
<b>ITU</b>	International Telecommunication Union
<b>ITU-D</b>	Telecommunication Development Sector
<b>ITU-R</b>	Radiocommunication Sector (formerly CCIR)
<b>ITU-T</b>	Telecommunication Standardization Sector (formerly CCITT)
<b>LDC's</b>	Least Developed Countries
<b>LEO's</b>	Low Earth Orbit Satellites
<b>NTT</b>	Nippon Telegraph and Telephone
<b>OECD</b>	Organization for Economic Cooperation and Development
<b>OFTEL</b>	Office of Telecommunications (UK)
<b>ONP</b>	Open Network Provision
<b>OSIPTEL</b>	Organismo Supervisor de la Inversión Privada en Telecomunicaciones (Peru)
<b>PCS</b>	Personal Communication Services

<b>PSTN</b>	Public Switched Telecommunication Network
<b>PTO</b>	Public Telecommunication Operator
<b>PTT</b>	Posts, Telephone and Telegraph
<b>ROA</b>	Recognized Operating Agency
<b>SITA</b>	International Society for Aeronautical Telecommunication
<b>SMO</b>	Spectrum Management Organization
<b>USO</b>	Universal Service Obligations
<b>VSAT</b>	Very Small Aperture Terminal
<b>WTDC</b>	World Telecommunication Development Conference
<b>WTO</b>	World Trade Organization
<b>WTPF</b>	World Telecommunication Policy Forum



## 1 Review of the question

Resolution 2 of the 1994 World Telecommunication Development Conference (WTDC-94) established the framework for the Telecommunication Development Study Groups and set forth the specific questions for review by the Study Groups. Study Group 1 first started discussing and reviewing Question 2/1 in March 1995. This report is the result of the contributions, discussions, and input received relevant to Question 2/1.

Resolution 2 framed the work for the study of Question 2/1 by noting that:

Current technological and regulatory development in the telecommunication sector is opening up new possibilities but is also raising new problems for the developing countries. These problems have increased with the gradual globalization of trade in products and services which has recently spread to the telecommunication sector.

In the same way as technological development, this new consideration should persuade many developing countries to reform or restructure fairly extensively the organization and regulation of their telecommunication sector, taking into account other countries' experience in the same field.

Moreover, policies in the telecommunication sector are moving towards the separation of regulatory and operational functions, service liberalization and entry of competition, favoring a reduction of State participation in the capital of operating agencies. Operators should thus, in the present environment, move towards business-oriented management structures by adapting their accounting plans to market economies. Therefore, it will also be necessary to adjust the level of investment, to obtain new sources of financing, to promote profitable investment and to shift from being the operator of the telephone service to being a business enterprise capable of providing every type of service. At the same time, it is necessary to accelerate the development of telecommunications at the national level to which end there is a need for more effort in the areas of investment, technical training, human resources management, etc. This situation implies new management formulae, both within operators and in their relations with operating agencies in other countries.

Given this focus on liberalization and change, the study of Question 2/1 recognizes that the world is moving towards a more liberalized telecommunication sector. This report will focus on what issues must be considered by countries, particularly developing countries, to implement a more liberalized telecommunication sector. Indeed, Question 2/1 specifically provides as follows:

Telecommunication policies and regulatory models currently applied by Members of the Union differ appreciably from one country to another.

On the basis of a sufficiently representative cross-section of existing policies and taking due account of work already carried out at the regional level, a comparative analysis should be made of the different regulatory models applied, with a view to preparing recommendations or guidelines for the developing countries on:

1. the methods and criteria needed in order to assess the value and extent of the legislative, structural and regulatory reforms which should be introduced in the telecommunication sector as part of the implementation at the national level of a global economic, social and cultural development policy;
2. the respective roles and functions of the component elements of the telecommunication sector, the regulatory structures and resources required in light of the necessary reforms – taking into account Resolution No. 4 on Telecommunication Policies and Strategies adopted by WTDC-94;
3. the ways of adjusting the operating agencies to the new regulatory models and the activities associated with universal service that can be developed at the same time as business-oriented management, as well as the applicable models and criteria to guide a new business management approach.

### 1.1 Issues raised

During the series of meetings (March, November 1995, and September 1996) where Question 2/1 was discussed, several issues were raised that are particularly relevant to developing countries.

- Lack of human resources/training/expertise
- Large unmet demand for service
- Call traffic congestion
- Poor service quality
- Limited territorial coverage
- Lack of investment capital

- Fear of dominance by foreign entities
- Staff concerns over loss of employment
- Universal service – how to fund and maintain
- Interconnection and access charges
- How to set up a regulator
- Financing a regulator

## 1.2 References and sources

With such a broad mandate, this report attempts to take advantage of reports and studies already completed so that duplication of efforts is minimized and efficiency is maximized. A bibliography of references is found in Annex 1. Special emphasis has been put on the regional reports, such as the Americas Blue Book, the Arab Book, the African Green Paper, and the ITU Asian papers produced in conjunction with the United Nations Development Programme.

Contributions were received from the following Members States to the Study of Question 2/1: Benin, Bhutan, Brazil, Cambodia, Chad, Central African Republic, France, Germany, Guinea, Hungary, Japan, Kenya, Mali, Mozambique, Netherlands, Niger, Pakistan, Portugal, Slovak Republic, United Kingdom, United States, and Zambia. In addition, the following Sector Members made contributions: International Mobile Satellite Organization (Inmarsat), International Telecommunications User Group (INTUG) and Thomson-CSF.

## 1.3 Survey results

It was decided at the first meeting of Study Group 1 (March 1995) to conduct a Sector Survey covering, in particular, Study Group 1 Questions 2/1, 4/1, and 5/1. The survey was repeated for 1996/97 but specifically addressing the area of regulation. Annex 2 highlights some of the results of the survey.

## 2 Background on existing policies and regulatory models

This section briefly describes the range of existing policies and models for the telecommunication sector. By putting existing telecommunication policies into context, this review will provide the background necessary to better understand the comparative analysis section of the report.

### 2.1 Provider of telecommunication services

The telecommunication service provider is one of the most important components of the telecommunication sector. With the responsibility of providing telecommunication services, the telecommunication operator is the backbone of the development of the country. Telecommunication operators can range from being government-owned monopolies to private sector companies facing multiple competitors. This section describes the range of service providers that currently operate in different markets around the world.

#### 2.1.1 Government-owned monopoly operator

Traditionally, the telecommunication service provider in many areas of the world has been a government-owned monopoly based on the concept of telecommunications as a State activity institutionalized as a public service. Under this scenario private initiative does not play a part, except in limited segments, such as private lines. In the traditional monopoly, there is direct centralized management of services which results in the absence of any budgetary or financial management autonomy for telecommunication services. This has been known as the Posts, Telephone and Telegraph (PTT) model which is based on State administration without organizational differentiation between the regulator and the operator.

NOTE – *Telecommunication Policies for the Arab Region* (“The Arab Book”), ITU Telecommunication Development Bureau (BDT), (January, 1997), p. 32 – paragraph 134.

Theoretically, a State-owned telecommunication operating company can work as efficiently as a private company. The government could commit itself not to intervene in the management of the company, not to impose unrealistic tariffs, make tariffs more cost-based, not to distort resource allocation, to make the required investment to modernize the infrastructure and introduce new services, to set reasonable limits on the role of the State bureaucracy of human

resources, and not to unduly divert to other sectors the revenues generated by the State company, which are essential to maintain and expand its ability to offer adequate service to the public. History, however, seems to show that this has not often happened. The everyday scenario of the PTT model shows governments without money to invest, diverting the revenues of their operating companies to the national treasury to be eventually used in other more urgent programmes, imposing ceilings on the company's budget, meddling in the management, intervening politically to appoint the chief executive officers and other employees, distorting tariffs, etc. In the end, the public frequently pays for the inefficiencies resulting by such a situation.

NOTE – *Telecommunication Policies for the Americas* (“The Blue Book”), ITU Telecommunication Development Bureau (BDT), (March, 1996) p. 4 – paragraph 13.

### 2.1.2 Government/private sector partnerships and joint ventures

As corporatization occurs, private sector participation in the State-owned entity may also increase. State enterprises may outsource to the private sector, functions it had previously undertaken such as construction, maintenance, transportation, billing and collection, directory assistance, and operator assistance. As the private sector's role increases, the benefits of new sources of investment, increased efficiency, and better services become apparent.

NOTE – *Implementing Reforms in the Telecommunications Sector*, Editors: Bjorn Wellenius and Peter A. Stern, (The World Bank, 1994), (hereinafter “World Bank – Implementing Reforms”) p. 4.

When a country decides to privatize a company, it normally considers a number of elements, one of which is the degree of national control that will be required at the end of the process. The State itself may conclude that it wishes to keep a measure of control over the company to establish certain conditions relating to its participation. It is also necessary to take into account how a government or the regulatory organ will deal with the privatized company and enforce, if appropriate, any commitment made prior to privatization.

NOTE – The Blue Book, p. 4 – paragraph 16.

Some countries have opted to establish a government-private sector joint venture to liberalize their telecommunication sector. Often these companies are organized as joint stock companies with shares sold to both institutional and public investors with the government keeping a controlling interest. These joint ventures are often a first step toward privatization and may be only for a limited period.

Public/private partnerships that are cooperative arrangements between several entities from the public and private sectors, where representatives plan and work together for a defined period of time toward predefined common goals, can also be intermediate steps in the liberalization process. Build-Transfer (BT) arrangements are public/private partnerships where the private partner constructs or owns a public utility for a limited time, and where the private partner is allowed to regain its investment by operating or leasing the utility. At the end of the predefined period, the utility is transferred back to the public partner. Some examples of BT arrangements are as follows:

NOTE – ITU, 1996-1997 World Telecommunication Development Report: Trade in Telecommunications p. 59.

*Build-Operate-Transfer (BOT)* – This is a BT arrangement between two or more partners where the private partner is allowed to operate the utility for a predefined period, to recover its investment and receive an agreed upon level of profitability. The private partner then transfers ownership back to the public partner. (Has been used in Lebanon).

*Build-Transfer-Operate (BTO)* – This is very similar to the BOT above being a BT arrangement between two or more partners where the private partner constructs a utility under the direction of the public partner. After construction, the private partner has to transfer the ownership immediately to the public partner. The private partner is then allowed to operate the utility on behalf of the public partner. BTO arrangements are often used to avoid laws that do not allow private companies to own public utilities. (Has been used in Thailand).

*Build-Lease-Transfer (BLT)* – This is a BT arrangement between two or more partners where the private partner constructs a utility under the direction of the public partner. After the construction, the public partner can lease the utility and operate it for a predefined period from the private partner, who is still the owner. This allows the private partner to regain the investment. After the predefined period, the ownership of the project is transferred to the public partner. (Has been used in Lithuania.)

*Build-Maintain-Transfer* – This is a BT arrangement between two or more partners where the private partner constructs a utility under the direction of the public partner. After the construction, the private partner is obliged to maintain the utility for a predefined period. During this period, the public partner leases the utility from the private partner. After the period, the ownership of the project is transferred to the public partner.

### 2.1.3 Private sector operator(s)

When government involvement in ownership and management of a telecommunication service provider ends, the entity is considered to be a private sector operator. A distinction should be made between privatization and competition – they are not necessarily the same. In many cases, after a government-owned telecommunication service provider is privatized, it continues to operate as the exclusive provider of all telecommunication services. Some countries have various private monopoly service providers that are given exclusivity for certain geographic areas, or market segments such as local and long distance services, and/or domestic and international services. Other countries have adopted a policy of allowing multiple private providers in certain service areas (e.g., mobile cellular) but limiting services such as basic telephony to monopoly providers. Full competition is achieved when numerous private operators provide services in all sectors of telecommunications.

## 2.2 Market structure for services and infrastructure

The telecommunication service market was traditionally characterized by a monopoly, and usually provided by government departments or State enterprises. However, a single monopoly operating enterprise, whether State-owned or private, is increasingly unable to meet the large, varied, and rapidly changing demands of all types of users. Driven by technological innovation and growing user demand, major changes are occurring in the telecommunication sector.

NOTE – World Bank – Implementing Reforms, pp. 3-5.

### 2.2.1 No competition

There are various arguments made for retaining State telecommunication monopolies. The most common is that telecommunication services are a natural monopoly due to economies of scale and scope. In theory, only a monopoly would fully capture these economies. Even cable television services, whose infrastructure costs are lower than telecommunications, are commonly served by only one operator in many towns. However, as the World Bank has noted, the evidence on scale economies is much weaker than once believed. And the evidence of increased efficiencies due to improved organizational incentives and better resource allocation under competition is overwhelming.

NOTE – The Blue Book, p. 9 – paragraph 32.

Another reason that has been used to justify a monopoly is that resources for telecommunication services are scarce. Especially in some poor countries, communications operate for the benefit of such specialized clients as government ministries, the military, State enterprises, and occasionally, foreign firms. Service is almost always provided by a monopoly owned and operated by the government. In most of these countries where telecommunication service is provided by a monopoly, local service is usually heavily subsidized and inexpensive, forcing the communications carrier to provide service at a loss. Money for investment is scarce because immediate return on investment is low or non-existent. Improved communications infrastructure is a relatively low priority for the central government planners, although improvement in long-distance and international facilities are relatively easier to finance.

Recently technological changes, however, are making competition possible in a widening range of market segments, and there is increasing evidence that competition can produce more attractive products and services at lower prices. A number of different actions may be taken to restructure the sector. Some possible steps are:

- dividing the existing nationwide monopoly into separate entities designated by geographic service regions or offering different services;
- providing by law that new services (or new technologies) will be outside the scope of the existing monopoly, enabling new operators to provide these services on a competitive basis;
- authorizing the existing network operator to subcontract certain areas or services to third-party service providers;
- entering into build-operate-transfer (BOT) arrangements (or a variation thereof) with an experienced third-party operator, ensuring that expert support is available to train personnel and to supervise the start-up operations.

NOTE – The Blue Book, p. 45 – paragraph 219. See also Telecommunication Policies for Africa (“The African Green Paper”), ITU Telecommunication Development Bureau (BDT), (May, 1996), p. 12 – paragraph 14.

### 2.2.2 Partial competition

There is often a progression towards competition with countries first starting the liberalization process by opening the terminal equipment market to competition. Many developing countries, as well as developed countries, open the terminal equipment market to any company who wants to sell its product. The next step is often allowing competition in the value added networks or enhanced services, often at the same time that the wireless markets are opened up. Paging and very small aperture terminals (VSAT) services are also liberalized early on in this progression. For example, in Brazil, the 1996 Specific Law began the liberalization of the telecommunication sector by allowing competition in the data services market, as well as opening up the B-Band cellular and satellite services for private sector participation.

Where there is a pressing need for new infrastructure to serve the needs of users, there is a full range of options for encouraging new investment. Telecommunication users and new service providers with access to foreign-exchange resources may invest in facilities that can be utilized in connection with the PTT's facilities. In addition, VSAT satellite networks may be one way to provide services rapidly in the face of facility shortages. The practical effect of liberalizing the provision of value-added networks and of ancillary transmission facilities such as VSAT's primarily will be to attract new sources of investment and to put PTT's in the position of becoming more oriented to the needs of their customers.

NOTE – World Bank – Implementing Reforms, p. 102.

In liberalized markets, long distance is often open to vigorous competition before local services. Local services tend to be the last sector open to competition.

### 2.2.3 Full competition

The basic logic of the full competition model of telecommunications is to allow widespread competition among many providers of network facilities on a full range of network services. Under the pure full competition model, providers have unrestricted entry to all telecommunication facilities and services, including basic and enhanced services. However, the countries that are embracing a model of widespread competition, such as Australia, Chile, Japan, New Zealand, the United Kingdom, and the United States, are still in the stage of approximating the full competition ideal.

An alternative that mixes regulation and competition is limiting the number of competitors. For example, some countries have permitted competition in both telecommunication facilities and services in the provision of both long-distance and local communication services, while explicitly limiting the total number of competitors providing telephone services in the marketplace. Some countries have limited the number of long-distance competitors to two. Another example permits competition in local telephone services and allows multiple long-distance networks, but the government carefully oversees the total number of entrants into the market in order to manage total network capacity, which in turn reduces downward pressure on prices and allows the government to manipulate the extension of services by its licensing decisions. Also, many countries allow a limited number (usually two) of cellular phone systems while at the same time licensing numerous paging companies.

NOTE – World Bank – Implementing Reforms, p. 550.

By limiting the number of carriers providing basic telephone services and facilities providers, countries have attempted to keep prices and profits at levels that allow some degree of subsidy for residential and rural users – and provide limited subsidies to equipment manufacturers. At the same time, these countries have encouraged unlimited competition in value-added services and at least some competition in the provision of basic services. Many countries have already introduced competition in value-added services, mobile telephone services, complementary specialized voice and messaging services. There are also many countries who are planning to open all sectors of the telecommunication market to competition in the near future – for example, the United States is already implementing its new law and Europe looks to 1998.

## 2.3 Regulatory characteristics and frameworks

The reasons for undertaking some form of regulation are usually neither simple nor singular. In part, regulation is undertaken for economic purposes because a particular market is considered inadequate in setting efficient prices. In part, regulation is often undertaken for political and social purposes. While these may be the general reasons for undertaking some form of public regulation, it is necessary to examine the specific mission of the regulatory body in

question and the State's expectations must be defined for the duly appointed administrative tribunal. The clearer and more concise that definition, the higher the probability that an efficient and effective regulatory process will evolve.

NOTE – Handbook on Sector Reform, *Guidelines on Regulation*, United Nations Development Programme, ITU, Bangkok (August, 1995), p. 10.

The decision to have a regulatory body indicates a transformation of the State's role in the area of telecommunications. The State regulates but no longer operates telecommunications. One consequence of separating regulatory functions from operation and management, which is a precondition for the new legal framework, is that an independent administration has to be specifically established for telecommunications, especially in so far as the notion of self-regulation is discarded. In view of the great diversity of players involved in the sector, such as the State, public operators, service providers, users, manufacturers, capital goods suppliers, etc., and of the multiplicity of legal relations interconnecting them, and as a direct consequence of a policy favoring competition and private participation in the sector, the regulatory body should be neutral, and vested with sufficient powers to enforce the rules and resolve disputes, always in the public interest.

NOTE – The Arab Book, p. 42 – paragraph 156. See also The African Green Paper, pp. 30-31. Handbook on Sector Reform, *Guidelines on Regulatory Organizations*, United Nations Development Programme, ITU, Bangkok (September, 1996), pp. 16-21.

### **2.3.1 Self-regulation by State-owned monopoly**

Under the traditional PTT model, there is no distinction between regulatory activities and those more specifically related to operations. The telecommunication operators are part of the State organization, thus State administrations manage public services as monopolies. This type of State-controlled approach to the management of public services is without a separate regulatory body and thus is without autonomy. In some cases, the State-owned entity is commercialized which has a legal status and financial autonomy, but is still attached to a ministry.

NOTE – The Arab Book, p. 42 – paragraph 156. See also The African Green Paper, pp. 30-31. Handbook on Sector Reform, *Guidelines on Regulatory Organizations*, United Nations Development Programme, ITU, Bangkok (September, 1996), p. 42, paragraph 156.

### **2.3.2 Regulatory department within the ministry**

In this model, the ministry is the regulator but is separate from the operator in policy-making and regulatory functions although it remains an integral part of the general State machinery. In this case, the telecommunication administration will not differ from other State administrations, either organically or functionally. The regulatory functions, in the broad sense, will be performed either by ministries or by general administrative departments. The regulatory body's actions and decisions will then be subject to the same hierarchical and legal controls as the actions of any other administration.

NOTE – The Arab Book, p. 42 – paragraph 156. See also The African Green Paper, pp. 30-31. Handbook on Sector Reform, *Guidelines on Regulatory Organizations*, United Nations Development Programme, ITU, Bangkok (September, 1996), p. 42, paragraph 156.

### **2.3.3 Separate regulatory body reporting to the ministry**

In this alternative, there is an institutional separation between the policy-making and regulatory functions. The aim of the authority would be to assist the government in the supervision and regulation of the telecommunication sector, following broad political guidelines laid down by the ministry responsible for the sector. The borderline between the ministry and the authority should be clearly defined, as should the limits of the regulatory powers of the authority.

*Regulatory body reporting to ministry* – A regulatory body which is administratively and financially independent, but subject to certain controls by the relevant ministry (e.g., the United Kingdom's OFTEL, Venezuela's CONATEL, and Mexico's new COFETEL).

*Regulatory body indirectly dependent on the executive branch* – A regulatory body that is indirectly dependent on the Executive branch of government but that enjoys a considerable degree of independence in practice.

NOTE – The African Green Paper, p. 32 – paragraph 95.

### 2.3.4 Independent commission or regulatory body

The independent regulatory body encompasses a broad range of alternatives. The common characteristic is that of specialized departments which are set up outside the central administration, being guaranteed their independence with respect to political authorities and traditional administrations, as well as with respect to the various public or private operators involved in the telecommunication sector. Their functions, procedures, and structures vary from country to country but the feature they have in common is that they represent a new type of administration, more specialized, more functional and independent and closer to the specific problems of the public, while supporting policies of integration, participation, and cooperation.

Depending on the required degree of independence with respect to the duties effectively assigned to the regulatory body and to its relationship with other authorities and administrations, and especially to the way in which it is subjected to administrative, political and judicial supervision, independent regulatory bodies may vary in form. However, the key features are political and administrative independence and self-financing.

*Fully independent regulatory body* – A politically and administratively independent regulatory body though directly subject to judicial supervision (e.g., FCC in the United States).

### 2.3.5 No telecommunication regulatory body – telecommunications regulated generally

The approach when there is no telecommunication regulatory body has been to rely on general competition law, commercial acts, and consumer protection laws, as well as telecommunication laws. New Zealand has adopted this approach, and there the Commerce Commission enforces the commercial and consumer protection laws. An important component of this approach is that private legal action works as the watchdog.

## 3 Comparative analysis

In this chapter, certain contributions have been selected to be used as an example of the model under which they fall. Many additional contributions on the telecommunication sector of specific countries were disseminated and discussed during Study Group, Working Party and Rapporteur Group meetings.

The models that are described in this chapter range from Model A, the traditional monopoly, to Model E, global competition, with the two extremes having the least actual representation by participants in the Rapporteur Group and Working Party meetings. Most countries identified with Model B (monopoly modernization) and Model C (limited competition), with a growing number of countries moving from limited competition to full competition (Model D). Moving from Model A to Model E can be considered an evolutionary process in the liberalization of the telecommunication sector, but it is not necessarily a requirement for implementing reforms. Some countries may decide to move from one model to the next in sequence, but others may progress differently.

At a given time, each model may improve the sector's performance, although the two contributions received for Model A did not indicate successful sector development. However, there are countries, (e.g., in the Arab Region) that achieved their goals under this traditional model. Generally speaking, telecommunication operators in the Arab countries apply a model which, with a few variations, is part of the State organization. There is no model of indirect, license-based management in any of the countries of this region, except in certain isolated cases of specific activities or services.

NOTE – The Arab Book, p. 71.

With only a few exceptions, telecommunication management structures in Africa remain under State administrative and political control, while in some countries the State continues to issue instructions for everyday network management. Among politicians, the general view is towards maintaining the monopoly of the State, which may or may not grant exclusive licenses for the network and basic services, giving greater management independence to one or more public operators (see Note 1). Most European countries used this model to develop their telecommunication sector during the 1980s (see Note 2).

NOTE 1 – The African Green Paper, p. 24 – paragraph 68.

NOTE 2 – “*The priority role of investments in telecommunications for social and economic development*”, J.-C. Deniaud, EU-RDC (Prague, November, 1991), pp. 19-23.

Currently, however, the most significant progress has been achieved in countries that have introduced a liberalized telecommunication regime. This is particularly true for the Americas region and the emerging economies in the Asia-Pacific region.

The examples that follow under each model describe the advantages/disadvantages and evaluate the model in order to make a comparison.

### **3.1 Model A – Traditional monopoly**

#### **General Example**

##### **3.1.1 Provider of telecommunication services**

The State holds a monopoly on telecommunications throughout the national territory and spectral and submarine space. This monopoly is exercised by a general directorate or national department of telecommunications, which provides services to users through a classical administration-type management whose accounting and personnel operations are incorporated in the national budget and civil service.

##### **3.1.2 Market structure**

There is only one telecommunication service provider for the whole country. There is no competition.

##### **3.1.3 Regulatory framework**

Regulatory and operational functions are not separate and are the responsibility of the Ministry of Posts and Telecommunications.

##### **3.1.4 Advantages and Disadvantages of Model A**

###### **3.1.4.1 Advantages of Model A**

This management system easily accommodates national strategic planning and provides a certain guarantee with respect to human resources utilization. There is no unemployment in the telecommunication sector.

###### **3.1.4.2 Disadvantages of Model A**

- overstaffing and inefficiency;
- low pay for workforce;
- inadequate public sector funds available, for sufficient implementation of the different programmes.

###### **3.1.5 Evaluation of Model A**

- Slow national network development;
- low telephone density/penetration;
- universal access/service objectives are not achieved;
- difficult to introduce and develop new services;
- insufficient financing for network development;
- poor financial viability as a result of the management system;
- the management system has resulted in low levels of income for the State.

NOTE – Text taken from the contribution of Guinea on the situation before sector reform. Bhutan also made a contribution on Model A.

### **3.2 Model B – Monopoly modernization**

#### **Mali: Country Example**

Model B describes a telecommunication management structure in which the public telecommunication network operator has the responsibility for the operation and regulation of telecommunication services. It may relinquish some of its privileges to such private-sector operators or installers as it has authorized. It thus functions as a public service, but has an obligation to be financially and economically profitable.

NOTE – The following countries also contributed to this model: Benin, Cambodia, Central African Republic, Chad, Guinea, Mozambique, Niger, and Pakistan.



### 3.2.1 Provider of telecommunication services

The term “service providers” signifies the operator (public telecommunication operator – PTO) that enjoys exclusive or special rights for the provision of public telecommunication services (the juridical person is under public control) and other service providers (ROAs).

Government departments intervene in the provision of telecommunication services with regard to the issue of frequency operation permits to private FM terrestrial radio-relay sound-broadcasting services, private radio systems, fixing of telephone charges and the negotiation of loans exceeding FCFA 250 million (as in the case of Mali). Public or private telecommunication services are provided in accordance with the regulations in force.

#### 3.2.1.1 Public telecommunication operator (PTO)

The operator of the public telecommunication network, in a modernized monopoly, remains the one and only provider of basic services. The law lays down the functions, the legislative and regulatory framework for the exercise of the monopoly, and the operator’s terms of reference. In order to fulfill its social objective, the operator undertakes the following functions:

- operation and regulation of the public telecommunication service;
- study, installation and maintenance of telecommunication infrastructure and equipment;
- establishment of telephone, telex and telegraph communications and data transmission;
- installation and maintenance of subscriber systems, introduction and maintenance of new telecommunication services and equipment;
- promotion and sale of telecommunication products and services;
- development, extension and automation of telecommunication networks and services;
- introduction and maintenance of new telecommunication services and equipment, etc.;
- installation and maintenance of subscriber systems.

It is also responsible for:

- research;
- participation in any global, international, regional or national system of communications via satellite, cable, radio relay or any other means;
- acquisition, obtaining and exercise of all licenses, rights and privileges for the establishment of centers and all other telecommunication systems;
- execution of any financial operations necessary for achievement of the social objective;
- taking out any licenses or leases and participation in any operations directly or indirectly related to the operation of the public telecommunication service.

#### 3.2.1.2 Other service providers

##### *State operators of closed networks*

These groups of operators are licensed to operate telecommunication facilities for their specific needs. They are the national defense and security services, civil aviation, the State railways, the State broadcasting authorities and the International Society for Aeronautical Telecommunication (SITA).

##### *Authorized private installers*

Private-sector telecommunication operators supply and install intelligent or de luxe terminals: intercommunication sets and special sets, PABX, etc. The general technical rules and conditions governing subscriber facilities that are connected to the general telephone network and are installed and maintained by private industry are established by an order of the responsible minister.

Other installers, particularly young unemployed graduates who have formed economic interest groups (GIEs), operate private telecentres (telephone and telefax booths), set up in-house installations and help to build small local networks in rural areas or in the provinces.

### 3.2.2 Market structure

In the monopoly modernization model, the market structure is still dominated by a single operator for basic services. In the case of the regulated services referred to above, however, the number of applications for permits is increasing considerably and competition has definitely taken hold in this segment of the market. Finally, it should be said that the marketing of telecommunication products is subject to the general conditions governing imports and exports of consumer goods and to the regulations on telecommunications in force in the Republic of Mali.

### 3.2.3 Regulatory framework

The function of the telecommunication service regulator is performed by the public telecommunication operator. In this regard, the public telecommunication operator is responsible for:

- participating in the negotiation and conclusion of agreements with other bodies with a view to promoting telecommunication development;
- supervising private radio systems;
- certifying installations to be put up by the private sector;
- applying the legislation and international conventions and regulations;
- managing and monitoring frequencies;
- formulating the elements of government policy.

Under the present system of self-regulation, the public operator is responsible for granting permits to private installers and for the certification of telecommunication materials and equipment.

In the field of frequency allocation, the opinion of the departments mentioned in Section 3.2.1.2 is required.

### 3.2.4 Advantages and disadvantages of Model B

#### 3.2.4.1 Advantages of Model B

The advantages of Model B can be gauged from an analysis of the performance of the public telecommunication operator. This analysis relates to indicators defined by the former CCITT (now ITU-T), which reflect the exact situation of the network in all its aspects.

#### *Service quality*

The quality of the services offered to customers is constantly improving. This reflects the action taken on the following four indicators:

- speed of fault clearance;
- signaling rate;
- connection waiting time; and
- completion rate in local, national and international traffic.

#### *Staff productivity*

The number of technicians per 100 lines, which was one of the highest in Africa, is steadily falling with the increase in the total number of telephones.

#### *Financial situation*

Analysis of indicators such as capital and reserves, the ratios of total debts (short-term and long-term), permanent capital (proportion of fixed-asset working capital), and outstanding claims and available funds (liquidity position) has shown that the enterprise is in good financial health and expanding vigorously.

#### *Progress of the investment programme*

The investment plan is being carried out effectively in accordance with the objectives set in the plan contract signed by the public operator and the State:

- modernization of infrastructure;
- extension of the network;

- provision of service for rural areas;
- introduction of new technologies and new services.

The system has encouraged the introduction of new services and the emergence of a whole range of new technologies. Examples of new services are cellular telephones and use of the Internet. New technologies include VSAT, Inmarsat, optical fibres, etc. In Mali's view, one advantage of the model has been that the operator is left free to choose the technology to be used in the infrastructure it proposes to install.

It may be estimated that over 80% of the programme has been implemented.

#### *Commercial objectives*

As far as the commercial objectives with regard to billing, dispatch and collection times are concerned, periodic checks are made and show a significant improvement in the situation.

#### *Financing of projects*

In Model B, the rate of self-financing may reach 70%.

#### *Institutional aspects*

- change in the mode of management from a State system to a private one;
- existence of a plan contract between the operator and the State and of a three-year investment plan;
- existence of a legal framework for the settlement of official telephone bills.

#### **3.2.4.2 Disadvantages of Model B**

- it is to be feared that since the State controls 100% of the capital, it may have a stranglehold, and also there may be delays in the payment of its telephone bills;
- external funding requirements are still enormous, and approval has to be sought from the authorities when arranging loans;
- internally, customs duties and taxes are excessive, which leads to relatively high telephone charges;
- under the regulatory system, charges and tariffs are fixed by the State. When concluding contracts, it is necessary to follow the procedures for public contracts.

In view of the pace of technological change, there should be a periodic review of the texts governing relations between the operator and approved private-sector installers.

In practice, several private installers are active in the field of office automation and computerization and are involved in the installation of servers using the public data transmission network.

In light of these findings and of practical experience, it will be necessary to carry out a periodic revision of the legislative and regulatory texts in order to adapt them to new situations. This process should lead in the long term to the separation of the regulatory and operational functions.

As liberalization of certain areas of activity is under discussion, it is desirable to set up machinery independent of all agencies involved in the sector. This machinery would have the necessary powers to establish government policy, set the rules governing competition, supervise new actors in the field, including the public operator, and arbitrate between them.

The form of the new regulatory body and its essential functions are set out in the ITU's first report on "The Changing Role of Government in an Era of Telecom Deregulation" and in the African Green Paper.

The next stage after type-B modernized monopoly will inevitably be Model C, which will be welcomed once the objectives for the provision of basic services in urban and rural areas are achieved.

#### **3.2.5 Evaluation of model B**

The changing global telecommunication environment has led most countries south of the Sahara to question the traditional mode of the organization of telecommunications, which has resulted in all kinds of shortcomings and difficulties at the institutional level and in management. The situation may be summarized as follows:

- an outdated telecommunication network;
- countries devoting less than 0.4% of their GDP to telecommunications;

- low collection rate for telephone revenues;
- poor quality of services due to almost total neglect of maintenance;
- lack of qualified human resources;
- unduly heavy administrative supervision;
- low telephone density;
- lack of telephones in rural areas.

The transition from a traditional monopoly system to a modernized monopoly has led to:

- an increase in telephone density: the number of main lines is showing a marked increase and varies from one sub-Saharan country to another;
- universal access and service: network availability, higher quality of service, modernization of existing infrastructure and introduction of new technology, cellular telephony, satellite and VSAT domestic communication networks, rural telephony system, installation of a wide network of telephone booths, etc.;
- the opening up of rural areas;
- an improvement in the company's finances and accounts;
- an increased contribution to the State budget through taxes and duties;
- improvement of management and operating skills;
- self-financing of development projects, the level depending on the targets set by the operator (40% on average).

Model B is certainly commendable, but cannot claim to be a universal remedy. The important point to note is that it is an effective stimulant to regular growth and sustainable development of telecommunication infrastructure.

It follows that if Model B succeeds in achieving the objectives of meeting demand for basic telephone services, opening up rural or isolated areas, introducing new technology and services, developing institutional structures, etc., it will help to ensure that the transition to Model C occurs without adverse consequences.

The question that remains is to determine the level of the above indicators. Each country will have to decide in the light of its own situation whether the level is such as to allow a change of course.

### 3.3 Model C – Limited competition

#### Germany: Country Example

The posts and telecommunication sector in Germany and in many other countries worldwide was subject to a process of change in the form of regulatory reorientation.

The main aspects of the two reforms of posts and telecommunications were the change to the constitution and the law concerning the reorganization of Posts and Telecommunications, transferring the Deutsche Bundespost enterprises which had previously been public law entities into joint stock companies.

NOTE 1 – The following countries made contributions on this model: France, Germany, Guinea, Hungary, Netherlands, Portugal, Slovak Republic.

NOTE 2 – The country example of Germany described under this model refers to the situation prior to January, 1998.

#### 3.3.1 Telecommunication services

Anyone has the right to provide those telecommunication services which were offered by Deutsche TELEKOM AG, except for the public switching of voice via fixed or switched connections. These providers are not subject to any restraints with regard to market access, they are only obliged to register. This is to serve the purpose of giving a survey of development in the telecommunication services market which is accessible to the public.

The number of registered telecommunication service providers rose from 66 in early 1991 to 1,063 in July 1996. If the licensees in the field of mobile and satellite communications are not counted, there are, at present, 970 registered providers of telecommunication services.

Since 1989, the markets for telecommunication terminal equipment have been completely open to competition. The decision was based on the assumption that competition in the entire terminal equipment market constitutes the best possible solution from the overall economic point of view.

### 3.3.2 Market structure

The reforms resulted not only in organizational changes in that the enterprises no longer fulfilled sovereign tasks but also in the fact that steps were taken towards the opening of certain telecommunication market segments.

#### 3.3.2.1 Monopoly area

In the monopoly area (switching of voice for third parties, setting up and operation of transmission paths), the federal government's monopoly rights as defined by law were exercised by Deutsche TELEKOM. In principle, private providers were not allowed to access this market.

In the fringe areas of the monopoly, the federal government issues licenses to private providers which can offer specific services, defined in their respective licenses, in competition with Deutsche TELEKOM. These services were particularly the mobile and satellite communication services.

All other services were not part of the monopoly scheme. Anyone was free to enter the market.

#### 3.3.2.2 Limited or open competition

The "Concept of the Federal Government for the Restructuring of the Telecommunications Market" issued in 1989 provided for the opening of markets in the fringe areas of the monopoly. At the same time, this was to serve the purpose of fostering technical innovation and competition, especially in the field of mobile communications.

##### *Mobile communications*

The first step towards liberalization was the award of a license for digital cellular mobile communications to Mannesmann Mobilfunk GmbH in February 1990. The fact that this market was opened through the admission of a competitor to Deutsche TELEKOM resulted in a rapid increase in the number of subscribers. In mid-1996 more than 2.5 million subscribers were already connected to the German cellular mobile communication networks. Another 800,000 subscribers still use the analogue network.

The issue of the E 1 license – another nationwide license for digital cellular mobile communications – in the spring of 1993 to E-Plus Mobilfunk GmbH meant that another step was made towards the opening of the communication markets and towards intensified competition.

Since April 1991, more than 90 regional trunked mobile radio licenses have been granted; in May 1994, a nationwide mobile data radio license and in July 1994 two additional nationwide radio paging licenses were awarded.

##### *Satellite communications*

The fact that licenses were issued for satellite communications in the Federal Republic of Germany meant that competition spread to another promising growth area. Due to its technical characteristics, satellite communications is particularly suited for the short-term development of a diversified and cross-border telecommunication infrastructure. Apart from licensing, other measures were also taken to achieve liberalization.

Since 1 May 1992, the Federal Republic of Germany has allowed so-called "competition among signatories", i.e., the operators of satellite networks can acquire space segment capacity from all signatories which are members of international satellite organizations.

Moreover, an important prerequisite for the setting up of pan-European satellite networks was the introduction of a procedure for the mutual recognition of satellite communication licenses between France, Great Britain, the Netherlands and Germany. Enterprises wishing to operate satellite networks in these countries may contact a regulatory body of their choice which will then do all the coordination among the members with regard to approval.

By the end of 1996, more than 50 domestic and international enterprises held a license for the provision of satellite services in the Federal Republic of Germany.

##### *Concept corporate networks*

In early 1993, regulations included in the "Concept for Approving Corporate Networks" went into force on the basis of which authorizations are granted for the switching of voice between closed user groups. This meant that services of this kind could be provided as competitive services not only by Deutsche TELEKOM, but also by private providers.

The Concept allows the switching of voice for third parties in all cases in which a service is offered to the public but not commercially within the meaning of the EC Services Directive, i.e.:

- by way of general licenses if the group of subscribers to which the service is offered can definitely be considered from the start as a closed user group and not as part of the general public, or
- by way of individual authorizations if it is necessary to establish beforehand that the group of subscribers concerned is a closed user group.

Corporate networks offer the possibility of implementing innovative telecommunication applications – also in the field of integrated voice and data communication – and at the same time to make use of features which public telecommunication networks cannot offer as yet or not at all.

Any other value added telecommunication service, not including the switching of voice for the public and terminal equipment have been defined as markets which anyone can freely access.

### 3.3.3 Regulatory framework

As a result of the Posts and Telecommunications Reform I, by which the sovereign tasks were separated from the operational tasks, the Federal Minister of Posts and Telecommunications has to oversee the owner's interests and regulatory matters. As regulator, the Minister is, above all, responsible for equal-opportunity competition, in a way acting as a referee vis-à-vis all market players involved.

The major regulatory tasks fulfilled by the Federal Minister of Posts and Telecommunications until the end of 1997 comprised the following closely interlinked areas:

- Regulation by setting legal rules to protect customers and competitors,
- Regulation for the purpose of safeguarding infrastructure,
- Regulation for the purpose of delimiting monopoly areas,
- Regulation with regard to the opening of markets,
- Behavioral regulation and regulation for the purpose of preventing and abolishing restraints of competition,
- Regulation of quality,
- Tariff regulation,

Regulations concerning the federal government's network and voice telephony monopoly

With regard to the federal government's network monopoly, the regulatory provisions deal with the functions of the network monopoly, the provision of transmission paths, the creation of equal opportunity between Deutsche TELEKOM and private users, the determination of rates for the provision of transmission paths as well as the use and interconnection of transmission paths.

In the field of the federal government's voice telephony monopoly, the regulations include not only general principles concerning the difference between the telephone service and other telecommunication services, it also comprises principles concerning the regulation of the telephone service and the telephone network, principles concerning the creation of equal opportunity in the use of the telephone service and the telephone network, and also other principles.

At the same time, the existence of the regulatory provisions governing the network and voice telephony monopoly also means that major EU laws have been implemented into national law. In this context, particular emphasis needs to be put on the regulations concerning Open Network Provision (ONP).

The coexistence of Deutsche TELEKOM's monopoly and competitive services rendered the creation of equal-opportunity competition particularly difficult. Clear regulations needed to be established in order to prevent the dominant enterprises affecting their rivals' business activities by abusing monopoly power.

Regulation of the quality of services offered by a monopoly enterprise is necessary to complement tariff regulation, without which the regulated enterprise could escape price regulation by reducing quality standards.

The Federal Minister of Posts and Telecommunications must approve Deutsche TELEKOM's monopoly tariffs in consultation with the Federal Minister of Economics.

Not only are the telephone service tariffs particularly important for the economy, but also the tariffs for leased lines which Deutsche TELEKOM provided to users on the basis of the transmission path monopoly that exists in the Federal Republic of Germany until the end of 1997, because it could be over these leased lines that telecommunication services were offered by private companies.

Frequency management is meant to establish transparent distribution mechanisms on the basis of which radio spectrum is allotted, taking into consideration overall economic aspects.

As regards competition in the field of public mobile radio frequencies that can be used nationwide, services could be provided in the 900 MHz as well as in the 1800 MHz band which made it possible to issue licenses for two GSM-operated land mobile radio networks (networks D1, D2) and another network operating in the DCS 1800 standard (E1 network). The required frequencies were coordinated and assigned within the framework of further licenses granted to private network operators of public land mobile and data radio networks. With regard to public trunked mobile radio networks of private mobile radio frequencies were assigned to 90 network operators which run more than 200 sites in the whole country.

### **3.3.4 Advantages/disadvantages**

The model of 1989 was the optimum that could be politically achieved at that time. It was clearly a transitional model on the move to full competition. For the first time in Germany, new services could be established and financed by the private sector. The experience gained in the competitive area was encouraging and made further steps possible. The second reform in 1994 introduced more liberalization and transformed the incumbent operator into a joint stock company, which meanwhile successfully undertook the initial public offering (IPO). The main disadvantage at the very beginning was indeed the difficult distinction between sectors that permit competition and the monopoly sector of Deutsche TELEKOM – to avoid cross subsidies that may have led to unfair competition.

### **3.3.5 Evaluation criteria**

The current model does not allow competition in the basic voice telephony and the network, however, the results in the competitive area were tremendous. Germany has the most GSM customers worldwide. Within just 5 years, the number of subscribers in digital cellular radio has increased virtually tenfold from 265,000 in 1990 to 2.5 million at the beginning of 1996. This makes it clear why liberalization of the mobile radio market is always cited as the example of the economic importance of competition in the telecommunication sector. The tariffs for this service are still moving towards the tariffs of the fixed network. In 1997, the costs were about twice the costs within the fixed network – so there is still room for more to happen. If the customer signs a one year contract with his service provider, the equipment price is often only symbolic. The 3 networks (D1, D2 and E-Plus) have reached nearly nationwide coverage, where two of the networks had been financed completely by the private sector.

As was mentioned in Section 3.3.1, the number of registered telecommunication service providers rose from 66 in early 1991 to 1,063 in July 1996. Not counting mobile and satellite communications, there are, at present, 970 registered providers of telecommunication services (e.g., video conferencing, the Internet, etc). For example, in 1997 most of America Online's European customers, about 300,000, lived in Germany. As of 1997, all 1.5 million T-ONLINE customers of Deutsche TELEKOM had access to the Internet. The tariffs for the use of the Internet are expected to drop, because new service providers can enter the market and offer very favorable conditions to subscribers.

Competition in the terminal equipment market has been above all beneficial to the customer. Equipment has become better and less expensive, and prices continue to go down. The range of equipment offered has become more diversified both from the design and the function point of view.

For several years, it has been evident that the market penetration of fax machines or cordless telephones is experiencing strong growth due to the liberalization of the terminal equipment market.

To sum up, liberalization of the market in Germany has caused tariffs and equipment prizes to drop and hence the subscriber statistics to grow rapidly. New business and investment opportunities have been created and much more is expected in the future with the full liberalization of the European telecommunication market on January 1, 1998.

### 3.4 Model D – Full competition

#### United Kingdom: Country Example

NOTE – The following additional contributions were made under this model: Germany and Japan.

##### 3.4.1 Providers of telecommunication services

Until the early 1980s, the Post Office was, with the exception of one municipality, the monopoly supplier of telecommunication services and systems in the UK. In 1981, British Telecommunications plc (BT) assumed the role of the monopoly supplier. In 1984, both BT and Mercury Communications were granted licenses under the Telecommunications Act of 1984 to run telecommunication systems. A duopoly policy was established, under which no other operators other than BT and Mercury would be licensed to provide fixed link national and international public telecommunications before November, 1990. In 1991, the Government published a White Paper entitled “Competition and Choice: Telecommunications Policy for the 1990s” which marked the conclusion of its duopoly review and terminated the duopoly policy. The telecommunication industry can be broadly divided into three markets for service to end-user consumers:

- network services (connections, calls);
- value-added services accessed via the network;
- terminal equipment in customers’ premises.

There are 160 holders of Public Telecommunications Operator licenses in the UK, and many more providers of telecommunication services. Competition takes a number of forms:

- in the long distance through indirect access to operators such as Mercury, ACC, Energis;
- in the local access market for residential and small businesses competition from cable companies as well as a number of new operators who will be using fixed wireless;
- in the business market in the main metropolitan areas, where a number of operators are installing infrastructure to serve large businesses and the financial sector;
- in mobile telephony, where four operators are licensed.

There is also growing competition in the international telephony market with a number of operators competing to destinations where resale is permitted. The government has also announced that it will grant licenses for additional operators to operate international facilities (presently only BT and Mercury).

There is also vigorous competition in services ranging from Internet service provision to information services. The development of competition in services is supported by healthy network competition.

##### 3.4.2 Liberalization/competition

The telecoms market is one of significant strategic importance to the UK national economy. “Telecommunication services” are defined very broadly in the Telecommunications Act 1984 so the market itself cannot be precisely defined but its turnover is around 3% of GDP. Investment is running at around £5 billion a year, roughly half BT and half the rest of the industry. Ninety-two percent of households have a telephone (84% at the time of privatization) and 60% of households without a telephone use a call box at least once a week. As of October 1995, there were around 124,000 public payphones in operation (up from around 77,000 at privatization).

The telecoms market in the UK is not a single market for a homogenous product but a large number of separate, overlapping markets for very different products. There are different sets of players in different market segments – a mosaic of competition. There are competitors to BT in almost all segments of the market, although to differing degrees and in many market segments BT is still dominant. BT is still the only nationally present operator competing as a vertically-integrated company in all segments of the market.

The development of competition depends on the readiness of existing and new entrant players to seize the opportunities provided, and on their confidence in a fair market regulated, as necessary, by the Office of Telecommunications (OFTEL), the regulator.

The cable operators have been granted an exclusive franchise to provide cable television services in their franchise areas. Without this, it is very unlikely these operators would have made the very large investments they are making in



local infrastructure. Except in the cases of cable television and mobile telephony, there are no restrictions on market entry.

OFTEL and the UK government are committed to a policy of promoting competition in both networks and the services provided over them. Investment in alternative infrastructure is regarded as essential to effective competition.

These policies have been very successful in securing the best deal for the customer by ensuring that the dominant operator is subject to effective and growing competition in a number of areas of the market. This has enabled OFTEL to reduce the scope of the price control arrangements proposed for the period from 1997 to 2001. The price control has been focused on protecting residential and small business customers – in other sectors of the market competitive pressure is delivering better quality and value for money. It is also envisaged that growing competition means that this will be the last such price control as there will be effective competition in a sufficiently large part of the market to make continuing regulation unnecessary.

### **3.4.3 Regulatory framework**

The Telecommunications Act 1984 privatized BT and set up OFTEL. The Director General of Telecommunications is appointed by the Government but is independent and accountable to Parliament. The Director General has a number of duties under the Telecommunications Act; these include, amongst others, duties to promote the interests of consumers, and the maintenance and promotion of effective competition.

Licenses are issued by the Secretary of State but the Director General of Telecommunications is responsible for their enforcement and only he can initiate modifications to the licenses.

OFTEL is fully independent of BT.

A major aspect of OFTEL's work has been the determination of interconnection charges. OFTEL is putting in place a new regime for this under which BT will be required to have separate accounts for its Network and Retail businesses – and will be required to charge its competitors the same price for "wholesale" services as it charges its own businesses.

A second major aspect of OFTEL's role is ensuring fair trading and taking action against the abuse of dominant position. OFTEL's view is that, as competition increases, its role will be increasingly that of a competition authority rather than being involved in detailed regulation of interconnection prices.

OFTEL is also working on proposals for a universal service fund to ensure that such obligations are funded in a transparent and competitive way.

### **3.4.4 Advantages and disadvantages**

OFTEL's goal is to obtain the best possible deal for the customer in terms of quality, choice and value for money. OFTEL believes that this can best be delivered by a fully functioning competitive market. However, OFTEL does not simply regard competition as an end in itself; effective competition is the means to delivering benefits to the customer either in the form of lower prices or in terms of improvements in quality or service innovation. Thus the term "effective competition" carries with it the connotation of more than just a number of different firms operating in a particular market – it carries the notion that the competition between firms should serve to promote economic efficiency in that market.

Ensuring competition is able to develop and flourish in the initial stages requires an independent regulator which has sufficient legal, financial and human resources to carry out its task effectively. There are therefore costs involved in achieving full competition; however, the benefits of full competition far outweigh the costs.

## **3.5 Model E – Global competition**

Customer demands for geographic coverage, flexible options and multimedia services mean that major telecommunication players will continue to pursue alliances and mergers to deliver global services. For example, AT&T of the United States, KDD of Japan and Singapore Telecom founded WorldPartners. They were later joined by Unisource, a consortium of European telecommunication groups. We have also seen France Telecom and Deutsche Telekom acquire a 20% stake in Sprint, the third largest long distance carrier in the United States. Together they formed a joint company, Global One, to provide global telecommunication services. In 1997, Concert, a joint venture between MCI and its parent company BT, offered global telecommunication services and a single point of contact for customer service to multinational customers in over 50 countries.

Despite the fact that global players are already offering their service to global customers like multinational companies, the model of global competition is not yet fully developed. By the beginning of 1998, most of the European Union's telecommunication market, including voice telephony and basic infrastructure, will be liberalized. However, the European regulations adopted in national legislation still allow a variety of alternatives (e.g., concerning foreign ownership). Similar developments may take place in other regional markets, such as that established by the North American Free Trade Agreement (NAFTA).

On a global basis, about 70 Members of the World Trade Organization (WTO) signed an agreement, which becomes effective January 1, 1998, for substantial market opening commitments, including national treatment, non-discriminatory and transparent licensing, separation of the regulator from the operator, and interconnection between domestic and foreign carriers.

The way in which the global mobile personal communication by satellite (GMPCS) operators are organizing the distribution of their service, provides a good illustration of strategic partnerships. Strategic partners representing leading telecommunication service providers and equipment manufacturers have taken equity stakes in these systems. Strategic service providers will either directly provide service or form local joint ventures. The service providers will have the exclusive right to offer service in their operating areas. In return, they will have to obtain the necessary regulatory clearance. GMPCS have some characteristics that, taken together, distinguish them from previous wireless systems: they are global or regional, mobile, and predominantly private in ownership rather than essentially governmental or intergovernmental in ownership and control. They are expensive and complex to develop and implement – and thus in practice require assembling broad international financial and operating consortia.

NOTE – 1996/97 World Telecommunication Development Report. p. 33. *Global Mobile Personal Communications Systems (GMPCS)*, Report of the Third Regulatory Colloquium, (ITU, Geneva, November, 1994), p. 15.

The services typically offered by the prospective GMPCS operators are voice telephony, facsimile, data transmission at high speed, geopositioning and two-way messaging (“RDSS”), and global paging, depending on the specific systems. But each of the systems will differ in what it offers to customers. Nevertheless, the systems are likely to be highly competitive with each other, and, subject to affordable tariffs, they may also compete with and/or complement the existing analogue or digital cellular networks and services.

## 4 Providing universal service

One of the aims of telecommunication legislation should be to ensure that the public has access to basic telecommunication services at a reasonable cost. Typically, universal service refers to access to telecommunication as part of the right to communicate and to the need to ensure that the regulatory process brings about universal geographical availability, equitable treatment through non-discriminatory access and accessible cost. The regulatory body should focus attention to the ways to implement universal service requirements from a legal perspective as well as the services covered (for example, basic telephone service).

NOTE – The Blue Book, p. 14 – paragraph 62.

### 4.1 A dynamic and evolving definition

Internationally universal service has no fixed definition or, rather, it has been defined in different ways in different countries. Indeed, there are even different terms such as public service obligations, community service. Generally, universal service provision has meant the extension of telecommunications to remote and rural areas of countries so that everyone either has the option of having a telephone or is in easy reach of one. In some countries, universal service obligations include provision of service to the disabled and elderly as well as the under-privileged in urban areas.

NOTE 1 – Sections 4.1 – 4.5 have been taken from the contribution of Inmarsat to Study Group 1.

NOTE 2 – The European Commission has said “the essence of universal service is access to and the provision of a defined minimum service of specified quality to all users at an affordable price, irrespective of their geographical location.” See Proposal for a Council Resolution on universal service principles in the telecommunication sector. COM(93) 543 final (Brussels, 15 November, 1993), p. 15.

The Report of the Independent Commission for Worldwide Telecommunications Development published in 1984 set a universal service objective, a challenge for the early part of the next century, of a telephone within easy reach of all

mankind. If “easy reach” in this context has been interpreted as within one day’s walk, it has not adequately taken into account the ubiquity of mobile satellite services.

NOTE – *The Missing Link*. ITU (Geneva, December, 1984), p. 5.

Many people no longer regard provision of a telephone as a sufficient basic service. With the advent of the Internet, many policy-makers now think access to the Net, e-mail and data communications should form part of the right to communicate (see Note 1). The Council of the European Union has said “the concept of universal service must evolve to keep pace with advances in technology, market development and changes in user demand” (see Note 2). In its Voice Telephony Directive issued in December 1995, the European Commission identified the scope of universal service obligations within the Union as the provision of a telephony service, allowing fax and modem operation, as well as the provision of operator assistance, emergency and directory inquiry services, and the provision of public payphones.

NOTE 1 – A government-sponsored report said Telstra’s universal service obligations should be upgraded to include Internet, fax connectivity and V.34 “smart” modem access, if rural Australia was to remain economically competitive, according to a story in *The Australian Financial Review*, 23 May, 1996. The Rural Australia Online report was commissioned by the Rural Industries Research and Development Corp.

NOTE 2 – European Council Resolution of 7 February, 1994 on universal service principles in the telecommunications sector.

Given the prevalence of illiteracy and low incomes in some developing countries, however, Internet access may be a much more distant goal than access to plain old telephone service. An important distinction has been made between the availability and affordability of service (see Note 1). The European Commission has said, “Affordability is crucial to the extension of telecommunication service to every citizen” (see Note 2). In Europe, it is a fundamental responsibility for national regulatory authorities to ensure that universal service is affordable for all groups of users (see Note 2).

NOTE 1 – *The Changing Role of Government in an Era of Telecom Deregulation*: Report of the Second Regulatory Colloquium, (ITU Geneva, December, 1993), p. 7.

NOTE 2 – Universal Service for Telecommunications in the Perspective of a fully liberalised environment: Communication from the European Commission. COM(96) 73 (Brussels, 13 March, 1996), pp. 6 and 10.

With the advent of competition in a liberalized environment, there will be more pressure on incumbent telecommunication operators who have usually charged their subscribers the same tariffs no matter where they lived (i.e., geographically averaged tariffs). New competitors may concentrate on providing service in the most profitable areas (i.e., the cities), which may force the telecommunication operator to raise tariffs in non-urban areas. While some re-balancing of tariffs is probably inevitable, regulators will need to ensure that any differences in pricing between high cost areas and low cost areas do not endanger the affordability of universal service. The European Commission has told its member States that they “should ensure appropriate measures are taken (e.g., price caps, targeted tariff schemes) necessary to maintain the affordability of services for all users”.

NOTE – Universal Service for Telecommunications in the Perspective of a fully liberalised environment: Communication from the European Commission. COM(96) 73 (Brussels, 13 March, 1996), pp. 11 and 21.

Even if it is highly unlikely that we will meet the challenge set by the Maitland Commission, there is nevertheless a significant new interest in ensuring universal service, especially including the provision of communications to remote and rural areas.

## 4.2 Universal service benefits

The benefits of extending telecommunications to remote and rural areas of countries – developed and developing – are now widely recognized. Some examples include:

- Extending telecommunications to remote areas helps link people together and provide a means of contact between families and friends separated by distance. With 70% or more of populations in developing countries living in rural areas, political leaders increasingly see universal service as a political priority in uniting their country.
- Farmers are able to obtain information which can help them produce and sell their crops.
- Telecommunications provides a means of extending social services such as health care and education to those who otherwise might have to move to urban areas to get them. In other words, telecommunications can help slow or even reverse migration to the cities.

- Telecommunications is a necessary and basic infrastructure requirement for companies and industries interested in developing a country's natural resources, such as oil, gas, forestry, etc., which in turn increases employment opportunities.
- The availability of telecommunications improves security. Citizens at risk or in an emergency can call the police for help. Civil guards, customs and immigration officials can more effectively monitor remote border points and they too can call for assistance when necessary.
- Telecommunications plays a vital role in environmental protection. They can be used to monitor pipelines and river levels. Mobile telephones can assist park and forest rangers locate missing persons, as well as help in their struggle against poachers and illegal felling of trees.
- Disasters – whether natural, such as volcanic eruptions, floods, earthquakes or man-made such as oil spills, radiation leakages, forest fires – often occur in remote areas. Telecommunications can help mitigate the destructive consequences.

### 4.3 A political priority

The telephone has been described as “essential for citizenship”. The growing awareness of just how important the telephone has become to enfranchisement, in daily life, in social and economic growth, has undoubtedly contributed to universal service having become a political priority in many countries.

NOTE – Milne, C. “Opening the debate on universal service in the UK” in *Telecommunications Policy*. (1991, 15/2), pp. 85-87.

The European Union has identified the application of universal service as a major goal and called upon member States “to establish and maintain an appropriate regulatory framework and set appropriate targets ... in order to ensure ... universal service throughout their territory” (see Note 1). The European Commission has said this goal is “an essential condition for maximizing the contribution of the telecommunication sector to overall economic growth, social well being and cohesion in the Community” (see Note 2).

NOTE 1 – European Council Resolution of 7 February, 1994 on universal service principles in the telecommunication sector.

NOTE 2 – COM(93) 543 final (Brussels, 15 November, 1993), p. 11.

At the G-7 Summit on the information society held in Brussels in February 1995, participating ministers identified “ensuring universal provision of and access to services” as one of the eight core principles behind the realization of their common vision of the information society.

NOTE – COM(96) 73, (Brussels, 13 March, 1996), p. 16.

The ITU sent a telecommunication sector structure survey to its member countries in 1995 and 1996 and several questions concerned universal service. Over 100 countries responded to the section on universal service. Sixty-eight said they had a definition of universal access to basic services, which generally meant basic telephony, telex, accessibility of telephone services in populated areas, public payphones. Seventy-nine said they had some form of universal service obligation on the telecommunication operators now, such as quality of service, expansion and improvement of the network and interconnection. Several said the public service obligations were included in the contract between the government and the operator.

Some countries such as Mexico and Brazil have set political priorities of extending communications to all villages and towns of more than 500 people.

NOTE – See contribution of Brazil to ITU-D Study Group 1.

### 4.4 Who should be entitled to universal service?

Universal service provision generally means extending communications to those in remote and rural areas, as noted above, but the concept is being extended in some countries to include other user groups with special needs, such as the disabled who might, for example, benefit from text or videophones (in the case of the hearing-impaired). In some countries, the elderly are given special discounts. Low income groups sometimes also benefit from discounts if they use the telephone service only a little. For those on long waiting lists and the homeless who cannot afford basic telephone service might be offered a voice mailbox.

The precise groups to benefit from universal service obligations vary (and will vary) from country to country, but generally it is those groups which are uneconomic to serve and which require some subsidizing. Not everyone in remote

and rural areas requires a subsidy. There are individuals or groups such as ranchers or plantation owners who might have to pay more than consumers in cities, but they can nevertheless afford the service.

NOTE – “Just because a potential telephone customer, even a rural customer, is not receiving telephone service today, this should not automatically be taken to imply that a subsidy is needed for that particular customer or category of customers.” *The Changing Role of Government in an Era of Telecom Deregulation*, Report of the Second Regulatory Colloquium (ITU, Geneva, December 1993), p. 54.

#### 4.5 Financing universal service

While the benefits of universal service are relatively easy to identify, it has been rather more difficult to find a way of financing them, mainly for the obvious reason that it has been much more expensive to provide a telephone line to a subscriber in a remote area compared to his cousin in the city.

It has been customary for State telecommunication monopolies to subsidize the use of the basic local telephone service from other telecommunication sources. This has been the main philosophy for financing the implementation of, or attempts to achieve, universal service. Such cross-subsidization occurs between:

- different services (e.g., from long-distance and international to local communication services);
- different user groups (e.g., from commercial to residential users); and
- different geographical areas (e.g., from urban to rural areas).

NOTE – “Just because a potential telephone customer, even a rural customer, is not receiving telephone service today, this should not automatically be taken to imply that a subsidy is needed for that particular customer or category of customers.” *The Changing Role of Government in an Era of Telecom Deregulation*, Report of the Second Regulatory Colloquium (ITU, Geneva, December 1993), p. 54.

If a country decides to privatize the monopoly telecommunication operator and at the same time to allow competition in all or certain services, it has to consider carefully how it will continue to ensure or promote the goal of universal service. If there are no rules for market entry and for the provision of certain services, it is possible that new entrants may wish to engage in cream-skimming. For instance, competition will occur primarily in the long-distance markets, whereas universal service focuses on local service. It is a well-known fact that installing and maintaining a local network is substantially more expensive than establishing a long-distance system. Therefore, if new entrants have no responsibility to provide universal service but can attract long-distance customers away from the local operator, the resources allocated to subsidizing the local service will shrink.

There are different approaches to financing universal service obligations, some of which are as follows.

##### 4.5.1 A condition of license (internal revenue transfers)

In some countries, the telecommunication operator must provide service to rural and remote areas as a condition of its license. This generally means the urban subscriber is used to cross-subsidize the rural subscriber or revenues from long distance or international calls are used to offset the cost of providing service to the rural subscriber. The government may set specific targets for the telecommunication operator regarding how many lines are expected to be installed each year.

##### 4.5.2 Interconnection charge

In countries where there is competition, the government may require the new competitors to pay certain charges in order to interconnect with the dominant telecommunication operator and some or all of those charges are used to provide services to rural areas.

The European Commission envisages payments being made by competitors either into an independent universal service fund at a national level which would make payments to operators providing universal service or directly to operators providing universal service as an additional payment to the commercial charges for interconnecting with their network.

NOTE – European Commission’s Proposal for a Directive on Interconnection, COM(95) 379 (Brussels, 19 July, 1995), at p. 21: “Where a Member State determines...that universal service obligations represent an unfair burden for an organisation, it may establish mechanisms for sharing the net cost of the universal service obligations... Contributions to the cost of universal service obligations may be based on a mechanism specifically established for the purpose and administered by a body independent of the beneficiaries, or may take the form of a supplementary charge added to the interconnection charge... Organisations with universal service obligations shall...calculate the net cost of such obligations... The calculation of the net cost of universal service obligations shall be audited by a competent body, independent of the telecommunication organisation.” Annex III of that document provides the Commission’s method for calculating the cost of universal service obligations.

### 4.5.3 Pay or serve

In some countries, telecommunication operators have the choice of either paying certain charges (for example, into a universal service fund) or providing the service directly themselves.

### 4.5.4 Licensing new entrepreneurs

In a variant of the pay or serve case, some countries may give the (typically dominant) telecommunication operator the choice of either providing service to rural areas or letting some other (typically small) private entrepreneurs provide the service. Where the telecommunication operator has to cope with long waiting lists in urban areas, it may be willing to let others provide telecommunication services, especially if they are small local entrepreneurs who do not pose a competitive threat.

### 4.5.5 Government subsidy

In some countries, the rural subscribers pay only a fraction of the true cost of service. The government may subsidize the cost of rural service from its tax revenues. It has been argued that the socio-economic benefits of universal service are so positive on the functioning of the economy and the reductions in social costs associated with the criminal justice system, healthcare and other public service that universal service could be funded through general taxation rather than from within the telecommunication sector.

NOTE – “The socio-economic benefits of a universal telephone network” by Stephen Graham, James Cornford and Simon Marvin in *Telecommunications Policy* (January-February 1996), at p. 10. On page 4 of the same article, the authors also argue that focus on regulatory economics and the technical debate about the costs born by telecommunication companies in meeting universal service obligations have tended to ignore the potential wider benefits that truly universal telephone networks might bring to the economy and society.

No matter how universal service is financed, there should be transparency. In its proposal for an interconnection directive, the European Commission says “the calculation of the net cost of universal service should take due account of costs and revenues, as well as economic externalities and the intangible benefits resulting from providing universal service ... costs of universal service obligations should be calculated on the basis of transparent procedures ...[and] financial contributions related to the sharing of universal service obligations should be unbundled from charges for interconnection”.

NOTE – COM(95) 379 (Brussels, 19 July, 1995), p. 14.

Furthermore, the almost 70 countries who have signed the WTO agreement with its regulatory principles agreed that universal obligations will not be regarded as anti-competitive *per se*, provided they are administered in a transparent, non-discriminatory and competitively neutral manner and are not more burdensome than necessary for the kind of universal service defined by the Member State.

NOTE – WTO Agreement, February 15, 1997, Regulatory Principles.

The Report of the Second ITU Colloquium provides that “universal service policy should not only focus on the targets to be achieved (e.g., how widely service should become available in specific rural areas and by what date). It should also consider how cost-effectively resources are applied to achieving those targets.”

NOTE – *The Changing Role of Government in an Era of Telecom Deregulation*, Report of the Second Regulatory Colloquium (ITU Geneva, 1-3 December, 1993), p. 56.

Clearly, these subsidies could initially serve as a means of encouraging the entry of new service providers and of forcing the local operator to be more efficient, but in the long run it could prove harmful to the public interest.

Thus, if competition is to remain transparent, fair and sustainable in the long term, it is worth considering the possibility of shifting from a policy of indiscriminately applied cross-subsidies to a policy of declared subsidies applicable to specific cases, for example the granting of a certain level of service free-of-charge to low-income users, or the construction of networks in areas that are not yet covered.

NOTE – The Blue Book, p. 14 – paragraph 64.

## 4.6 Examples of national policies on universal access/service

### 4.6.1 Japan

In 1977, Nippon Telegraph and Telephone (now known as NTT since its privatization) reached a stage of development at which a telephone could be installed and connected anywhere in Japan. Although the company was privatized in 1980, the NTT Law stipulates NTT’s continuing obligation to provide universal telephone service.

In Japan, funds are collected by issuing subscriber bonds. A “service and equipment charge” is normally levied for circuit installation. In addition, until 1983, purchasing bonds by telephone subscribers who wanted a new and/or other telephone line were compulsory. This system accounted for approximately 55% of the total funds raised under the fifth five-year term of the plan that began in 1953.

In 1991, a system was established to allow local public entities to obtain State subsidies when building steel towers for mobile phone communications, as well as related telecommunication facilities, in designated rural areas. Under this system, the government bears one-third of the cost and the local public bodies bear the remainder, while telecommunication companies naturally pay for running costs.

In order to continue enhancement of telecommunications, the government has decided to complete a nationwide fiber optic network by 2010. To accelerate the creation of this network, the government instituted a low cost financing system in 1995. (This plan will be improved in 1996 – by instituting a no-interest bearing financing scheme to be applied to some businesses.) Meanwhile, among the Japanese carriers linking the country to others overseas, KDD provides an international telephone service to 232 countries and regions around the world.

NOTE – Contribution from Japan to Study Group 1 on “Universal Service”.

#### **4.6.2 The United States**

As a result of sweeping new Telecommunications Act of 1996, universal service will be further stimulated in the United States. The new legislation reflects the U.S. Congress and the Clinton Administration’s clear intent to protect, preserve, and advance universal service for the benefit of all Americans, including those of low income, those living in rural communities, and those with disabilities. The ultimate objective of this portion of the new statute is to make available advanced telecommunications and information services to all regions in the United States. Not only does the law preserve the concepts of quality of service at just, reasonable and affordable rates, it expands the definition of universal service to include advanced telecommunication and information services. Special provision is made for schools, healthcare facilities, and libraries to obtain access to advanced services at a discount. Telecommunication service providers must also ensure that service is usable and accessible by those with disabilities, if “readily achievable.”

The law also provides that each telecommunication carrier that provides interstate and intrastate telecommunication services must contribute, on an equitable and non-discriminatory basis, to universal service. This will change the previous approach to universal service in which the required cost of universal service was levied on the long distance telecommunication carriers, and that cost was distributed among local telephone companies (monopolies) according to the subsidizing rates applicable to them.

Recognizing that the definition of universal service will continue to evolve, the 1996 Telecommunications Act directs the Federal Communications Commission to issue an initial definition of the services that will be financially supported by Federal universal service support mechanisms, and to revisit this definition periodically in the future, taking into account the public interest and the current state of telecommunications. The Federal Communications Commission is currently working with the State and local entities to establish rules to implement this new approach to universal service.

NOTE – Contribution from the United States to Study Group 1 “Summary of the Telecommunications Act of 1996.”

#### **4.6.3 Kenya**

Kenya’s policy on promoting universal service obligations has revolved around dividing the entire country into cells of approximately (at most) 200 square kilometers, assessing and forecasting demand for various services within each cell on a continuous basis, and providing services to meet the identified customer requirements.

As part of universal service obligations, KPTC has continued to provide public telephone service (including telephone booths designed for customers in wheel chairs) and such specific services as free phones for security, fire, ambulance, etc. In general, rural telecommunication services have been subsidized by the profitable investments in urban areas.

However, it is expected that the government’s policy on district focus for rural development (involving allocating an increasing share of available resources for rural development) will enhance the viability of telecommunication investments in rural areas. This will additionally promote the attainment of universal service obligations in Kenya’s rural areas.

#### 4.6.4 India

Under the plan of “every village with a telephone,” at the end of fiscal year 1995, telephones had been installed in 234,000 villages in India. Telephones will be installed in the remaining 345,000 villages over the next five years.

#### 4.6.5 The People’s Republic of China

Under China’s ninth five-year telecommunication plan (1996-2000), the projected telephone diffusion ratio and goal for the end of the term are “one telephone per urban household” and “ensuring all villages in rural areas have at least one telephone.”

## 5 Implementing reforms

### 5.1 Driving forces for telecommunication reform and economic development

Today, it is universally accepted that telecommunications is one of the most crucial infrastructures in the development of a nation’s economy. It is a worldwide perception that the construction of a harmonious telecommunication network through balanced regional development is a prerequisite to increased public benefits and national competitiveness. The principal driving forces behind telecommunication reforms have been technological innovations and entrepreneurial businesses seeking to meet a growing user demand for a wider array of high quality telecommunication services at more affordable rates.

NOTE – The Arab Book, p. 9 – paragraph 33.

Developing countries are aware of the socio-economic importance of the telecommunication sector. This awareness has led them to concentrate on investing in this sector to fulfill basic telecommunication needs as well as to advance information communications. Yet, it is still true that many countries are unable to satisfy this demand for basic telecommunications.

NOTE – The Arab Book, p. 9 – paragraph 34.

Governments in developing countries, in particular, are faced with the challenge of effectively harnessing a complex array of technologies and systems which require organizational and financial capabilities that they do not have. Thus, developing countries must provide high-quality basic services to large parts of their population, while many are strapped by foreign debt problems that make public financing difficult.

NOTE – World Bank – Implementing Reforms, p. 67.

Zambia cited the following major factors, apart from world trends, as influencing the move toward telecommunication reform:

- Telecommunication services are commercial and are therefore better placed in the business environment.
- Limited government financing retards infrastructure development.
- Termination of the monopoly and its inefficiencies.
- Creation of an enabling environment for investment in the telecommunication industry.
- Encouragement of manufacturing through removal of government controls and introduction of value-added tax.

NOTE – Contribution from Zambia to ITU-D Study Group 1, Document 1/99 (English only), 15 November ,1995.

No one set of objectives is suitable or adequate for all countries. Each country must establish its own goals according to its own priorities, the situation at the time of reform, the cultural, legal, political and economic circumstances and the pressure for changes. Some countries need to expand their basic telecommunication services and upgrade their quality standards to acceptable levels; others – with greater infrastructure – try to make their systems more updated and wish to provide advanced services by increasing their operators competitiveness to top standards.

NOTE – Contribution from Brazil to ITU-D Study Group 1.

The following section highlights the major driving forces for the implementation of telecommunication reforms and economic development in developing countries.



### 5.1.1 Government leadership

Telecommunication reforms do not occur in isolation from the broader economic and social changes taking place in developing countries. A change in the role of government from predominantly selective (including direct management of utilities) to functional intervention has been a core element in successful reforms. Government disengagement from direct intervention in the economy through control of strategic industries and infrastructure, towards a system driven by market forces and competitive regulation is one of the main conditions for successful restructuring in developing countries.

NOTE – World Bank – Implementing Reforms, p. 70.

Slow progress, and in many cases outright failure, in improving public sector services has put pressure on governments, in developing as well as in industrial countries, to disengage from managing industrial, commercial, and infrastructure activities. Public enterprises typically display some or all of the following characteristics: poor operating performance, unresponsive service, weak financial positions, bloated work force, inadequate capital investments, a cumbersome decision-making process, and distorted prices and tariffs. Generally, it has been recognized that changes in the contractual relationships among stakeholders of State-owned companies are key to overcoming the deficiencies and that these changes can be achieved more effectively through private sector participation.

NOTE – World Bank – Implementing Reforms, pp. 70-71.

It is clear that the amount of investment needed to properly construct, operate and maintain telecommunication networks is something that many governments cannot afford. Current projections estimate that more than US \$600 billion investment will be required for the period 1996-2000 to support known development needs (see Note 1). A frequently cited goal for Sub-Saharan Africa is to raise teledensity to one line per every 100 inhabitants by the year 2000. However, the investment cost per line in Sub-Saharan Africa is far higher than the industry yardstick of US\$ 1'500 per line. If industry standards prevailed, just US\$ 8 billion would be required between now and the turn of the century but some US\$ 28 billion would be needed if the current investment per line costs in the region are taken into account. Consequently, reducing the costs per unit of investment, for instance through competitive tendering or by bulk purchasing, could be equally significant as identifying new sources of funding. Lower unit investment costs would also allow tariffs to be reduced, making telecommunication services more affordable (see Note 2). Multilateral lending and assistance will be able to meet only a small fraction of these requirements, so governments must look to new sources of investment that can be an important catalyst for change.

NOTE 1 – ITU, 1996-97 World Telecommunication Development Report: Trade in Telecommunications, p. A-83.

NOTE 2 – ITU, African Telecommunication Indicators 1996, p. 7.

The political and economic environment of a developing country thus essentially sets the stage for the design of telecommunication reforms. The degree of political commitment to the implementation of these reforms often defines the scope of the reforms in a particular country. Ultimately, the pace of reform and the extent to which its potential benefits can be harnessed, will be contingent on the capability of governments to create an environment that promotes efficiency and enables private investment and initiative. Strong commitments from top levels of government are essential for reforms to succeed.

NOTE – World Bank – Implementing Reforms, p. 71.

The first and most critical step of developing a government policy for the telecommunication industry (or broader information industry) requires the government to clearly establish a set of basic objectives, both short and long-term, for the industry. This macro planning process is not unlike a business entity's strategic plan. This policy document need not cover all aspects of the telecommunication or information industry, however, it should identify and, if possible, quantify a few key government objectives for the industry and delegate certain responsibilities for achieving them. It is imperative that the statement or policy be a public document. The strategic planning exercise should address broad issues such as:

- a set of policy objectives and plans related to commercialization which are integrated with a set of policies and objectives related to liberalization;
- a set of policies, objectives, and related plans to divide responsibility between the minister/ministry/government and the regulatory body for functions such as rulemaking and enforcement, licensing, and management of scarce resources, and for issues such as interconnection oversight and tariff approvals; and

- publicize a government telecommunication policy paper which incorporates some of the above plans and objectives, and includes a description of the relationship between the government and the regulator.

NOTE – *Guidelines on Regulation*, pp. 25, 32 and 54.

The strategic plan should take account of the following factors:

- the social benefits, including improvements in health-care, education or overall quality of life;
- optimal funding arrangements;
- technology that can be integrated easily into the existing network, offer a wide range of applications, lend itself to fairly rapid implementation and be future-oriented;
- tariffs as part of the planning process; and
- continuous monitoring of changing needs and demands.

### 5.1.2 Domestic sectors

An essential element of the sector reform is developing competition, partly by increasing the number of providers of telecommunication services and networks. Competition is likely to create incentives for service providers to be efficient by offering good products at reduced prices, in order not to lose business to rivals. Competition tends to ensure that new, improved services be offered quickly in the interest of the customer. A monopolist is not pressed to innovate since the customer has no alternative, whereas a competitive telecommunication operator cannot delay the introduction of a new technology if it will enhance performance.

NOTE – World Bank – *Implementing Reforms*, p. 71; see also *The Blue Book*, p. 10 – paragraph 37.

Main factors pushing domestic users to demand telecommunication reform have been the new technologies and the need to satisfy growing user demand for a better selection of services at more affordable rates.

Brazil, in its contribution relating to recent changes in its telecommunication sector, indicated that the regulation in force was inadequate to the existing situation since it was conceived under an essentially monopolistic and less diversified market, in a technological stage already widely outdone.

Businesses are increasingly dependent on full access to an emergent “information economics”. In fact, the most intense information industry (public networks, data banks, “home shopping” interactive TV, etc.) is expected to enjoy a significant growth and be responsible for larger shares of many countries’ GNP. This way, efficient telecommunication services will mean competitiveness both within this industry and within its related market, on a global scale.

Companies willing to keep their competitive advantages are faced with ever growing and more diversified demands regarding information processing and telecommunications. International market competitiveness is more and more dependent on effective use of information and access to it, which in turn depends on the relative efficiency of the telecommunication services available in a given country when compared with similar services provided by competitor countries and commercial partners. It may also be conditional on the efficiency with which telecommunications can link the country to other markets and global competitors. So, the way a country deals with its telecommunication services should be somehow influenced by the way these services are internationally provided and regulated. Such regulatory requirements shall allow operators to respond to the imperative and technological evolution, thus offering a varied sort of telecommunication services as demanded by society. However, it does not mean that the social importance of telecommunications should be overlooked. In a country like Brazil, where demand is significantly higher than supply, to expand the reach of basic telecommunication services to the whole of the national territory, at reasonable availability, access and connectivity possibilities plus reasonable prices to all should continue to be the main policy goal.

Given the multiple aspects involved in the question, and the several interests at stake, it is more important that reforms be conducted in a clear, participatory and, above all, determined way. Transparency, participation and determination: these are the common points stressed in inquiries held with private consultants, telecommunication institutions and the ITU.

Another important aspect when approaching this theme is that reform cannot possibly be postponed and the government must see that it be well conducted. The main goal is to deliver good services to society, by ensuring adequate availability, cost and quality standards. At the same time, the process shall be conducted in a way not to squander the current operator’s value.

In this sense, the immediate elaboration and implementation of a restructuring programme for the present State-owned operators gain importance, as it improves their competitiveness, thus permitting their profitable operation in a liberalized and competitive market. This will also ensure that these companies be purchased at fair value when privatized. This programme shall contemplate both organizational and managerial aspects including a significant reduction in their current management restraints.

### **5.1.3 International**

#### **5.1.3.1 Financing institutions**

Financing institutions such as the World Bank assist in the development of telecommunications by creating favorable conditions for private investment. The World Bank is no longer in the business of financing investments by State enterprises (although such financing can still be considered if it is part of a credible sector reform programme). Now, when other sources of funds are unavailable, the World Bank finances projects which create modern telecommunications capable of sustained growth in developing countries. Recent global changes in technology and business practices, show that the key to accelerating telecommunications in developing countries lies in increasing private sector participation and encouraging new entry and competition.

NOTE – Address by Mr. Shiego Katsu, at the ITU's African Regional Telecommunication Development Conference, May 6-10, 1996.

Private investment decisions are based upon assessments of the potential profit to be realized and the degree of risk inherent in the investment. Thus, a country's overall economic, social and political environment and its regulatory framework must be sufficiently stable to encourage investment. Investment will be deterred if there are unacceptable market barriers that limit the commercial opportunities that can be pursued or that otherwise place the new investor or operator at a disadvantage.

NOTE – The Blue Book, p. 46 – paragraph 225 and p. 44 – paragraph 215.

Until recently, many countries relied upon the government-owned, monopoly provider of telecommunications to produce revenues that could be diverted to other, apparently more urgent national needs. The result in many cases has been chronic “under” investment in the telecommunication sector itself, a situation that will seriously handicap a region in realizing the benefits of the new information era.

NOTE – The Blue Book, p. 43 – paragraph 210.

Following tremendous borrowing in the 1970s and early 1980s, many developing countries have relatively large sovereign and private external debts that leave little room for new debt financing. Thus, reliance on private foreign investment sources has become much more important. Many developing countries now profess to be open to private investment in telecommunications, including foreign participation, however, the conditions still may not be right to attract investors. Foreign firms are deterred from investing particularly by political risk, possibility of expropriation of assets or profits, foreign exchange controls, discretionary taxation, and restrictions on capital repatriation. Because the key to foreign investment is stability and assurances, this is one of the prerequisite conditions for obtaining financing. To ensure new sources of capital, developing countries must address these issues as soon as possible.

NOTE – World Bank – Implementing Reforms, p. 21.

#### **5.1.3.2 Multilateral organizations**

Multilateral organizations, such as the WTO and ITU, can also be a strong force for liberalization. After three years, multilateral negotiations on the liberalization of telecommunication services, within the framework of the WTO, were successfully completed in Geneva on 15 February 1997. About 70 WTO members, including the European Union and its member states, the United States, Japan and many other countries have committed themselves to opening up their markets on a reciprocal basis.

The negotiations almost failed in April 1996 but at the last moment it was decided to continue with the talks until 15 February 1997. In November 1996, the United States and the European Union both tabled improved offers. Other countries followed their lead or made offers for the first time. Enough countries were willing to make substantial liberalization commitments, so that an accord was finally signed on 15 February 1997.

In this accord, the WTO members pledge to grant foreign telecommunication companies access to their domestic markets and offer them investment and participation opportunities as of 1 January 1998. Furthermore, they will give foreign companies the same treatment as domestic ones, and will guarantee certain regulation and competition principles in their domestic markets. These include interconnection between domestic and foreign carriers, non-discriminatory and

transparent licensing, and separation of operational and regulatory functions. The liberalization commitments have been devised differently for every WTO member, taking account of their particular economic and technical stage of development.

The global market for telecommunication services is valued at more than US \$600 billion and will continue to grow strongly in the years ahead. The signatories to the accord account for more than 90% of world trade in this sector, of which a considerable part will be liberalized, according to the differing degrees of commitment. These commitments cover all forms of telecommunication networks and services, for instance the creation and use of fixed, radio and satellite networks.

NOTE – World Telecommunication Development Report 1996/97: Trade in Telecommunication, p. 1.

In adopting this comprehensive package of about 70 liberalization commitments, the signatories have provided an opportunity for telecommunication operators to expand their activities abroad and to offer new telecommunication services there. In the medium term, phone calls will become cheaper. Increased competition between carriers will also lead to more efficient and better telecommunication solutions, and expected growth in this sector will create new jobs. Furthermore, the successful completion of the WTO negotiations will play a considerable role in the creation of the information society.

Adopting these rules will signal lenders that their investments will be secure and, without security, foreign investment is difficult to obtain. The agreement presents an opportunity and a risk. For those countries signing the agreement, it gives them the opportunity to join the global movement towards liberalization of telecommunications. For those countries not meeting the principles of the agreement, there is a risk that they may have difficulty in attracting foreign capital for infrastructure development.

The ITU, through its specific focus on telecommunications, has also been a driving force for change in the world. If change is sanctioned by an international body, sometimes it can be easier to build a national consensus towards liberalization. The ITU has held, thus far, six colloquia on the “Changing Role of Government in an Era of Telecom Deregulation.” The colloquia represent an important continuing initiative to consider in an informal, expert manner some of the fundamental issues of telecommunication regulation arising from a rapidly changing environment. The first colloquium was held in 1993 and discussed the “Options for Regulatory Processes and Procedures in Telecommunications”. The second colloquium was held in the same year on the subject of “Universal Service and Innovation – Fostering Linked Goals through Regulatory Policy”. The theme of the 3<sup>rd</sup> colloquium, which was held in 1994, was “Global Mobile Personal Communications Systems”. In 1995, there were two colloquia, one on “Interconnection: Regulatory Issues” and the other on “Trade Agreements on Telecommunications: Regulatory Implications”. In 1996, a sixth colloquium was held on the “Regulatory Implications of Telecommunications Convergence”.

The first ITU World Telecommunication Policy Forum (WTPF) was held in 1996 on Global Mobile Personal Communications by Satellite. The results of the first WTPF were presented in the form of opinions for consideration by members. The purpose of the WTPF is to provide a venue where ITU members can discuss and exchange views and information on telecommunication policy and regulatory matters. A second WTPF is planned for 1998.

#### **5.1.4 Technological advances**

It is generally agreed that the telecommunication infrastructure serves a broad public interest because its existence promotes development of the economy at large. Rapid technological evolution in telecommunications has brought great opportunities for expanding penetration, lowering costs, and upgrading services, thus affording developing countries an opportunity to leapfrog into the stages of network development in industrial countries.

NOTE – World Bank – Implementing Reforms, pp. 72-73.

Brazil has conceived its new telecommunication model as a long-lasting one, so that it does not become obsolete by virtue of technical evolution. That means technology will be used not only for providing more options to deliver new services but also to reduce the cost of traditional services while at the same time guaranteeing the quality of such services and the possibility of interconnecting the various systems at their different evolution stages.

NOTE – Contribution of Brazil to Study Group 1.

The need to go global in order to take advantage of the opportunities embodied in technological progress is manifest in the transformation of the traditional State telecommunication operating entities in industrial countries towards global business consortia with increasing transborder investment that aim at providing one-stop shopping for the client. This development is in large measure the result of pressure on competitive efficiency and greater productivity, which require systems to be designed that stimulate service innovation, accelerate diffusion of technical innovations, and improve

responsiveness to customer needs. The effectiveness with which developing countries are able to tap into this world of fast-moving changes, protocols, network architecture and technical standards will significantly affect their ability to carve out international market shares.

NOTE – World Bank – Implementing Reforms, pp. 73-74.

Technological advances are creating dynamics for organizational and institutional changes that have been affecting the management capabilities of industrial and developing countries alike. Basically, technological developments have altered the conditions of entry into the telecommunication sector and the role that governments have been playing in the development of the sector.

NOTE – World Bank – Implementing Reforms, p. 72.

On the supply side, technological advances are generally applied by countries in increasingly competitive markets to meet their own needs. However, the cost of product development, and particularly the cost of software development, to bring the products and services resulting from current and recent technological advances to the market are increasingly moving to demand production economies of scale which require global markets to be addressed.

Increasingly competitive markets moving to a global scale bring new competitors in all industry sectors, driving all industry players to increase efficiency, reduce costs and prices, increase economies of scale, and focus on their customers. They also focus on the needs of their shareholders (who provide much of the financial resources) and on their staff (who provide the intellect and innovation, and the interface with customers). Technology delivers much, but frequently brings a commoditization of many products, the differentiation between them is in the human element, and often provided by the human interface with customers. The people in a modern organization operating in a competitive market have their needs addressed to ensure they are able to make the maximum contribution to the organization.

On the demand side, telecommunications as an industry does not exist in a vacuum, and simply reflects the steady trend towards the globalization of all products and services as cultures are exposed to global influences through the medium of yesterday's technological advances, and the expectations of consumers take on new and common attributes aspiring to and seeking progress towards developed country standards. National commercial enterprises look to regional or world markets, and are sought by other globally or regionally operating enterprises as customers or suppliers. This is all taking place in a commercial environment where increasingly the significant contribution to be made by harnessing the strengths and values of the free market process is recognized.

## **5.2 Legislative reforms**

To ensure that telecommunication reforms are institutionalized, legislative changes are usually required. Some countries, such as Bangladesh, have had long-standing telecommunication laws that date from the past century. The 1934 telecommunication law of the United States survived relatively intact until 1996 when it was overhauled to allow competition in all sectors.

NOTE – Contribution of the U.S. to ITU-D Study Group 1.

### **5.2.1 Constitutional changes**

In some countries, the constitution reserves the telecommunication sector for the government, thus before reforms can be enacted, the constitution must be changed. This was the case in Brazil, which, as a precursor to liberalizing the sector, changed its constitution to allow competition with the government owned entity. The change simply deleted the words that reserved the telecommunication sector to the government. Because changes to the constitution are normally more difficult to get enacted than a normal law, there must be widespread support for liberalization. In Brazil, the President, the Minister of Communications, and the majority of the Congress strongly supported introducing changes in the telecommunication sector. Such support from the highest echelons of government were necessary to begin the overall reform process.

### **5.2.2 Telecommunication legislation**

To implement sector reform, it is almost always necessary for a country to pass some kind of new telecommunication legislation. Each country must decide on the best form for the actual legislation for its needs, as well as the best source of the legislation. The principal legislation taking the form of Acts, Laws or Decrees may originate from the executive branch, for example from the President or the Ministry of Communications, or the Parliament or Congress.

### 5.2.2.1 Scope

Some countries choose to introduce reforms more gradually by passing specific legislation that allows competition in certain sectors of the market. After the change to its constitution, Brazil passed specific legislation opening up the cellular, satellite, and data sectors to competition. Brazil plans to introduce general legislation that will open all sectors to competition, determine the framework for privatization, and set up the independent regulator. Other countries introduce changes by devising an entirely new law that sets forth a different framework for the telecommunication sector in the country.

Telecommunication legislation is most effective when it is broad and when rules and regulations actually set forth the details of implementation. The broader the legislation the better the chance that it will be long-lasting.

Broadcasting, which is handled differently in different countries, can be covered by the general telecommunication law or in separate legislation. For some countries, the transmission of the broadcasting signal falls under the telecommunication law, but content issues are dealt with in other legislation. Consequently, the responsibility of the telecommunication regulator varies from frequency manager to the general supervision of broadcasting, including licensing the service provider.

With respect to cable TV, the legislation may establish parameters and procedures to include, inter alia, the following items, indicating in each case where the responsibility lies (with the regulator, the local or the national authorities):

- who grants the license;
- how the license is granted;
- amount and form of payment of fees, if any, to the licensing body;
- provisions designed to foster competition in the multivideo distribution market;
- provisions on use of channels;
- period of license;
- license renewal conditions;
- ownership conditions; and
- relationship to broadcasting.

The nature and local interest of the cable TV service make it possible for regulation of some aspects of the service to be delegated to local authorities, within the framework of national legislation. It is therefore up to each country to determine the most suitable mix of local and national regulation.

NOTE – The Blue Book, p. 49 – paragraphs 237-239.

### 5.2.2.2 Policy objectives

Universal access/service is often one of the most important objectives of the telecommunication legislation. It is common for universal access/service to be defined in terms of goals to be reached rather than a specific definition, such as a telephone in every village of a specific size or in every home. Other policy objectives that are important to be included in legislation are diversification of services, modernization of networks, operational efficiencies, tariff reduction, transparency and fairness of the regulatory process, and other goals such as equipment manufacturing and regional development policies.

### 5.2.2.3 Establishment of regulatory body

Incorporation of the key objectives for the country's telecommunication industry into the legislative mandate of the regulatory body is a sound approach to passing a clear and concise message from the government to the regulator. Such objectives incorporated into the legislation should be broadly based goals which will remain relevant, notwithstanding the rapid changes in technology. As a result, the legislation will permit a certain degree of flexibility which will permit the regulator sufficient discretion to address issues which may arise due to technological changes in the future. In fact, the need to maintain a flexible and dynamic policy development and regulatory process, in order to effectively address both the rapid technological changes and resulting service offerings, must be an essential feature of both the policy mandate as well as regulatory process.

NOTE – World Bank – Implementing Reforms, pp. 25 and 30.

The telecommunication legislation may also define some of the relationships between the relevant government departments' senior regulators, e.g., the chairperson or the director-general, the minister responsible for telecommunications, the permanent secretary or deputy minister responsible for telecommunications, by specifying the process for

appointing members to the regulatory body or requiring the regulatory body to file an annual report with the national legislature.

NOTE – World Bank – Implementing Reforms, p. 20.

#### 5.2.2.4 Example of legislative framework for liberalization

To demonstrate the complexity of the legislative framework for the creation of a liberalized telecommunication market, a description of the Acts passed by the Hungarian Parliament follows.

##### *Concession Act*

The Act XVI of 1991 on Concession declares that one of the possible ways of efficient operating of State property is the transfer of this right to appropriate companies under concession agreements. In the field of telecommunications, these operations cover the following services:

- public telephone service (PSTN)
- public mobile radiotelephone services
- nationwide public paging services
- national and regional distribution and broadcasting of public radio and television programmes.

The Act on Concession created the possibility of privatizing the telecommunication sector and determined the minimum share of State-ownership.

##### *Telecommunications Act*

According to the Act LXXII of 1992 on Telecommunications the responsibilities of the State are, inter alia, the following:

- development of a national telecommunication policy and the creation of conditions necessary for its implementation;
- control over the telecommunication market; harmonization of concession agreements, assurance of non-discrimination for new entrants and regulation of the activities of incumbents;
- provision of public telecommunication services for disabled people;
- exercising ownership rights over telecommunication property owned by the State;
- fulfillment of authority duties in telecommunications;
- economic, technical regulation and legislation aimed at ensuring the technical and traffic integrity of national telecommunication networks;
- supervision over telecommunication service providers and networks operators;
- taking the necessary actions if the concession agreement is terminated for some unforeseeable reasons before the expiration of the concession period and in case of a breach of the agreement by a concession company.

The Act grouped telecommunication services into two categories:

- i) **concession-based services**, listed in the Concessions Act, where the actual number and scope of concessions issued are defined by the Ministry (KHVM);
- ii) **competitive services**, all other services, where licenses are granted by the unified authorities for the non-concession service providers.

##### *Frequency Management Act*

The control over electromagnetic spectrum for radiocommunications for civilian and government utilization belongs to the State exclusively in Hungary. The Parliament passed the Act LXII of 1993 on Frequency Management, which defines the functions of the Minister of KHVM, inter alia, as follows:

- determination of technical, economic and legal conditions of frequency usage;
- regulation of qualitative, technical and technological conditions for basic technical plans, rules and services relevant to frequency usage;
- exercising State-ownership rights arising from frequency utilization, harmonizing and distributing the use of the radio frequency spectrum, allocating the frequency bands and publishing them;
- representation of the Republic of Hungary in international organizations dealing with frequency management;
- participation in international coordination of technical data on radiocommunications equipment and networks.

*Act on Radio and Television (Media Act)*

The enactment of Act No. I of 1996 on Radio and Television, called “Media Act” was preceded by long debates and was the outcome of a prolonged procedure while widely differing viewpoints and various interests had to be converged. The objective of the Act is to ensure that:

- free and independent radio and television broadcasting considering the freedom of expression;
- the freedom of disseminating objective and impartial information;
- promotion of culture at international and national levels by ensuring its multi-colour expressions as well as by considering the many-sided viewpoints;
- preventing the creation of a monopoly situation in information provision.

This Act must be applied to Hungarian radio and television programs and their broadcasting. The Act provides for, among other things, the establishment of some institutions and authoritative functions to promote its implementation.

Advisory councils and boards have been established by the Acts to promote the fulfillment of their objectives.

*Decrees*

In accordance with the above acts, governmental and ministerial decrees have been issued and are being elaborated. The most important ones that are already in force, inter alia, are listed below:

- The fundamental technical plans on telecommunications (1993)
- Numbering Plan of the Public Switched Telephone Network [PSTN] (1993)
- Structure plan of the PSTN(1993)
- Concession procedure and administration fees for the telecommunication sector (1993)
- Regulation on tariffs of the public telephone services (1993)
- Telecommunication network interconnection, authorization of inter-working and network agreements (issued by the government in 1993)
- Traffic routing plan of PSTN (1994)
- Regulation on tariffs of the public mobile telephone services (1994)
- Establishment of a unified communication authority and amendment of legal regulations on communications (issued by the government in 1993)
- Establishment of organization for governmental frequency management and regulating its activities (issued by the government in 1994).

**5.3 Structural reforms**

With the advent of liberalization, telecommunication reforms thus far mainly involve some degree of change along each of four directions: commercializing and separating operations from government; increasing the participation of private enterprise and capital; containing monopolies, diversifying supply of services, and developing competition; and shifting government responsibility from ownership and management to policy and regulation. This has been true for developing as well as industrialized countries.

NOTE – World Bank – Implementing Reforms, p. 3.

**5.3.1 Commercializing operations**

Many telecommunication entities in developing countries have been part of State monopolies that also provide postal services and in most cases regulatory functions. In the majority of cases, the telecommunication sector subsidizes postal services, at the cost of telecommunication expansion, modernization and diversification. The sector is generally characterized by high production costs (which is normally passed over to the customer in high tariffs) and long waiting lists for various services. Clearly, the establishment of separate and autonomous entities to provide postal, telecommunication and regulatory services respectively should stimulate telecommunication development and promote the attainment of universal access/service obligations.

To operate more efficiently, telecommunication operating entities perform best when they are run as a commercial business – irrespective of who owns them. Many State-owned entities are being reorganized along the lines of commercial companies. State-owned entities are transformed into companies or are allowed similar freedoms, incentives,



and discipline of commercial enterprises. Their internal organization and management is also improved to allow for cost and profit centers, subcontracting to more efficient entities, and better commercial accounting and management information systems.

NOTE – World Bank – Implementing Reforms, pp. 3-4.

There are a number of different actions that may be taken to restructure the sector. Some possible steps are:

- Dividing an existing nationwide monopoly into separate entities with limited geographic service regions or offering different services;
- Providing by law that new services (or new technologies) will be outside the scope of the existing monopoly, enabling new operators to provide these services on a competitive basis;
- Authorizing the existing network operator to subcontract certain areas or services to third-party service providers;
- Entering into build-operate-transfer (BOT) arrangements (or a variation thereof) with an experienced third-party operator, ensuring that that expert support is available to train personnel and to supervise the start-up operations.

Actions of this nature are necessary to encourage new service providers, with new sources of capital, to enter the telecommunication market.

NOTE – The Blue Book, p. 45 – paragraph 219.

### **5.3.2 Increasing private sector participation**

#### **5.3.2.1 Private sector investment**

Private investment is one possible source of telecommunication financing that may be appropriate for an individual country's requirements. Until recently, many countries relied upon the government owned, monopoly provider of telecommunications to produce revenues that could be diverted to other, apparently more urgent national needs. The result in many cases has been chronic under-investment in the telecommunication sector itself, a situation that will seriously handicap countries from realizing the benefits of the new information era.

NOTE – The Blue Book, p. 43 – paragraph 210.

Private participation in the telecommunication sector may occur by allowing private parties to invest in the existing telecommunication operator(s) or through allowing privately owned entities to offer services (facilities based or otherwise) in the marketplace. In either case, new funds will be available to expand the sector. New investors and competitive providers will seek operating efficiencies through cost controls, thus, stimulating the introduction of new technology to benefit the public.

NOTE – The Blue Book, p. 43 – paragraph 212.

The decision to introduce private investment (especially through the sale to private investors by the government of a controlling share of a sole incumbent provider or the grant of an exclusive license to provide critical public telecommunication services) gives the government the chance to match its telecommunication needs with the development plans of investors. Governments frequently impose certain obligations on an exclusive licensee, such as building out the network on an agreed schedule, to justify its exclusivity, whereas open competition by multiple providers may more naturally lead to satisfaction of these consumer needs. Issues that must be addressed include:

- Level of investment required to meet public/social needs;
- Projected time table for recovery of investment by the provider;
- Ability to accommodate competition in other subsectors of the telecommunication market during the recovery period; and
- Termination date of any period of exclusivity and actions needed to ensure smooth transition to competition.

NOTE – The Blue Book, p. 44 – paragraph 213.

The government's objective in its discussions with prospective investors must be to limit the scope of exclusivity, both in time and nature of services involved; to clearly define the investment and service obligations assumed by the licensee; and to protect its ability to revoke the exclusive license if the obligations are not fulfilled. If clear conditions are established in this process, a firm foundation may be built for the introduction of full competition at a date certain in the future.

NOTE – The Blue Book, p. 44 – paragraph 214.

### 5.3.2.2 Privatization

When a country decides to privatize a company, it normally considers a number of factors, one of which is the degree of national control that will be required at the end of the process. The State itself may conclude that it wishes to maintain a measure of control over the company and, ultimately, to establish certain conditions relating to its participation.

NOTE – The Blue Book, p. 13 – paragraph 59.

In any event, it is necessary to decide on how, and on the procedures according to which, the government or regulatory body will check that the privatized company is fulfilling the commitments made during the privatization process. In addition, clear tariff policies must be established. It is also important to establish clearly the mechanisms by which State power is to be retained with respect to participation in intergovernmental organizations.

NOTE – The Blue Book, p. 13 – paragraph 60.

The significance of privatization is to obtain for the public the full range of benefits of the incentives that drive competitive private enterprise – innovation, efficiency, responsiveness to user needs. Privatization has demonstrated considerable potential for attracting capital and management as well as overcoming administrative and other public sector constraints. Privatization is not always a feasible option, however, nor does it by itself guarantee improved sector performance. The following summarizes some of the main issues of privatization.

NOTE – World Bank – Implementing Reforms, pp. 44-45.

Privatization is a complex process of introducing private capital and know-how in telecommunication operations, and there is more than one way to time and sequence this process effectively. If privatization is chosen, the following facets of the privatization process can be distinguished:

- Separating telecommunication operations from non-telecommunication activities (for example, posts, manufacturing);
- Corporatization, i.e., restructuring telecommunication operations as an independent state enterprise that is administratively and financially autonomous from the central government;
- Internally reorganizing the enterprise in ways that are suited for running it as a business;
- Reorganizing the telecommunication enterprise under private company law;
- Devising a privatization strategy including decisions on controlling interest, employee stock ownership, tranching of stock sales, and residual state ownership, as well as changing the company's capital structure to enable implementation of this strategy; and
- Carrying out the sale.

NOTE – World Bank – Implementing Reforms, pp. 44-45.

A number of these facets may be dealt with over a relatively short time or they may evolve in stages over longer periods. There are also various ways of sequencing these changes. For example, internal reorganization of the enterprise may be undertaken before privatization to enhance the company's value or left to the new owners. Management contracts could be used to run the enterprise along private business lines, followed later by privatization of assets.

NOTE – World Bank – Implementing Reforms, pp. 44-45.

Successful privatization of a State telecommunication enterprise depends on a number of factors falling into place. Privatization must be inserted in the political process. The timing and modality of privatization in a given country is largely conditioned by relatively narrow and somewhat unpredictable windows of political opportunity and by broader developments in economic strategy. At an early stage, the government must clarify its position regarding trade-offs among conflicting interests arising from privatization, such as among existing operators, workers, prospective buyers, potential competitors, investment bankers, the treasury, equipment suppliers, large users, and the public at large.

NOTE – World Bank – Implementing Reforms, pp. 45-46.

### 5.3.3 Introduction of competition

Besides increased private sector participation, all major reforms involve two other key elements: competition and regulation. These elements are closely intertwined, and are essential for success of the reforms in terms of the long-run ability to overcome past constraints on telecommunication development. Yet, in practice, they have been largely short-changed. This partly reflects the fact that building up competition and regulation is an inherently slower and more

laborious process than selling State enterprises, and require sustained action over a number of years. It also reflects less political will and sometimes inadequate management of the emerging regulatory institutions.

NOTE – World Bank – Implementing Reforms, p. 47.

The challenge of moving from a virtual monopoly to a competitive environment in which new competitors are free to move into any service, including the long-distance service to the exclusion of any other, has been already taken up satisfactorily. In order to make such a competitive regime possible, suitably rebalanced, cost-based tariffs are required, along with a system establishing who is to pay for the universal service commitments and how. Factors to be taken into consideration include the granting of appropriate service areas to local carriers, the application of adequate rules for carriage between different urban areas, the establishment of a reasonable access charge (i.e., the charge that long-distance carriers have to pay to the local carrier to originate or terminate calls), and possibly, in the light of the rebalancing referred to above, the introduction of higher tariffs for local communications, which would permit fair competition in domestic long-distance and international traffic.

NOTE – The Blue Book, p. 15 – paragraph 65.

## 5.4 Regulatory reforms

Reform in telecommunications generally involves a lessening of the role of monopolies, whether State-owned or other, in providing communications services. It may also involve important concepts such as liberalization, privatization, and competition. The separation of the government's role as owner and regulator, and also as owner and policy maker, will unleash new forces that will require new relationships to evolve. The rise of private interests will also unleash new forces that must be understood to appreciate the role of regulation in a reformed industry structure.

NOTE – *Guidelines on Regulation*, pp. 3-5.

Regulatory reform and the resulting institutions will reflect the broader environment of the State or country, and its historic legal, social, political, and economic foundations. The unique national circumstances will modify or influence the method of reform in each country. These factors include: the overall level of economic development; the state of development of the national network; the historical framework of the institutions; constitutional provisions; the legal system; the national tradition of public administration; and the roles and diversity of interest groups.

NOTE – *Guidelines on Regulation*, pp. 2 and 27.

Whatever the specific regulatory structure, successful regulatory reform requires:

- political will in the government to make it work;
- strong regulatory leadership committed to serving the public interest;
- good management of the regulatory process, including knowledge of the industry;
- qualified professional staff in the various related disciplines;
- fair and open decision-making mechanisms accessible to all the parties affected; and
- actions that respond to the broad political goals of the government.

NOTE – World Bank, *Implementing Reforms*, p. 48.

Hence, the task of beginning to construct an initial regulatory process should encompass the following actions:

- 1) develop a governmental telecommunication industry (or broader information industry) policy;
- 2) translate the policy into legislation or decrees;
- 3) construct a regulatory organization to reflect the mandate;
- 4) ensure the method of funding the regulatory organization is established and independent; and
- 5) establish procedures to govern matters subject to the regulatory organization's jurisdiction.

NOTE – *Guidelines on Regulation*, p. 32.

### 5.4.1 Structure of regulatory body

It is widely accepted that a government's regulatory functions should be separated from its functions as operator of the country's telecommunication infrastructure and provider of telecommunication services. The reason for separation is to ensure that the regulator can act impartially in deciding the interests of the public, other operators and users, and the

government. The regulatory body's independence from outside financial interests and partisan politics also affects its ability to act effectively and inspire public confidence.

NOTE – The Blue Book, p. 4 – paragraph 15.

#### 5.4.1.1 Autonomy and impact of centralized and decentralized structures

The regulatory body may take a variety of forms, ranging from an office within a larger executive branch body (or ministry) to a separate agency whose actions are reviewable only by the court system (see Note 1). Locating the regulatory function within the ministry, rather than in an autonomous agency, may make regulation more responsive to broad government policy directions; however, this must be balanced against the risk that the ruling powers may co-opt the regulator for self-serving political purposes, which may not be consistent with developing truly open and competitive markets or with effectively controlling the new owners of monopoly services. Locating the telecommunication regulatory body in an agency that is at least partly insulated from party politics and changes of government is more likely to check these forces and be conducive to reducing investor risk and, thereby, promote investment to meet demand. Autonomy can be enhanced by full public exposure of all regulatory action, rules that restrict channels for the government to insert its political will in the regulatory agency's decisions, and financing that is independent from the annual budgetary cycle (see Note 2). In addition, the presence of certain characteristics further strengthens the regulatory body's independence:

- (as noted) budgetary autonomy and sufficiency;
- senior officials that are appointed for a fixed term and are removable prior to the expiration of the term only for grave fault or serious crimes; and
- rules of eligibility and conduct for senior officials and key staff that emphasize financial independence from entities under the body's jurisdiction, and encourage selection of individuals with relevant experience.

NOTE 1 – The Blue Book, p. 6 – paragraph 24.

NOTE 2 – World Bank, *Implementing Reforms*, p. 49.

#### 5.4.1.2 Judicial oversight

Courts may also play a role in regulation. They may provide an avenue for appeals against certain regulatory decisions. They may also settle matters of jurisdiction between different regulators, such as those at the federal, provincial/state or local levels, or they may enforce the competition or antitrust laws (see Note 1). If the regulatory body is to exercise quasi-judicial functions, this authority should be made clear in the legislation (see Note 2).

NOTE 1 – *Guidelines on Regulation*, pp. 20-22.

NOTE 2 – The Blue Book, p. 6 – paragraph 24.

#### 5.4.2 Scope of regulatory body

The scope of the regulatory organization's mandate, as set out in the telecommunication legislation, will determine the organization's jurisdiction. The scope, as defined by the legislation which defines the powers and duties of the regulatory body, may include such activities as licensing, tariff approval, frequency management, interconnection approval, and service quality monitoring. The law must define the expectations the State has for its duly appointed administrative tribunal. The clearer and more concise that definition, the higher the probability that an efficient and effective regulatory process will evolve.

NOTE – *Guidelines on Regulation*, pp. 18-19 and p. 11.

In general, the regulatory body may be delegated the authority to carry out its functions by promulgating rules and regulations of general applicability, and conducting licensing and adjudicatory proceedings to evaluate the merits of individual applications and complaints. As an expert body, acting within the law, the authority may be empowered to exercise broad discretion in the regulatory methods it selects to achieve the purposes of the telecommunication legislation, which may include the decision not to impose administrative requirements on certain types of services, providers or facilities. The body may also have the authority to impose penalties for violations of the telecommunication laws.

NOTE – The Blue Book, p. 7 – paragraph 25.

A mechanism for delegation of authority within the regulatory body may be established to streamline the regulatory process. Certain authority, such as issuing licenses for established services, may be delegated to a smaller panel of senior

officials or to a staff position within the regulatory body. Decisions on such delegated authority may be reviewable on a party's request by the larger or upper panel of the regulatory body.

NOTE – The Blue Book, p. 8 – paragraph 29.

Assuming that some degree of liberalization and competition are contemplated, the regulator can:

- prevent or correct abuses of market power by the dominant telecommunication service provider;
- enable new service providers to become established;
- act as a surrogate for competition and maintain pressure on the dominant carrier to perform well until competitive pressures are sufficient to take over this role; and
- support distributional goals such as service to disadvantaged geographical areas or segments of society.

NOTE – *Guidelines on Regulation*, p. 28.

The typical functions of an autonomous regulatory body include rulemaking and enforcement, licensing, and management of scarce resources. The regulatory body should perform these functions in a transparent manner encouraging public participation. In performing these functions, the following are some of the key regulatory issues:

- Provision of service
- Interconnection
- Universal access/service
- Tariffing
- Frequency allocation and assignment
- Broadcasting
- Quality of service
- Standardization/type approval
- Numbering
- Competitive safeguards

In cases where a formal regulatory function is being initially introduced and structural changes such as corporatization, privatization and liberalization are also being addressed, it may be prudent for a government to gradually phase-in certain regulatory responsibilities for the functions to evolve in an orderly manner using a step-by-step approach to expanding the regulator's responsibilities. One such method would be to initially delegate the responsibility for spectrum management and interconnection to the regulator for an initial period of two to three years following which, and subject to adequate resources having been developed, the rate-setting responsibilities could then be delegated to the regulator. This gradual or step by step process not only addresses the resource limitation issue but also the need to develop regulatory credibility at the outset.

NOTE – *Guidelines on Regulation*, p. 46.

### **5.4.3 Regulatory functions**

#### **5.4.3.1 Rulemaking and enforcement**

Prior to making new rules or changing existing rules or regulations, a regulator may enter into a rulemaking process. This can be initiated by sources outside the regulator or by the regulator itself. A typical first step in a rulemaking is a request or petition for rulemaking which is made public, and all interested parties are asked to comment. After reviewing comments, the regulator can issue a proposed rulemaking proposing specific rules and also requesting public comment. Once the rulemaking proceeding is completed, the regulator decides whether to amend its rules/regulations or to make a new rule.

To enable the regulatory body to carry out enforcement functions, the regulator must be given investigative powers and the authority to impose appropriate sanctions and penalties for violations of the telecommunication laws and regulations. Such sanctions or penalties can include fines, or revocation of licenses/authorizations, etc.

### 5.4.3.2 Licensing and Concessioning

#### *Licensing*

Generally speaking, those engaged in activities in the field of services and networks might have to respect regulations other than those governing telecommunications. In so far as this is the case, it should be assumed that they will do so. The way in which specific rights, obligations and conditions for various activities are laid down has implications for access to the market for telecommunication networks and services. Access to scarce public resources is also important.

NOTE – Contribution of the Netherlands to Study Group 1.

There are four types of licensing procedures:

- i) Free regime;
- ii) Registration and other similar regimes;
- iii) Class license or blanket license;
- iv) Individual license.

The licensing regimes are based on conditions which have to be respected by service providers. Two kinds of conditions can be distinguished:

- i) Qualification conditions – Conditions to be respected by the service provider in order to be authorized the service;
- ii) Conditions of operating – Rules to comply with while operating the service.

It might be that a particular category of market activities may only be engaged in on the basis of an individual license to which specific rights and obligations are attached.

These rights and obligations should reflect the common good, the position of the market parties concerned and international policy. They might differ from one license to another, but should in all cases be objective, transparent, non-discriminatory and proportionate.

An individual license might be required if the market party wants: access to scarce resources, such as frequencies, digging rights or numbers, which the government is responsible for regulating; to operate telecommunication networks to or from third countries (on grounds of trading policy); to operate public telecommunication networks; to operate a public telephone service.

The license conditions might relate to the following matters: essential requirements, such as interoperability of networks and services and the use of frequencies and numbers; obligations related to the safeguarding of universal provision of service; rights and obligations with regard to interconnection and access to networks; the geographical area covered by the service; requirements based on national security and public order; conditions of supply; requirements regarding provision of information; specific requirements designed to prevent distortion of the market (e.g., on cross-subsidies).

Authority to license may be with the sector ministry, with the regulator, or divided between them. In the former case, licensing would be considered to be the exclusive right of the minister and a matter of public policy. In the latter case, with a division of the licensing authority, government policy may determine whether there should be some degree of liberalization and in which markets, while the regulator will determine the number of entrants and the related terms and conditions. Another option is to grant the minister the authority to give either general or specific directions to the regulator on licensing matters. A third option is to segment the licensing process by differentiating the approval procedures based on the type of license to be granted. Under this option, licenses for value-added service providers could be granted by the regulator pursuant to a government policy objective to liberalize that particular market segment.

NOTE – *Guidelines on Regulation*, p. 50.

#### *Concession*

Among the procedures formula available an essential method to use is that of the concession. What are the economic advantages of the concession?

- i) The first advantage is that in a declining or rationed budget credit context, the concession is a way of calling in private investment. The financing needs of telecommunication infrastructures have increased considerably to meet the demands of users and this demand must be satisfied. But financing difficulties are liable to increase in terms of the budget, and through recourse to borrowing by public operators because of their debts, and those of the State.

- ii) Another advantage of the public service concession is the possibility of in-depth integration of design, production, operation and maintenance of an infrastructure or service. This makes the operator more responsible with respect to the correct completion of the operation and establishes the idea that a properly designed installation will be better operated and used. Therefore, as far as the owner is concerned, it is as if the concessionaire covered technical, financial and commercial risks connected to the tailoring of the installation to its function. In exchange for taking these risks on, the concessionaire is entitled to claim on the profitability of the invested capital which becomes higher as the risks increase, as a right, and even a duty, with respect to its shareholders. Thus, we come up against the problem of the guarantees given by the assignor to the concessionaire to limit the risks. We should simply bear in mind the idea that the two contracting parties therefore have equal interests in limiting the risks taken.
- iii) The third decisive advantage of a public services concession is that it can replace the constraints of administrative management by a corporate and market logic. In terms of the transmission of infrastructure markets, using the concession method partly dispenses with the particularly burdensome formalism of the rules that generally apply to public organs, while maintaining the essential principles.

NOTE – Taken from the contribution of Thomson-CSF to Study Group 1.

### *Concession rules*

In general, recourse to a concession is a way of putting all the company's dynamism at the service of general interest objectives. This implies that the operator must have a moral personality and a financial autonomy permitting him to contract, borrow and use all the corporate efficiency indicators derived from accounting in order to underline the profit made. This will encourage the concessionaire to establish rigorous management and technological or managerial innovation, elements that are often structurally missing in public services that are managed directly by the public authorities. To make the most of these economic advantages, the assigning authority must be in full control of the major economic parameters in the negotiation of a concession contract.

Further, the assigning authorities must choose concessionaires from experienced groups having a sufficient technical and financial surface so that they can really assume the risks and stand the test of being lasting partners. Indeed, the decisive factors of success are resident in the following factors:

- a lasting partnership between the assignor and the concessionaire
- a balanced sharing of risks and profits according to the nature of the projects and their economic and financial balance.

Thus, contractual provisions represent a good conduct code between the two parts so as to confirm relations of confidence in the long term. They are of a far more complex nature than a simple public market for an infrastructure, supplies or services.

The great flexibility of the "concession" as a legal formula does not mean that the assigning authority is deprived of any strong "controlling" capacity. The only legal constraints derive from the general principles of public service:

- service continuity whereby users are entitled to regular and continuous operation of the public service (except in cases of *force majeure*),
- equal treatment between users in comparable situations,
- constant tailoring of the service to the evolution of needs and technology.

This flexibility, within the framework of the theory of a public service, implies that the assigning authority is a strong partner to the concessionaire in view. Therefore, the concession contract must result from real negotiations on the basis of thorough research, validated by both parties, in order to minimize any uncertainties regarding the project.

This is particularly the case of the following:

- infrastructure traffic (or users) and their sensitivity to price rates,
- the costs of investment and operation, and their evolution in the course of time,
- the conditions of financing the infrastructure and any possible legal or fiscal problems,
- awareness of the financial profitability of the infrastructure with regard to certain short-comings, for instance, as concerns the most frequent of them:
  - extra costs of construction or delays in commissioning,
  - increase in the real rates of interest,
  - lower real traffic (or higher real traffic) than expected.

NOTE – Taken from the contribution of Thomson-CSF to Study Group 1.

### 5.4.3.3 Management of scarce resources

Management of scarce resources (e.g., frequencies, numbers, and orbital positions) is an important, permanent element of the national regulatory framework. To have a mutual understanding, a common economic definition should be elaborated for the limited resources.

The different types of limited resources require different management techniques for their efficient use:

- *natural scarce resources*, like frequencies or orbital positions, require usage fees and global coordination. Most natural resources should be distributed among countries by consensus based on existing and expected future usage.
- *contemporary scarce resources*, like calling numbers and broadcasting sites, require national, regional and global coordination.
- *technology dependent bottlenecks*, like shortage of conduits and cable capacity, should be handled under the principle of open network obligation.

### 5.4.4 Key regulatory issues

#### 5.4.4.1 Provision of service

The process to select a service provider typically involves the following steps:

- 1) public announcement that the regulatory body will be initiating a process to select a licensee to provide a given telecommunication service, including the selection criteria;
- 2) all interested parties would have a reasonable period of time within which to apply for the license, or make suggestions or inquiries;
- 3) the regulatory body, applying appropriate selection methods, would announce its decision of who will be granted licenses;
- 4) any interested party that considers the decision unjust would have the right to appeal the decision directly to the regulatory body or to a higher body. Judicial remedy would also be available.

NOTE – The Blue Book, p. 35 – paragraph 169.

#### 5.4.4.2 Interconnection

The interconnection of one network to another (such as telephony) is what allows the subscribers of one network to be able to communicate with the subscribers of another. Further, the interconnection of different supplier networks is fundamental to instituting a competitive environment. Broad criteria has been agreed upon, requiring open, equal, and non-discriminatory access to be guaranteed for the networks of all public service suppliers, both for end users and for third party suppliers.

NOTE – The Blue Book, p. 22 – paragraph 102.

Some regulations have opted to enforce interconnection terms and conditions as a compulsory legal standard, while others have stipulated a maximum negotiating time between parties, after which, if no agreement is reached, the regulatory body can establish provisional terms and conditions, which can become final when the various arguments have been heard in detail.

NOTE – The Blue Book, p. 22 – paragraph 103.

In a fully competitive market, the regulator will still maintain the arbitrator role for interconnection agreements. Any dispute relating to negotiations on an interconnection agreement between two carriers may be referred jointly to the regulatory body for settlement. The regulatory body shall decide on the case, taking into due consideration the interests of both parties. Also, where no interconnection agreement is reached between carriers, either of the parties concerned may appeal to the regulatory body.

Of course, in any decision the regulatory body shall take into due consideration the interests of the users and the entrepreneurial freedom of each carrier to configure its own network. Further objectives need to be addressed such as: unbundled access to all network elements, including unbundled access to the local loop, requirements of housing on a carrier's premises the equipment necessary for use of the offering ("physical colocation") and by granting the user access to the equipment at any time.

Interconnection to the state-owned firm or dominant network operator should be at transparent, nondiscriminatory, cost-based rates, and on terms and conditions that are reasonable and fair. It is also advisable for the regulator to require interconnection to be equal in type and quality to that provided to the dominant public network operator for competitive



services, and that interconnection be priced not higher than that provided by the dominant carrier to itself or its subsidiaries.

NOTE – United States Contribution to ITU African Regional Telecommunication Development Conference, Executive Summary (Document 47A), May 1996, pp. 4-5.

#### 5.4.4.3 Universal access/service

As was mentioned in Chapter 4, one of the aims of telecommunication legislation should be to ensure that the public has access to basic telecommunication services at a reasonable cost. The regulatory body should give detailed consideration to the manner in which this fundamental legal requirement is to be met, but the scope of the services guaranteed should also be defined, so that the facilities in question are clearly identified and can be sustained by the community.

NOTE – United States Contribution to ITU African Regional Telecommunication Development Conference, Executive Summary (Document 47A), May 1996, p. 14.

It has been customary for State telecommunication monopolies to subsidize the use of the basic local telephone service from other telecommunication sources. This has been the main philosophy for financing the implementation of, or attempts to achieve, universal service. Such cross-subsidization occurs between services, user groups, and geographical areas. If a country decides to privatize the monopoly telecommunication operator and at the same time to allow competition in all or certain services, it has to consider carefully how it will continue to ensure or promote the goal of universal service. If competition is to remain transparent, fair and sustainable in the long term, it is worth considering the possibility of shifting from a policy of indiscriminately applied cross-subsidies to a policy of declared subsidies applicable to specific cases.

NOTE – United States Contribution to ITU African Regional Telecommunication Development Conference, Executive Summary (Document 47A), May 1996, p. 14.

Once government policy-makers have decided upon a set of universal service obligations, they must then decide what degree of regulatory oversight they wish to apply to ensure those obligations are fulfilled. The Report of the Second ITU Regulatory Colloquium identified several different regulatory oversight models, as follows:

- *Model 1:* Broad regulatory oversight – the regulator sets broad universal service objectives for the monopoly public telecom operator (PTO). It also monitors and supervises progress against these objectives in general terms but does not specify targets in detail.
- *Model 2:* Detailed regulatory direction of universal service activities – the regulator establishes detailed targets, in a dialogue with the PTO, for universal service matters such as the timetable for extension of service to specific rural areas.
- *Model 3:* Broad regulatory oversight with no payment of cross-subsidy from new carriers for universal service obligation (USO) costs – the regulator defines the USOs of the incumbent PTO only in general terms. New carriers interconnecting with the incumbent PTO's network pay for interconnection, but at a rate based on some indicator of the costs attributable to providing this interconnection service, which does not include any element of cross-subsidy contributing to the incumbent's USO-related costs.
- *Model 4:* Broad regulatory oversight with explicit but bundled cross-subsidy mechanism – the regulator defines the USOs of the incumbent PTO only in general terms. The regulator provides for a flow of funds to that PTO from other participants in the industry that is at least partly intended to contribute to the cost of meeting the USOs. This is usually achieved through the payments made by new PTOs for network interconnection. The PTO is not required to provide detailed accounting to the regulator for different USO-related activities, and the flow of funds to support these activities is not “unbundled” into separate items linked to the cost of these activities.
- *Model 5:* Detailed regulatory direction of universal service activities, with explicit but bundled funding mechanism – the regulator monitors the universal-service related activities of the PTO or PTOs in detail and makes decisions concerning detailed geographic deployment.

- *Model 6:* Broad regulatory oversight with explicit, unbundled funding mechanism – Regulation in this model tends to focus on providing the right framework of economic incentives to guide autonomous decision-making by the regulated PTO or PTOs, without detailed intervention by the regulator in the decision-making about the public network by PTO management. Consequently, such regulation focuses on accounting information, cost analysis and pricing.

NOTE – ITU Second Regulatory Colloquium, “Universal Service and Innovation: Fostering Linked Goals through Regulatory Reform”, (1993).

#### *Legal and policy issues*

As indicated by the examples listed in Chapter 4, governments can take two types of action to provide universal access/service. The first is to set universal access/service goals under telecommunication improvement plans, and the second is to impose legal obligations on telecommunication carriers to provide universal access/service.

#### *Methods of implementation*

The provision of universal access/service is likely to face difficulties, even if improvement plans and legal provisions are established. Funds must be raised and government assistance may also be required. In this context, the following methods are proposed:

- It is necessary to identify goals and improve telecommunication systems from a long-term perspective. Government priorities must also be identified.
- One method of raising funds is by issuing subscriber bonds. A country that operates a State-run banking system or pension savings system could buy such bonds to fund telecommunication development. More specifically, the nation could underwrite capital and provide State guarantees relating to such domestic and foreign bond issues.
- Through official development aid, industrialized countries should assist the inflow of foreign capital to developing countries to allow the improvement of telecommunications. The inflow of private foreign capital can also be facilitated by such means as Build-Operate-Transfer (described in Section 2.1.2) being applied to telecommunication projects in developing countries. When a foreign capital quota system is in place, the proportion of foreign capital to be injected into the telecommunication area should be boosted.
- As seen in the United States example, one possible method of raising funds to improve telecommunications is to levy required extra costs on long-distance carriers and distribute among local telephone companies proportions calculated in accordance with the applicable subsidizing rate. However, as no developing countries are exposed to the level of competition seen in the United States, this method will only be applicable in such countries when competition escalates to the level at which more than one telecommunication carrier is established.

For other funding schemes see Section 4.5.

- As suggested above, the government must play an active role in ensuring the provision of universal access/service. However, at the same time, it is necessary to examine how financial burdens should be shared between telecommunication carriers and local governments.

#### *Global mobile solutions*

The global mobile personal communications by satellite (GMPCS) also has great potential to assist the provision of a universal telecommunication service. GMPCS can quickly provide services to remote rural areas which currently do not have access to telephones. However, before GMPCS can be implemented, several issues must be resolved, such as:

- Coordination of international frequencies;
- Ensuring fair market access; and
- Achieving interconnection between GMPCS and other networks.

A future challenge will be the licensing regime for the upcoming GMPCS-systems and the agreements on issues related to facilitating circulation of user terminals. Pursuant to Opinion No. 5 of the World Telecommunication Policy Forum (WTPF), the Director of the BDT has convened a group of experts to consider this important issue with regard to the developing countries concerns. The results of this group, as well as the results of the informal group on the GMPCS Memorandum of Understanding (Opinion No. 4), should be taken into consideration when defining the functions of a regulator in this area.

#### 5.4.4.4 Tariffing

In order to make the transition from a monopoly to a competitive environment in which new competitors are free to move into any service, suitably rebalanced, cost-based tariffs are required, along with a system establishing who is to pay for the universal service commitments and how. Factors to be taken into consideration include granting appropriate service areas to local carriers, the application of adequate rules for carriage between different urban areas, the establishment of a reasonable access charge, and possibly, in light of the need to rebalance tariffs, the introduction of higher tariffs for local communications, which would permit fair competition in domestic long-distance and international traffic.

NOTE – The Blue Book, p. 15 – paragraph 65.

#### 5.4.4.5 Frequency allocation and assignment

Communication is crucial to the modern economy. Radio is essential to the information society as it is a uniquely versatile and cost-effective communications medium and national policies will endeavor to provide an environment in which radio can make the greatest possible contribution to the social, economic, public safety and security needs of the country. The prime objective of national frequency management is, therefore, to enable a country to manage effectively its use of the finite resources of the radio frequency spectrum and satellite orbits (in particular the geostationary-satellite orbit), within the framework of international treaty obligations.

NOTE – Contribution of the UK Radiocommunication Agency to Study Group 1.

There is a need for an identifiable authority in each country having the necessary legal powers and resources to carry out frequency management functions. The organizational structure may differ from country to country according to particular requirements and resources but, within the overall objective given above, the following functions will need to be undertaken, either directly or by supervision:

##### *Strategic spectrum planning*

The primary goal of strategic spectrum planning is to determine and periodically update the existing and future requirements for the various radiocommunications services. From this information, long-term national policy and plans relating to the use of the radio spectrum can be developed. This will take into account factors such as general government policy initiatives, advances in technology, major changes in user requirements.

Technical and economic studies related to the use of the radio spectrum are important to assist the development of strategic plans and policy. Research should be targeted both to extend the usable spectrum, as new technologies develop, and to make greater use of existing spectrum through sharing and more efficient modulation and coding techniques.

##### *International representation, frequency coordination and technical cooperation*

Frequency management cannot be considered in national isolation because of the international nature of radiocommunications. In order to promote and safeguard national interests relating to radiocommunications, participation in World and Regional Conferences of the ITU is important as the Final Acts of such Conferences have treaty status. Conference preparation requires a great deal of work, for example setting up national Working Groups responsible for developing the national position based on the views of different users on important Conference issues. Delegates must have the expertise to present national views effectively and be given the appropriate authorization to negotiate and take decisions.

International frequency coordination is necessary for many services to minimize the possibility of mutual interference with the services of other countries. For some services (especially satellite networks) the ITU Radio Regulations require administrations to undertake notification and coordination procedures via the ITU Radiocommunication Bureau. For other services, bilateral or multilateral arrangements with neighboring countries may be established to simplify coordination of frequency use in border areas.

International cooperation in the technical development of radiocommunications is also important, for example, through participation in meetings of the ITU-R, ITU-T and ITU-D sectors. In particular, the technical recommendations and reports of ITU-R are often used to underpin major changes in international frequency allocations. A broad oversight of the work of international organizations responsible for the preparation of radio equipment and planning standards should be maintained, although a more detailed involvement is necessary for those parts of standards which have an impact on the efficient use of the spectrum and, in certain cases, interoperability.

*National coordination of frequency allocations*

A table of national frequency allocations should be established, in accordance with national priorities, to contain the detailed sub-division of frequency bands for particular categories of users, e.g., emergency, government, public and private sector services. This table should normally be in conformity with the international Radio Regulations but some flexibility is possible if the services of other countries are not affected. Appropriate inter-departmental and public consultative machinery must be established to review and make changes to the table which may be required as a result of the outcome from strategic planning exercises or World or Regional ITU Conferences.

*Assignment of frequencies and licensing*

The assignment of frequencies to stations in accordance with the agreed national allocations for particular user categories is a routine process of application, technical analysis, assignment and recording in a (national) frequency register. For some services, there may be international frequency coordination obligations. The most complex part of this process is the technical analysis required to ensure the new assignment may be used without unacceptable mutual interference with existing services.

Licensing is the final part of the process which gives the licensee legal authority to use the frequency in accordance with the license conditions. The Radio Regulations stipulate that that no transmitting station may be established or operated by a private person or by any enterprise without a license issued by, on behalf of, the country to which the station belongs. For government users, authorization may replace a license and for certain categories of system (e.g. short range devices) a general license regime may replace individual licenses. Fees are normally charged for the issue of a license.

NOTE – ITU Radio Regulation (RR S18.1).

*Standards making and conformity assessment*

The technical analysis of requests for frequency assignments takes into account planning standards (concerned with the overall system performance requirements) and radio equipment standards (concerned with equipment technical characteristics). In the development of standards, those aspects which have an interaction with the efficient use of the spectrum should be agreed between frequency managers, users and industry.

The use of some standards is an international requirement (in particular for safety-of-life services) or a national requirement. In other cases, users may have a degree of choice to meet their individual requirements. Some form of assessment for conformity with standards is required. This will usually involve the establishment and authorization of one or more laboratories capable of providing conformance assessment services. There is an alternative, in particular for non-critical systems, for example a manufacturer's declaration of compliance, which may be supported by full quality assurance procedures on the production line and a programme of system inspections.

*Monitoring and enforcement*

Monitoring is closely associated with inspection and compliance in that it enables the identification and measurement of interference sources, the verification of proper technical and operational characteristics of radiated signals and detection and identification of illegal transmitters.

Monitoring further supports the overall spectrum management effort by providing general measurement of channel and band usage, including channel availability statistics and the effectiveness of spectrum management procedures. However, monitoring should be used to complement planning and frequency assignment, not a replacement.

*Regulatory reforms*

It is recognized that radio has a significant and increasing impact on the national economy. It is the only medium that can deliver communication free from the constraints of physical connection and demand for spectrum is growing fast. However, the usable portion of the spectrum is limited and becoming increasingly congested. A nation's future success and competitiveness will depend critically on finding new ways to meet the demand. Technical developments are continually raising the upper limit of the usable spectrum and developing ways of using lower frequencies more effectively but there can be significant delays in introducing new technology and sharing techniques. Either the regulatory environment is too slow to respond or existing users do not have sufficient incentive for change.

A number of countries are considering how spectrum management can be reformed to improve this situation. In particular, deregulation, various methods of “spectrum pricing”, and changes to the organization of national spectrum management are being examined.

### *Deregulation*

A regulatory framework has an important and continuing role in managing the spectrum. It should be fair, proportionate and effective. Excessive regulation inhibits efficient use of the spectrum and requires substantial additional resources for enforcement. Regulation is inherently inflexible and reduces choice. It does not allow those affected the freedom to make their own decisions based on their individual circumstances and needs. Users have to meet the regulatory requirements irrespective of whether or not this is economically desirable. They have less scope to acquire additional spectrum for potentially valuable applications or to adopt cheaper technical alternatives; and little incentive to increase spectrum efficiency beyond the required minimum. Spectrum managers should be cautious in applying regulatory solutions to spectrum congestion because this involves attempting to predict which technology and users would be most likely to succeed and ration spectrum accordingly. Given the rapid pace of change, technical and otherwise, it is unlikely that this approach will achieve the optimal distribution of spectrum or encourage innovation.

Regulation should therefore be targeted at:

- Giving effect to international obligations,
- Defining and implementing overall spectrum strategy,
- Promoting competition and innovation,
- Ensuring fair and open access to spectrum for a diversity of users, including small businesses, essential services and cultural, scientific and social uses.

### *Spectrum pricing – economic frequency management mechanisms*

At present, in many countries, license fees are set at a level to recover the costs of spectrum management. The aim of spectrum pricing is to ensure, in the interests of spectrum efficiency, and of increasing the economic benefits derived from radio, that users pay an amount for spectrum that more closely matches the value that they, or alternative users, place upon it. As a result, users will have incentives to relinquish unused or under-utilized spectrum. They will also take the value of the spectrum into account at the time they make investment decisions, for example on whether to invest in more spectrally efficient technology, to move to a less congested band or to switch to an alternative service or communications medium. It should be emphasized that spectrum pricing is intended to complement regulatory spectrum management and is driven by national spectrum management requirements, not revenue-raising.

The three classes of economic frequency management mechanisms are:

- i) **administrative pricing:** the spectrum management organization sets prices for access to and use spectrum which ration demand for spectrum so that demand and supply are roughly in balance;
- ii) **auctions or tenders:** licenses to use spectrum are assigned through a competitive bidding process, rather than the first-come first-served approach. The criteria for assigning licenses could include, but need not be limited to, a sum bid;
- iii) **secondary trading:** this involves the creation of a new form of license for the use of the spectrum which users could trade and which might be aggregated or sub-divided, subject to specific conditions.

ITU-R Study Group 1 is undertaking a programme of studies to investigate the technical and frequency management implications of economic frequency management mechanisms.

### *Organizational reforms*

The general model for frequency management organizations is a central authority responsible for national coordination of all frequency use and international representation, with responsibility for specialized government use (for example, defense) delegated to the department concerned. For civil use, the frequency management authority may either undertake all the functions described in the first part of this section, or delegate specific functions to organizations in the private sector or special user groups.

Delegation of routine functions such as frequency assignment and licensing to spectrum management organizations (SMOs) which have a direct financial or operational interest in the use of spectrum provides the incentive to improve spectrum efficiency and respond better to the needs of end-users.

The introduction of economic frequency management mechanisms such as auctions and secondary trading will increase the opportunities to delegate specific frequency management functions to SMOs. The frequency management authority may then concentrate its resources on the core spectrum management functions:

- international aspects,
- strategic spectrum planning,
- national coordination of frequency allocations,
- strategic research management and policy development,
- oversight of the spectrum management organizations,
- enforcement.

ITU-R Study Group 1 is undertaking a programme of studies to investigate alternative methods of organizing national spectrum management.

The use of frequency spectrum requires coordination, virtually always within the framework of international agreements on the allocation of bands for specific uses and national decisions on the assignment of those bands to users. National coordination usually involves administrative authorization for the use of frequencies, in the form of a license, concession, permit, authorization or franchise. The rationale for licensing spectrum use is:

- the frequency spectrum and the geostationary satellite orbit are scarce national resources;
- not everyone wanting a radiocommunication channel can have one; and
- to be meaningful, radiocommunications must be free from harmful interference.

NOTE – The Blue Book, p. 35 – paragraph 166.

#### **5.4.4.6 Broadcasting**

The first reason for regulating the broadcasting service is a technical one and is common to other radiocommunication services: the need to avoid harmful interference. The second reason has a social and political background. Broadcasting is an important means of conveying information, entertainment and education to the public. Moreover, thanks to its penetration capability and intrinsic technical simplicity, broadcasting constitutes a first-class tool to assist in national, social, economic, and cultural development efforts. Since the number of available channels is limited and only some of those wishing to obtain one are able and entitled to do so, countries normally stipulate that a license is required in order to build and operate broadcasting stations, and that certain other duties deemed to be in the public interest must be undertaken.

NOTE – The Blue Book, p. 47 – paragraph 229.

All radiocommunication services are subject to technical and administrative regulations in order to avoid harmful interference situations and promote a better use of the radio spectrum. Radio and television broadcasting services, however, are normally subject to additional regulatory provisions owing to their unique political and social nature. Basically, two issues are the subject of a great deal of attention:

- i) political use, and
- ii) coverage of issues of importance and interest to the local community.

Unless a given country has adequate mechanisms or other legal means of ensuring balanced coverage of events such as elections, it may be prudent to have corresponding provisions in the framework of the telecommunication legislation.

The legislation and the regulatory body should otherwise avoid encroaching on the freedom of expression of the broadcaster. The broadcaster is also normally required to cover issues that are of importance to the community it is licensed to serve. Again, this is a very delicate matter involving freedom of expression, and it is up to each country to produce legislation to provide optimum protection of the public/social interest.

From the foregoing it may be concluded that:

- in order to avoid harmful interference, a license should still be required in order to set up and operate a broadcasting station;
- in view of the huge number of electronic media outlets now available to the public, social/political regulation that is liable to limit freedom of expression in the broadcasting services should be reviewed and possibly done away with, or at least attenuated. In any case, where a given country considers it necessary to maintain certain limitations on freedom of expression with a view to achieving a legitimate national objective, those limitations should be strictly limited to the minimum necessary to meet that objective.

In countries where traditional broadcasting (freely received by the public) continues to be one of the primary sources of information, education and entertainment, it is essential that a balanced and fair relationship be established between these and other video distribution services. Broadcasting, as already mentioned, has historically been heavily regulated on account, mainly, of frequency scarcity and of its political influence. There are rules governing the conditions of ownership and cross-ownership, the aim of which is to promote diversity and limit the power of particular individuals or groups. A review of the broadcasting regulatory framework should therefore focus on:

- the need for greater regulatory symmetry between broadcasting and other video distribution services;
- measures to foster investment in the broadcasting industry;
- reviewing the rules on ownership and cross-ownership of transmission media;
- reviewing the rules on service provider/user relations.

NOTE – The Blue Book, p. 51 – paragraph 249.

#### **5.4.4.7 Quality of Service**

Regulation of the quality of service offered by a dominant or monopoly enterprise is necessary to complement tariff regulation without which the regulated enterprise could escape price regulation by way of reducing quality standards.

#### **5.4.4.8 Standardization/Type Approval**

Standardization becomes more and more a determining economic factor in telecommunications. It plays a crucial role in the determination of costs and the pace of development of new innovative telecommunication services. The integration of telecommunication infrastructures throughout the world requires that common standards are used. The main focus in telecommunications is put on harmonization required for designing networks and services. The influence on sovereign concerns with regard to worldwide standardization was also increased. The regulator may also represent the country in the standardization bodies of the ITU or other international organizations.

Telecommunication equipment and its approval and placing on the market, its compliance with essential requirements, and its connection to public telecommunication networks is recommended to be assigned to the regulator.

#### **5.4.4.9 Numbering**

Numbers are needed for the provision of switched telecommunication services: switched telephone services and packet-switched data communications. Numbers must be controlled and allocated in such a way that competition is not affected. The providers of switched services must be able to obtain numbers from the government or its designate by means of a transparent and non-discriminatory procedure.

Before defining non-discriminatory numbering schemes, criteria have to be established which define the term “non-discriminatory numbering”. These attributes may be divided into the following four groups:

- **Adequate capacity**

Numbering schemes should have enough capacity to number present and future services and subscribers, capacity for geographic and non-geographic numbers including personal numbers, capacity for carrier access codes and short numbers and service access codes for commercial and non-commercial services.

- **Equal access**

Numbering should be administered by an independent body, reciprocity and symmetry between network operators and between service providers should not be constrained on numbering grounds, numbering schemes should guarantee the same dialing procedure for all corresponding network operators and service providers, numbering should be transparent, schemes should allow all applicants a non-discriminatory access to numbering resources.

- **User-friendliness**

From the users' point of view the number portability is an important issue, i.e., the opportunity for users to retain the same number when they switch to another operator. Such a system would be beneficial to the user, and would promote competition.

- **Harmonization**

Numbering schemes should allow for migration from national service numbers to pan-regional and/or global service numbers and they should allow for harmonization of service access code, carrier selection prefixes and possibly PCS numbering at a regional level.

NOTE – *Interim report of national numbering schemes on their openness to competition*, CEPT, European Telecommunications Office (21 March, 1997), p. 7

Number allocation should occur on the basis of long-term plans drawn up by the government. The plans will seek to ensure, as far as possible, that certain applications are recognizable in certain numbers (e.g., special call rates). Although no lack of numbers may be forecast to occur at a specific time, allocation must be done in an orderly and efficient manner.

One important issue that is arising is number portability, i.e., the opportunity for end-users to retain the same number when they switch to another operator. Such a system would be beneficial to the user, and would promote competition.

#### **5.4.4.10 Competitive safeguards**

Competitive safeguards are necessary to ensure that dominant or major suppliers do not engage in anti-competitive cross-subsidization, do not use information in an anti-competitive manner, and do not withhold essential technical and commercial information.

#### **5.4.5 Resources required**

The resources required to implement the regulator's mandate will be, in part, a function of the authority delegated to the regulator by the government. The present size of the industry to be regulated in terms of the number of operators, total revenues and number of market segments, e.g., cellular, radio-paging, will also have some bearing on the regulatory needs. The current size and complexity of the market, however, and the scope of the regulator's mandate are the more predominant variables of regulatory costs. For example, a regulator with a mandate for both telecommunications and broadcasting may realize some economies of scale and scope. Similarly, a regulator with responsibility for setting rates, interconnection, licensing and spectrum management may also benefit from economies of scope and scale.

NOTE – The strongest case for combining telecommunications and broadcasting rests with the technological reality of convergence. This reality, coupled with that of economizing on the resources available, requires the matter to be given due consideration, particularly in cases where governments are developing an initial regulatory framework for telecommunications and there is scarcity of regulatory skills. *Guidelines on Regulation*, pp. 19, 24 and 31.

Therefore, three of the significant variables in the regulatory cost function are the size and complexity of the marketplace, the degree of liberalization, and the scope of the regulatory mandate. These factors are particularly critical to governments of developing countries where professional resources are limited and regulation is being undertaken for the first time.

NOTE – The strongest case for combining telecommunications and broadcasting rests with the technological reality of convergence. This reality, coupled with that of economizing on the resources available, requires the matter to be given due consideration, particularly in cases where governments are developing an initial regulatory framework for telecommunications and there is scarcity of regulatory skills. *Guidelines on Regulation*, pp. 19, 24 and 31.



The variables relating to the cost function also overlap with the factors that must be considered when determining the size of the regulatory body, one of the most important of which is the degree of initiative by the regulator to set the agenda and conduct public proceedings.

NOTE – The strongest case for combining telecommunications and broadcasting rests with the technological reality of convergence. This reality, coupled with that of economizing on the resources available, requires the matter to be given due consideration, particularly in cases where governments are developing an initial regulatory framework for telecommunications and there is scarcity of regulatory skills. *Guidelines on Regulation*, pp. 19, 24 and 31. Generally, the more formal and extensive the consultation process, the more costly the process.

It is crucial that the process of funding and resourcing a regulatory process be given particular attention at the outset, in the initial planning and implementation stage. Independence of funding may be achieved in a number of ways. Funding may be generated from either a general assessment on all regulated operators by way of an annual licensing fee or from a combination of regulatory user fees and spectrum management fees. Alternatively, one method for limiting the cost of regulation is through sharing common resources. Certain periodic duties may be contracted out by developing countries to expert consulting entities, or specific expertise from more developed regulatory organizations in more mature economies may be retained to provide short-term assistance to newly formed and developing agencies.

NOTE – The strongest case for combining telecommunications and broadcasting rests with the technological reality of convergence. This reality, coupled with that of economizing on the resources available, requires the matter to be given due consideration, particularly in cases where governments are developing an initial regulatory framework for telecommunications and there is scarcity of regulatory skills. *Guidelines on Regulation*, pp. 35-38. Generally, the more formal and extensive the consultation process, the more costly the process.

## 6 Conclusion

Each country's ongoing process of telecommunication structural reform will be one of great complexity and shall be widely reflected in many of the country's economic segments, as well as in the life of ordinary people. There is no room for simplistic solutions, let alone quick ones. Before a country's noble reform objectives may be accomplished, the process will call for the effective and constructive participation of various segments of society on behalf of the country's highest interests.

NOTE – Contribution of Brazil to Study Group 1.

In the past decade, tremendous changes have taken place around the world which have revolutionized the telecommunication sector. The development of new technologies and services have given developing countries the possibility to "leap-frog" their infrastructure problems. Governments have begun to recognize these potential benefits and the need to reform regulations to facilitate the introduction of these technologies and services. Since 1984, more than 40 countries have partially or fully privatized their state-owned telecommunication companies, many have corporatized their operators, and others are introducing competition.

The restructuring of the telecommunication sector is happening at the same time that a comprehensive multilateral trade framework for services, including telecommunication services, is entering into force. The General Agreement on Trade in Services (GATS) – one of the agreements negotiated as part of the Uruguay Round of trade negotiations and one of the building blocks of the newly formed World Trade Organization – is opening new challenges, but also new opportunities for all countries in the World.

Another impetus for change began at the first World Telecommunication Development Conference (Buenos Aires, 1994), when the notion of the Global Information Infrastructure was first introduced as a way to interconnect the human family, to improve the society, education, the environment, and almost every aspect of our daily lives. Governments were called upon to join together to establish this network of networks.

While there are several initiatives underway to make the GII a reality, the greatest achievement, thus far, has been that countries were forced to recognize the power of technology and to look beyond their own national markets. Countries have realized that if they do not adapt their policies and strategies to take account of the changing environment, they will be left behind. There is a new impetus for global cooperation.

This report emphasizes the importance of a well-conceived telecommunication policy and a sound regulatory framework, mindful of national circumstance and attentive to the advancement of technology.

The report is intended to serve as a tool to assist countries in facing the many challenges encountered in reforming the telecommunication sector.

## ANNEX 1

**Bibliography**

**Primary Source I:** Contributions to the ITU-D Study Group 1, Working Party A/1, and Rapporteur Group on Question 2/1.

**Primary Source II:** ITU/BDT, Telecommunication Sector Survey, Document 1/47(Rev.1) (8 May 1995); Telecommunication Regulatory Survey for 1996/97.

**Primary Source III:** ITU/United Nations Development Programme, Regulatory Issues, Legislative Issues & Commercial Options. Programme of Economic Reform through Enhanced Transport and Communication Services, RAS/93/035. Bangkok, January 1995.

Report No. 1 Handbook on Sector Reform: *Guidelines on Regulation* (1995).

Report No. 2 Handbook on Sector Reform: *Legislative Guidelines* (1995).

Report No. 3 Handbook on Sector Reform: *Guidelines on Regulatory Organizations* (1996).

**Primary Source IV:** ITU/BDT, Telecommunication Policies for Africa: *The African Green Paper*, May 1996.

**Primary Source V:** ITU/BDT, Telecommunication Policies for the Arab Region: *The Arab Book*, January 1997.

**Primary Source VI:** ITU/BDT, Telecommunication Policies for the Americas: *The Blue Book*, March 1996.

**Primary Source VII:** ITU, *World Telecommunication Development Report*, March 1994. *World Telecommunication Development Report: Information Infrastructures*, October 1995. *World Telecommunication Development Report: Trade in Telecommunications*, February 1997. *African Telecommunication Indicators 1996*.

**Primary Source VIII:** World Bank, *Implementing Reforms in the Telecommunications Sector, Lessons from Experience*, Edited by Bjorn Wellenius and Peter A. Stern, 1994.

**Primary Source IX:** World Bank, *Telecommunications and Economic Development*, Saunders, Robert J., *et al.*, 2d ed., 1994.

**Primary Source X:** World Bank, *Welfare Consequences of Selling Public Enterprises*, Galal, Ahmed, *et al.*, 1994.

**Primary Source XI:** European Commission, Green Paper on the Development of a Common Market for the Development of Telecommunication Equipment and Services, Brussels, 1987. Green Paper on the Liberalization of Telecommunications Infrastructure and Cable Television Networks: Part One and Part Two, Communication to the Council and the European Parliament, October 1994.

**Primary Source XII:** ITU Colloquium. *The Changing Role of Government in an Era of Telecom Deregulation*. Six Reports. Options for Regulatory Processes and Procedures in Telecommunications (1993); Universal Service and Innovation: Fostering Linked Goals through Regulatory Reform (1993); Global Mobile Personal Communications Systems (1994); Interconnection: Regulatory Issues (1995); Trade Agreements on Telecommunications: Regulatory Implications (1995); Regulatory Implications of Telecommunications Convergence (1996).

**Primary Source XIII:** Technical University of Denmark, *Telecom Reform: Principles, Policies and Regulatory Practices*, Edited by William Melody, 1997.

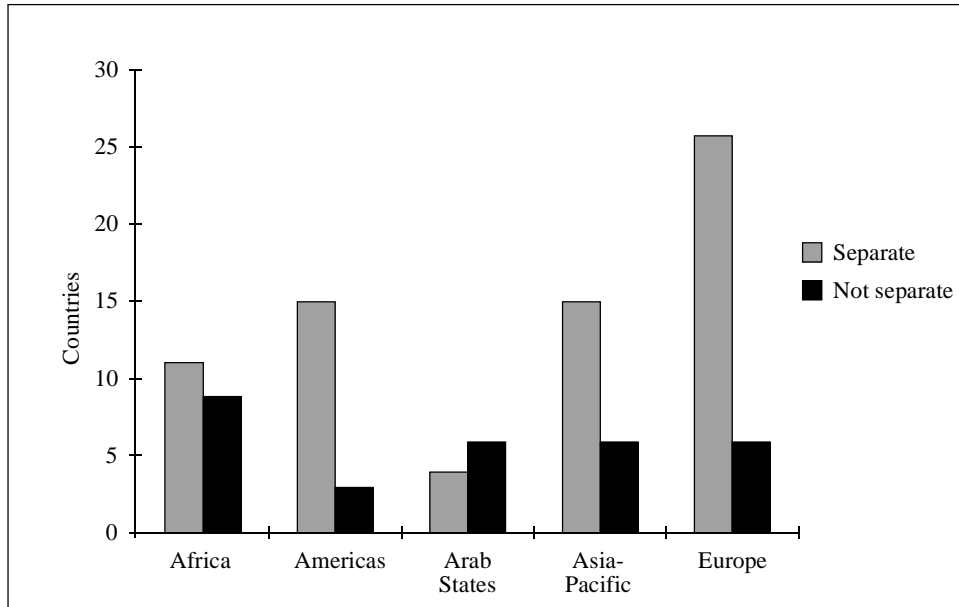
**Primary Source XIV:** ITU, *Final Report of the first World Telecommunication Policy Forum*, 1996.

**Primary Source XV:** Asia-Pacific Telecommunity (APT), *Handbook on Competitive Activities*, 1994.

ANNEX 2

**Selected results from the 1996/97  
Telecommunications regulatory survey**

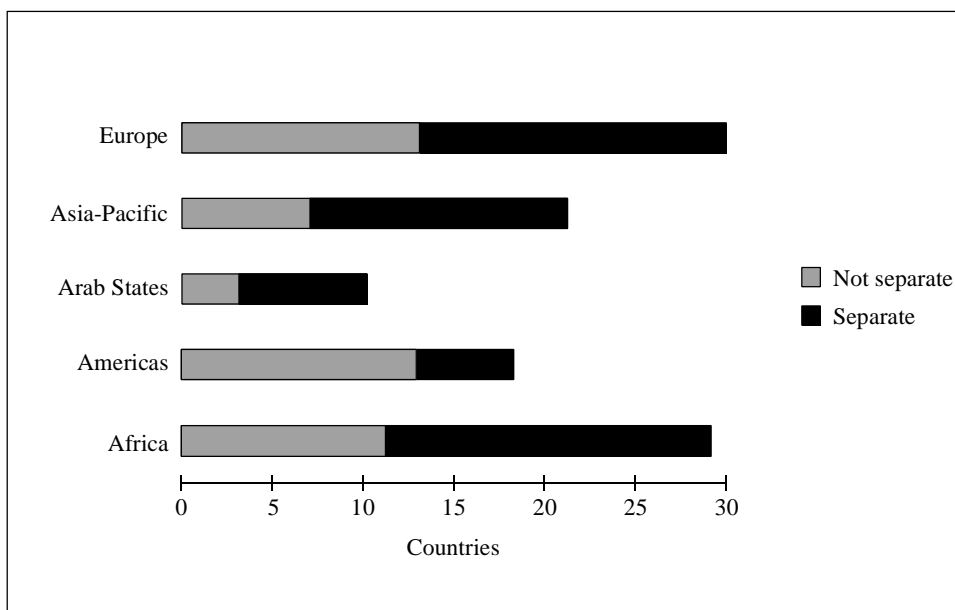
FIGURE 1  
Separation of regulatory and operational functions, by region



Source: ITU/BDT Regulatory Database.

d01

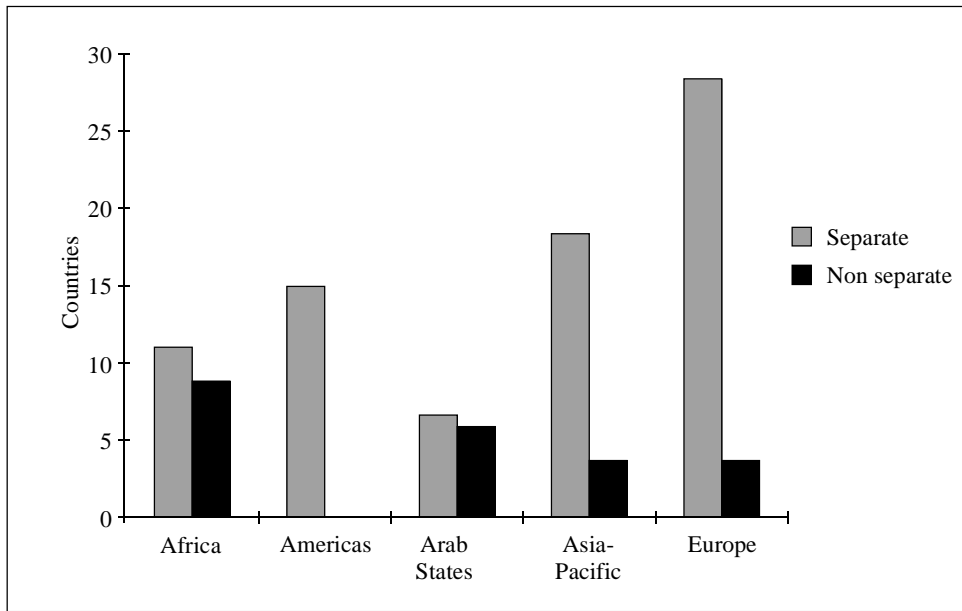
FIGURE 2  
Status of the regulatory authority, by region



Source: ITU/BDT Regulatory Database.

d02

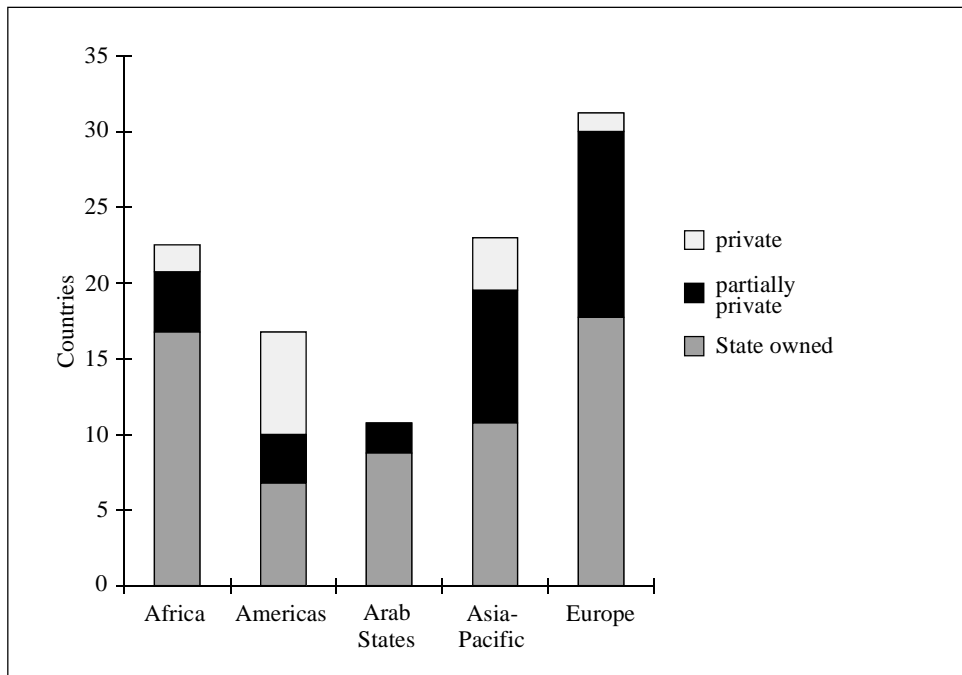
FIGURE 3  
Separation of postal and telecommunication operations, by region



Source: ITU/BDT Regulatory Database.

d03

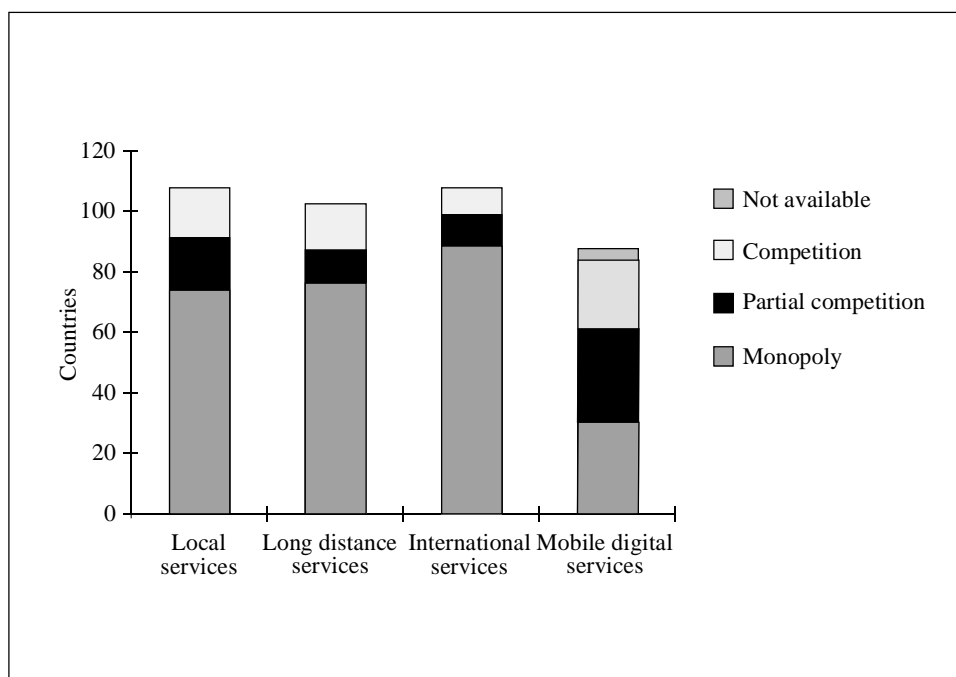
FIGURE 4  
Status of the main fixed link operator, by region



Source: ITU/BDT Regulatory Database.

d04

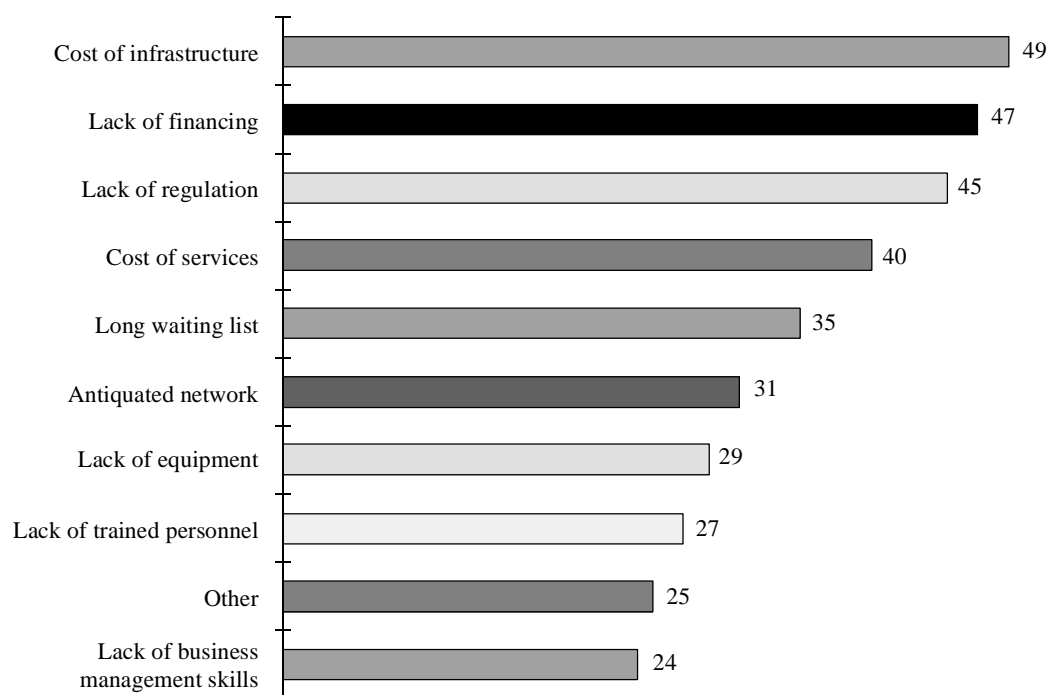
FIGURE 5  
Level of competition of selected services, worldwide



Source: ITU/BDT Regulatory Database.

d05

FIGURE 6  
Ranking of most pressing problems expressed by the world's public operators

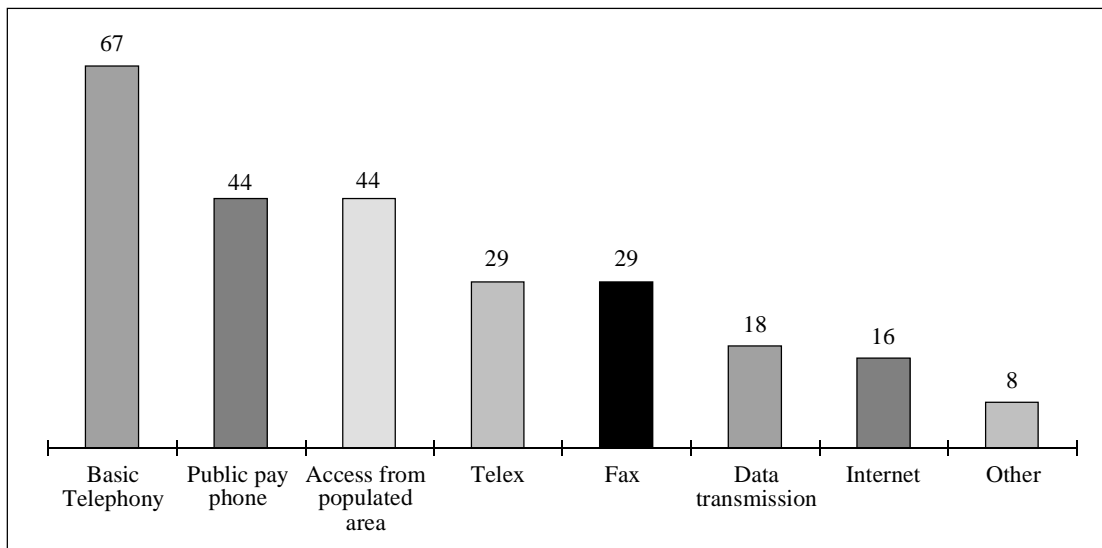


NOTE – Figures show number of countries reporting each problem. Several countries reported more than one problem. Total number of countries 101.

Source: ITU/BDT Regulatory Database.

d06

FIGURE 7  
Definition of Universal service, worldwide

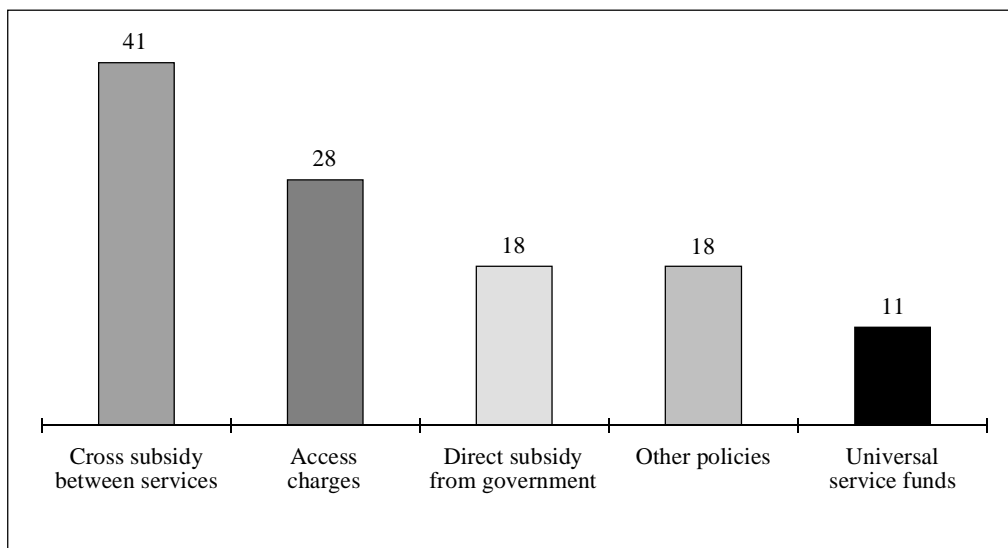


NOTE – Figures show number of countries reporting a definition. Several countries reported more than one service covered. Total number of countries 72.

Source: ITU/BDT Regulatory Database.

d07

FIGURE 8  
Ranking of policies implemented to ensure Universal service, worldwide



NOTE – Figures show number of countries reporting policies implemented. Several countries reported more than one policy. Total number of countries 72.

Source: ITU/BDT Regulatory Database.

d08

These eight charts are based on responses given by administrations to specific sections of the 1996/97 Telecommunications regulatory survey.

## ANNEX 3

**Contributions received for the report of Question 2/1**

Title	Administration/Company/Organization
<i>Modèle B: Modernisation du Monopole</i>	Benin
<i>Telecommunications in Bhutan</i>	Bhutan
<i>Telecommunication Sector Structural Reform</i>	Brazil
<i>Introduction of market liberalisation to LDCs</i>	Cambodia
<i>Evolution du cadre juridique et réglementaire</i>	Central African Republic
<i>Réformes d'ordre législatif/objectifs politiques</i>	Chad
<i>La restructuration du secteur des P&amp;T</i>	Chad
<i>French telecommunications</i>	France
<i>France: Country Exemple (Washington Meeting)</i>	France
<i>Limited Competition Germany (1989-1997)</i>	Germany
<i>Model D – Full Competition (Model for the European Telecom Market)</i>	Germany
<i>Modèle A: Monopole Traditionnel</i>	Guinée
<i>Modèle B</i>	Guinée
<i>Modèle C (futur)</i>	Guinée
<i>Reforming the telecommunications regulatory framework in Hungary</i>	Hungary
<i>A solution to universal service</i>	Inmarsat
<i>Technological Advances</i>	INTUG
<i>Model D: Full Competition</i>	Japan
<i>Universal Service</i>	Japan
<i>Universal Service</i>	Kenya
<i>Modèle B: Modernisation du Monopole</i>	Mali
<i>Model B</i>	Mozambique
<i>Model C</i>	Netherlands
<i>Numbering/Licensing</i>	Netherlands
<i>Cadre Réglementaire</i>	Niger
<i>Experience in Pakistan</i>	Pakistan
<i>Privatization of Portugal Telecom</i>	Portugal
<i>Regulatory Environment</i>	Slovak Republic
<i>Conditions préalables à l'introduction et à l'utilisation de technologies et de services nouveaux</i>	SOTELMA, Mali
<i>Le partenariat Public/Privé: La Concession</i>	Thomson-CSF
<i>Frequency Management</i>	United Kingdom
<i>Numbering</i>	United Kingdom
<i>Model D – Full Competition</i>	United Kingdom
<i>Policy and Development Strategies for Developing Countries</i>	United States
<i>Recent Legislative Reform in the United States</i>	United States
<i>Policy objectives</i>	Zambia

