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**THE BLUE BOOK**

**TELECOMMUNICATION POLICIES  
FOR THE AMERICAS**

**Inter-American Telecommunication  
Commission  
Organization of American States**

**International  
Telecommunication  
Union**

**Edition 2005**

**Inter-American Telecommunication Commission  
Organization of American States**

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**International Telecommunication Union**

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## **Preamble**

The Blue Book is a reference tool to provide the countries of the Americas Region with factual descriptions and information on telecommunication policy and regulatory issues, including the challenges and opportunities presented by the development of new telecommunication technologies.

The descriptions of the policy and regulatory environments prevailing in certain countries of the Region, as outlined in this version of the Blue Book, do not reflect the situation prevailing in all the countries of the Americas.

The texts appearing in Chapters 4-11 represent the consensus view of the Member States of the Inter-American Telecommunication Commission (CITEL). However, some of the descriptions and views set out in Chapters 1 to 3, do not reflect policy and regulatory practices or the environment of telecommunications in each country in the region, and therefore are not consensus-based texts.

## **I. Introduction<sup>1</sup>**

### **1.1 Brief historical overview of the Blue Book**

1.1.1 The “Blue Book: Telecommunication Policies for the Americas” has its origins in the Regional Conference on Telecommunication Development in the Americas (AM-WTDC-92) of the International Telecommunication Union (ITU), held in Acapulco, in 1992. On that occasion, the need was underscored to offer assistance and advice to Members of the region regarding the process of change then under way. The Conference adopted recommendations designed to promote the telecommunication sector throughout the region. The Inter-American Telecommunication Commission (CITEL) of the Organization of American States (OAS) subsequently organized a number of meetings with a view to implementing those recommendations.

1.1.2 The outcome of ITU and CITEL efforts to help their Members adapt to the evolving telecommunication environment was the first edition of the Blue Book. Suggestions and comments on the first draft, prepared in 1993, were made by experts drawn from a variety of milieu. This first draft underwent a series of revisions until its publication in March 1996, after the 1995 Permanent Executive Committee of CITEL (COM/CITEL) resolved that the CITEL Member States should promote and support the use of the Blue Boo

1.1.3 The 1990s were characterized by a vision of a globalized world, promoting

privatization and deregulation of telecommunication services. This implied an expansion of infrastructure and services, the Blue Book contained the first recommendations in that respect. In 2000, the time came to address sector transformations resulting from technological evolution, convergence, Internet growth, and the new landscape generated by the promotion of competition and the presence of new sector players.

1.1.4 Today it may still be asserted, as it was in the 2000 edition that the Blue Book has served as a useful guide in the sector reform process including privatization and liberalization of the telecommunication market in the Americas, and that it was and should continue to be the product of consensus and shared vision at the regional level.

1.1.5 It remains valid to consider the Blue Book a dynamic instrument and starting point for further studies, one that should be periodically reviewed and updated if it is to remain a useful reference tool for the countries of the Americas region.

1.1.6 Today, the guidelines for updating the Blue Book reflect a review and evaluation of the conceptual frameworks used in developing the Region’s telecommunication policy recommendations, taking into account recent experiences and the social development paradigms discussed at the most recent Summits of the Americas.

1.1.7 At the same time, it must be borne in mind that each state’s responsibility for designing sector policies, following up their evolution, and playing a guiding part in promoting economic growth with equity unquestionably includes taking account of the role of the private sector, private and public investment in research and development, regulation, new technologies and network security, trade in telecommunication equipment and services, and strategies at the regional and world level for the development and use of information and communication

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<sup>1</sup> The United States dissociates from this chapter because it does not represent an Americas consensus; *see* Preamble. In addition, the United States dissociates from this chapter because it takes exception to Nation State involvement in the management of telecommunications industries and markets, especially including: (1) imposition of excessively restrictive regulations; and, (2) mandating private investment in local manufacturing.

technologies (ICTs).

## **1.2 Globalization, aspects, and consequences in the region**

1.2.1 In the latter half of the 20th century, the development of industry and transportation marked the start of an economic globalization process, that accelerated in the 1990s owing to the development of telecommunications and its infrastructure and, in recent years, to the phenomenal growth of the Internet and the emergence of new services and technologies. In that context, telecommunications has become a strategic sector for the political, social, economic, financial, and cultural development of every nation.

1.2.2 Accordingly, formulation of public sector telecommunication policies would benefit from assessments of: world, regional, and national economies; production processes and financial policies; the impact of particular models on growth or recession; fiscal and exchange policies; research and development; and the role of national states.

1.2.3 The development of ICTs, the proliferation of services and applications, and major expansions of networks have led to a concentration of technological research and development. For some Administrations, it is important to provide incentives to research and development of products and technological solutions in the countries of the Region, exchanging experiences and studies, both from the public and from the private sector, and those of universities and research and development centers, taking account of relevant existing solutions to reach remote and marginal areas in the countries of the region.

1.2.4 Some Administrations consider that, just as telecommunications has played and continues to play a key part in the globalization process, governments and the players involved should seek to reach consensus regarding measures intended to

contribute to the universal availability of telecommunication services and the strengthening of human resource training for production and socially-inclusive economic growth capacity-building of human resources trained for production, along with the necessary economic growth with social inclusion.

1.2.5 In this framework, each country might seek, in accordance with its governmental policies, to make appropriate amendments to telecommunication service regulations. In light of some countries' experience, this review should not imply a return to regulatory regimes that have manifested deficiencies. On the contrary, governments might promote actions facilitating coordination among service providers and related industries via management models that optimize the relationship between general welfare and freedom of trade.

1.2.6 Some countries believe that coordination of the telecommunication sector with national and regional industry as a whole would promote the countries' integral development, thereby stimulating local markets and, in turn, increasing demand for telecommunication services.

## **1.3 Technological change and convergence**

1.3.1 Inevitably, the media did not refrain from involvement in the recent generalized process of technological change. Telecommunication infrastructure, in particular, swiftly underwent such change, which emanated from different and unrelated sources of technological development, so that some disorder is now evident. Some equipment suppliers therefore channeled their development towards applications which, as they were intended for market segments with substantial purchasing power, focused on functional or comfort aspects; others directed their efforts towards developing cheaper, more reliable traditional products; while there

were also technology developers who created truly innovative services.

1.3.2 The “new” vis-à-vis traditional telephony services naturally evolved in two main directions: terminal mobility, giving rise to wireless services, and transmission of data between pieces of IT equipment. The significant fact of working with the same raw material – information – gave rise to technological convergence, which would ultimately be consolidated as digitization of telecommunications. With the increased capabilities, broadband services, such as image, sound, video, etc, would later be incorporated.

1.3.3 This evolution did not take place independently of service regulation. In general, the transfer of state monopolies to the private sector was limited to fixed or basic telephony services, these service providers being granted the privilege of exclusivity while restricted to a single activity, in turn promoting the expansion of supply in a framework of competition with other services.

1.3.4 It is now the case in some countries that there are large segments of their population which, owing to their geographic location or other factors, in the best of cases are only able to access basic telephone service. At a time when most information

transfer is supported by other services, providers have developed more versatile networks, but their coverage is meager and is targeted at highly selective markets.

1.3.5 Because of its inherent efficiency of resource use and the advantages it affords the public through integration of services, technological convergence is emerging as a potential solution to meet needs for access to many services that today can no longer be viewed as luxuries.

1.3.6 Account must also be taken of the correspondence between technological innovations and market requirements, the latter meaning those stemming from the genuine demands for communication of the public and the economic and productive sectors. In that context, it is imperative to have in place telecommunication policies designed to correct imbalances in the supply of services.

1.3.7 There are regulatory elements and, therefore, well-conceived policies of sector companies that may be highly useful in achieving the objectives of balanced development of countries and a market taking into account technological convergence where, along with competition that promotes innovation, providers have obligations and incentives to ensure the coverage required by the community.

## **2. The role of the national state<sup>2</sup>**

### **2.1 Recommendations of the Special Summit of the Americas (Monterrey, 2004)**

2.1.1 The process to update the Blue Book should take into consideration among others very important concepts stemming from the Millennium Development Goals Declaration, the Declaration and Plan of Action of the first phase of the WSIS, and the broad and balanced agenda of the Summit of the Americas process, including the draft Declaration and guidelines for the Plan of Action of the upcoming Summit in Mar del Plata.

2.1.2 The recommendations of the Summits of the Americas have aspects that could be considered for the formulation of sector policies in the case of telecommunications, by CITEL.

2.1.3 The Heads of State and Government of the Americas, gathered in Monterrey, signed the “Declaration of Nuevo León,” whose Preamble may serve as reference, as it indicates the need to work together to, inter alia, promote social inclusion, raise living standards, generate new employment and investment opportunities, and promote decent work, and affirms that the well-being of our people requires the achievement of three closely linked and interdependent objectives: economic growth with equity to reduce poverty, social development, and democratic governance.

2.1.4 Another, more specific, paragraph that the telecommunication sector might taken into account is that where the Heads of

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<sup>2</sup> The United States dissociates from this chapter because it does not represent an Americas consensus; *see* Preamble. In addition, the United States dissociates from this chapter because it takes exception to Nation State involvement in the management of telecommunications industries and markets, especially including: (1) imposition of excessively restrictive regulations; and, (2) mandating private investment in local manufacturing.

State and Government agree that “scientific and technological research and development plays an important role in creating and sustaining productive economies” and that they would strive “to improve effective and equitable access to, and transfer of, technology.”

### **2.2 Public policies and legal certainty**

2.2.1 Set out below are public policy guidelines that some Administrations consider might be reviewed by competent entities in the region if so required, as reference in formulating their own specific telecommunication sector policies:

a. In order to achieve an effective presence in the world’s political and economic order, formulation within the framework of national objectives, of public policies, including definition of integration processes and participation in regional agreements and international organizations.

b. In view of the perception that growth in the region may not be equitable and that the gap between the wealthy and the poor in some cases is widening, political, social, and economic players may call for a state that seeks to address the growing imbalances in levels of development and internal distribution which undermine the security of political, legal, and economic institutions;

c. In view of the priority of “economic growth with equity to reduce poverty” established by the Heads of State and Government, to consider generation of employment and investment as the most genuine ways of achieving that end. It may be necessary to design policies promoting investment in productive projects that generate further employment. Unquestionably, it is through work that men and women are integrated into their community;

d. Public policies should provide for the development of a framework to support a

productive economic model, as asymmetrical development among countries requires national economies integrated in their production of goods and services. Support for such policies would make possible both the expansion of the domestic markets of less developed countries and those countries' integration into the global productive system, thereby participating in not only demand but also supply;

e. Moreover, such policies should seek to generate legal certainty, a condition required by the national and international business community. The essence of such legal certainty is the adoption by the country of a path towards a process of sustained growth with social inclusion, which will provide a climate propitious to business and with investment security;

f. The legal certainty required by private investors, and provided through laws, regulatory frameworks, and contracts, also requires both the implementation of clear policies and the existence macroeconomic signals that encourage investment.

## **2.3 Public telecommunications policies**

2.3.1 The process of privatization and deregulation of telecommunication services, with the generation of a competitive market, has led to a period of sustained growth of infrastructure and services. Along with the development of new technologies, especially the Internet, a wide array of services has been developed for communities.

2.3.2 Although chaotic in some cases, the dynamics of the sector's development in recent years has been subject to market forces and a significant presence of large international operators. In view of the public service nature of telecommunications, public policies should be designed to promote sector growth, providing a framework conducive to private investment and, at the same time, regulating that activity so as to establish equitable interrelationships among players

and responding to the public's need to communication.

2.3.3 Each country's telecommunication service model is defined by competition-based private activity and the state, with its regulatory functions and sectoral policies. When such factors are harmonized, greater benefit to the community is achieved. On the other hand, where an imbalance is not corrected by the market, the state might intervene to promote its national industry.

2.3.4 It is here where the intensity and effectiveness of state intervention in regulating, controlling, and designing telecommunication policies should be evaluated. In addition to state functions - licensing, universal access/service, equipment homologation and type approval, user protection, tariffs, interconnection, etc. - some countries have begun to implement policies designed to activate the sector's contribution to the country's social and economic growth.

2.3.5 Accordingly, in those countries that so decide, sector policies could be aligned with the national policies of development. This would imply monitoring the sector's evolution without intervening directly, but rather offering the market information and guidelines on governmental priorities for telecommunication policies so that the private sector may choose to invest in projects that generate more employment and have greater social impact, benefiting from incentives that the state might offer.

2.3.6 To that end, telecommunication policies might include developing strategies designed to stimulate demand of the sector so that inputs are provided by local industries and to promote investment and access to financing. Such actions would encourage the growth of sector suppliers in producing final or intermediate products that are competitive in terms of quality and price.

## **2.4 Infrastructure for production, growth, and employment**

2.4.1 Telecommunications plays a strategic part in global, regional, and national economies owing to its dual nature: as an activity in itself and as a vehicle and support for other industries and sectors.

2.4.2 In the telecommunications sector of the economy, one bringing together countless businesses, institutions, and society itself, four components may be identified: service provision; the equipment supplier industry; generators of knowledge for production of equipment and services; and users. This suggests the important part played by telecommunications in production, growth, and employment in the region's countries. When policies regulating service provision are established in accordance with the production of equipment and development of knowledge of the countries themselves, their communities will be able to profit from this in the form of well-being and employment.

2.4.3 The design of telecommunication services linked to the national productive web and public and private technological research and development institutions may take the form of public policies that establish rules and reflect consensus with providers, including, to the extent decided by each Administration, incentives for the procurement of local production. This should not imply artificial barriers to freedom of trade and should respect multilateral agreements concluded, facilitating the placement of external productive investment. Some Administrations consider that the output of the local industrial and technological complex should be products with standards of quality and competitive pricing enabling them to participate in global supply and demand, resulting in the insertion of countries in the world arena.

2.4.4 Some Administrations also consider that when governments clearly define their economic and social models and when their

policies and decisions are sound, private sector players will find a suitable market for their operations. For such Administrations, this would imply a macroeconomic environment that serves as a reference in formulating investment projects in both networks and services and in product development, as growth rates will be estimated based on sound elements, thereby putting financial parameters in perspective in forecasting the production potential of such projects.

2.4.5 Public and private research and development in centers, institutes, and universities, in some cases vary in terms of the status of their research and the extent of their coordination and exchange with other entities. Promotion of and investment in research and development by the state might result in beneficial public policy and in ways of tying in with the private sector. Companies may choose to invest some fraction of their overall budget in research and technological development in the countries where they provide services or market products. Cooperation between the public and private sectors in this area would facilitate the dissemination of innovation and its assimilation by researchers and developers of the countries and the region.

## **2.5 National legislation and regulation**

### **2.5.1 The need for national legislation for the telecommunication and information sector**

2.5.1.1 In general, all countries of the region have national legislation governing telecommunication services and ownership of telecommunication infrastructure, and have established regulatory or administrative systems to implement and enforce that legislation. If significant changes are made to the structure of the telecommunication sector, as has occurred in many countries of the region, this legal framework must be formally amended. Review and revision of related legislation, such as legislation on investment,

foreign capital, and competition among other things, would also be advisable.

2.5.1.2 The overall objective of new telecommunication legislation should be to foster the development of the sector and protect the public interest. This may be a direct result, as will occur if communications services become generally available to users, or an indirect result, as when the sector contributes to the overall social or economic growth of the country. Each country will determine its own specific objectives and the mechanisms it will use to achieve them.

2.5.1.3 In most countries of the region, telecommunications, which for many years had been operated as national monopolies, generally under government ownership and control, in recent years has been characterized by major change and reform, such as partial or total privatization of basic service provision and market liberalization. Traditional models have been revised under pressure from different economic and social sectors that needed more modern, efficient, and accessible services, of better quality and at lower prices.

## **2.5.2 General considerations**

2.5.2.1 Generally, throughout the Americas, the legislature (congress, parliament, assembly, etc.) has the authority to legislate in the telecommunications area. The constitution and laws may contain provisions pertaining to telecommunications. The administration of such legislation may be in the hands of an executive branch authority (such as a ministry of communications) or an independent and/or autonomous body with authority to issue provisions or regulations of general application.

2.5.2.2 The telecommunication sector is subject to constant change. This characteristic implies that telecommunication legislation should be drafted so as to reflect broad principles and criteria for future action, rather than going into detailed provisions for

today's services and technologies. Adequate flexibility will prevent legislation from being made prematurely obsolete by sector evolution and will enable general principles to be adapted to new circumstances. For example, if formal amendments to the law were needed in each instance, the supply of new services and technologies would be unduly delayed, to the detriment of users and providers.

2.5.2.3 It is better to entrust the more detailed implementation of telecommunication legislation to an administrative or regulatory body (the regulatory authority) comprised of experts and with the ability to give full and careful consideration to routine telecommunication matters and changing user and provider needs. However, in fully competitive markets, the role of the regulatory authority will change and will be reduced in some areas in recognition of the fact that prices and services are largely determined by market forces without the need for state regulation. The regulatory authority will, of course, still have to protect the public/social interest.

## **2.5.3 Principles to be taken into account in telecommunication legislation**

2.5.3.1 It is consequently necessary to draft telecommunications regulations clear, effective, and transparent regulatory frameworks.”

2.5.3.2 The abovementioned characteristics of national legislation and regulations constitute guidelines for the development of provisions that reflect substantive principles for the regulation of telecommunications.

2.5.3.3 In light of their experiences, some countries consider that it would be advisable for telecommunication regulations and legislation, in view of their sectoral nature, to be tied in with general policies, and become appropriate instruments for the implementation of models of production, growth, employment generation, and

promotion of national industry and technology.

2.5.3.4 In addition, in order for the telecommunication sector to contribute to a country's general economic growth and social development, national legislative objectives might take into account the following general principles among others:

- a. In network operation and service provision, ensuring compliance with public service obligations;
- b. Protecting users;
- c. Ensuring the community's to universal access;
- d. Promoting infrastructure development, facilitating productive investment;
- e. Facilitating both production of equipment in the country and a network of local providers;
- f. Promoting research and technological development;
- g. Safeguarding sustainable, loyal and effective competition in markets;
- h. Seeking to facilitate service and productive activities to generate employment;
- i. Promoting the use of telecommunications to facilitate integration of the regions of countries, as well as the growth of regional markets;
- j. Promoting access by all inhabitants to the Information Society;

2.5.3.5 Some telecommunication services are considered to be of a public nature whose provision and scope must be ensured by all states, as must its regulation and oversight as needed to protect the public interest.

2.5.3.6 Legislation must safeguard, respect,

and ensure users' rights. Service provision impacts the interest and welfare of the public as a whole, as each member of the community is far more than just a user or consumer. In many cases, specific measures must be taken to facilitate universal access to services.

2.5.3.7 Telecommunications plays a key role in social and economic development and contribute to the mobilization of a country's economic and human resources. Legal provisions should contribute so that telecommunications sector effectively plays such a role.

2.5.3.8 Public policy goals and objectives include:

- a. Promoting efficient and appropriate use of the spectrum and assigning frequencies in accordance with national regulations and ITU provisions;
- b. Establishing an authority with responsibility for implementing the legislation, and for rules, regulations, decisions, and procedures, in accordance with the principles of law and the public/social purposes of the legislation;
- c. Recognizing the convergence of technologies and coordinating legislation applying to different sectors and technologies.

2.5.3.9 National telecommunication legislation will also define the topic it is intended to cover. In particular, the legislation would routinely contain an operative definition of "telecommunications," which may be framed in terms of the media used to provide communications services or in terms of the nature of services to be offered.

2.5.3.10 With technological convergence, similar communications services may be offered via different facilities, or, conversely, several communications services may be available over a single network. It is

advisable for legislation to cover all telecommunications-based services and for legislators to decide whether there is to be different treatment or very detailed regulation of the different subsectors.

2.5.3.11 Telecommunication legislation should also set forth the basic policies and conditions applicable to the services, facilities, and operators regulated. Typically, these provisions might include:

a. Public or social obligations that the dominant operator in the public telecommunication network generally has to fulfill, such as the duty to offer universal service on a nondiscriminatory basis, to make emergency and disaster relief services available, or to meet predefined quality or reliability requirements;

b. Authorization to compete with the existing public switched telephone network operator in providing services or building and operating facilities;

c. The right of competitive providers of network-based telecommunication services to interconnect with the public switched telecommunication network on a reasonable and nondiscriminatory basis, at cost-based prices;

d. Descriptions of any authorities reserved to the national or local governments, or to the state monopoly, to provide certain services or to construct/own/operate certain facilities on an exclusive basis;

e. The criteria to be employed by the provider or regulator in establishing prices and tariffs for services provided on a monopoly basis. In a fully competitive market, market forces may be relied upon as the primary regulator of service prices and tariffs. In other circumstances, to protect the public interest, the regulatory authority should ensure that prices are fair and reasonable, as an alternative to market forces.

f. Special provisions pertaining to the

delivery of radiocommunication services (including broadcasting) and/or satellite services; each of which may raise issues regarding the use of scarce resources, interference, and compliance with international agreements.

g. Penalties that may be applied in the event of violation, such as fines, suspension of operation, revocation of licenses, or termination of rights or privileges.

## **2.6 The regulatory authority**

2.6.1. Regulatory functions as described in this chapter, may be carried out by different authorities depending on the structure of the state concerned.

2.6.2. In order to achieve an institutional organization that reflects the cultural, socioeconomic, political, and historical identity of the telecommunications sector in each country, account must be taken of the general objectives of each state, the development of its community as a whole, and its telecommunications sector as a productive and geographic integrating factor.

2.6.3. In that framework, states cannot abstain from participation in technical and administrative regulation, the administration, planning, and management of state resources (spectrum and satellite orbits), the technical and economic control of service provision, the control associated with protection of competition and the rights of the users of telecommunications services.

2.6.4. Government reorganization in keeping with the new dynamics of the telecommunications sector reflects, as mentioned above, a series of characteristics peculiar to each country but, in general, the following model has been employed: for policy formulation, the executive branch or government ministry; for the regulatory function, an independent regulatory authority; and for the provision of services, private operators.

2.6.5. In each country the ministerial departmental authority or the competent body focuses on decisions pertaining to adoption of telecommunications policy, which could include the government's social and-political objectives, promotion of the industry, and any other reference to incentives and the development of telecommunications, as well as its relationship to the public interest and promotion and realization of the benefits of new technologies for society as a whole.

2.6.6. The regulatory authority should have the capacity to regulate and enforce said provisions, and should have human and financial resources, as well as pertinent legal mechanisms necessary to accomplish those objectives.

2.6.7. Whatever the form adopted for the regulatory authority, certain characteristics may strengthen its independence and impartiality, and should be clearly defined in the legal instrument establishing that authority:

- a. Budgetary autonomy and sufficiency;
- b. Clear definition of the term, appointment and or removal of senior officials following its following each country's legislation);
- c. Rules of eligibility and for the conduct of senior officials and managerial staff, that underscore the independence and impartiality of the entities subject to the regulatory authority's jurisdiction and encourage the selection of individuals with appropriate knowledge and expertise;
- d. Establishment of jurisdictions and/or their complementarities with other governmental bodies.

2.6.8. If the regulatory authority is to exercise quasi-judicial functions, that mandate should be clearly defined in the legislation.

2.6.9. The regulatory authority will be

authorized in legislation (or in another provision for the implementation of such legislation) to implement telecommunication provisions. The precise authority transferred to the regulatory authority will vary from one country and legal system to another. Tasks commonly delegated to the regulatory authority may include:

- a. Classifying the different services for purposes of licensing and regulation;
- b. Establishing criteria, procedures, and conditions for granting, renewal, and revocation of licenses;
- c. Establishing minimum service expansion plans and other obligations of operators;
- d. Testing and homologation of products and services;
- e. Promoting efficient use of the spectrum, in keeping with international agreements;
- f. Promoting the introduction of new technologies and services; in accordance with the development policy implemented for the sector;
- g. Promoting access under nondiscriminatory conditions to telecommunication networks in the framework of the policies and regulations in force;
- h. Resolving disputes within the regulatory authority's competence, between competitors, or between providers and users arising from alleged noncompliance with laws, provisions, and regulations;
- i. Representing the country in international negotiations and consultations regarding telecommunication matters;
- j. Undertake inspection of provision of all telecommunications services, facilities and equipments

k. Draft general regulations of a general scope and to also establish specific rules

l. Imposing penalties for violations of telecommunication legislation;

m. Enforcing provisions and regulations and investigating and monitoring compliance with the respective obligations of telecommunication operators and service providers;

n. Ensuring that the rights of customers and users in the telecommunications area are respected.

2.6.10. In general, regulatory authority will be delegated the authority to carry out its functions by issuing provisions and regulations of general application and to conduct licensing and dispute resolution procedures. As a specialized body subject to law, the regulatory authority may be authorized to exercise broad discretion in the regulatory methods it selects in order to achieve the objectives of the telecommunication legislation.

2.6.11. The legislation should establish, in general terms, the nature of the actions that may be taken by the regulatory authority and the rights and obligations of participants and interested parties with respect to those

actions. Public confidence in the regulatory authority will be enhanced by administrative procedures that are regular and transparent and in which substantial participation by interested parties is encouraged.

2.6.12. The legislation should otherwise leave to the regulatory authority the organization of its own operating structure and internal rules of operation. Divisions of responsibilities within said structure might include:

a. Spectrum management;

b. Strategic planning and regulation of telecommunication services, depending on private sector/competitive participation;

c. Planning and regulation of broadcasting services (radio and TV broadcasting, cable TV, multichannel distribution services (terrestrial and satellite), broadcasting satellite services;

d. Services provided by telecommunications companies (public or private);

e. Legal matters;

f. Management of international telecommunications-related matters.

g. Defense of competition and user protection.

## **ANNEXES**

### **SECTION 2.6 : THE REGULATORY AUTHORITY DOMINICAN REPUBLIC: LEY GENERAL DE TELECOMUNICACIONES**

### **3. The role of the private sector<sup>3</sup>**

#### **3.1 The private sector as a force driving growth**

3.1.1 In any activity of national economies, the dynamics of growth depend on the breadth and quality of the private sector as its development and company profit generate wealth for countries and the region and drive economic growth.

3.1.2 Governments should encourage distributive economic growth conducive to correcting imbalances among each country's social sectors and different geographic regions. Private enterprise, however, through its investment, production, trade, and distribution dynamics, transforms inputs into products by incorporating work.

3.1.3 Entrepreneurial capacity, investment, and risk are elements that government policies should encourage, providing a macroeconomic context that establishes clear rules for this purpose. Open access to participation in the market should be protected as the other factor in allocating resources among economic players and, in turn, in regulating competition.

3.1.4 Involving the private sector in public policies enables growth to be sustained and harmonious. Consensus facilitates the alignment of business strategies with national socioeconomic development objectives. In such a framework, private companies would be able more effectively to formulate their business model.

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<sup>3</sup> The United States dissociates from this chapter because it does not represent an Americas consensus; *see* Preamble. In addition, the United States dissociates from this chapter because it takes exception to Nation State involvement in the management of telecommunications industries and markets, especially including: (1) imposition of excessively restrictive regulations; and, (2) mandating private investment in local manufacturing.

#### **3.2 Investment, innovation, and employment generation**

3.2.1 Telecommunication development has required heavy investment. Infrastructure and its networks of different technologies have expanded throughout the world and interconnect nations and continents. It is important to note that the development and implementation of new generation networks continue to require investment, by both providers and equipment manufacturers, and that it is a priority for a rational approach to be taken to this matter in order to generate growth and employment.

3.2.2 The private sector assumes risk based on its assessment of the macroeconomic and legal rules defined by government based on policies in general and telecommunication policies in particular. A favorable investment climate is one where there is interaction between the public and private spheres. Companies will act based on signals from the public sector and will design their strategies by evaluating predictable future scenarios. Accordingly, as discussed in Chapter 2, the basic elements of investment security are provided by countries' prospects for economic stability and social cohesion.

3.2.3 In this context, it would be very beneficial for companies to consider participation in governmental negotiations to formulate policies and plans that promote growth, manufacturing revival, and consumption for most of society.

3.2.4 Ongoing technological innovation has enormous impact on the operating plans of sector enterprise. Market studies may therefore be useful to plan investment and the evolution of current infrastructure. One action that has yielded positive results has been to link the different research centers, both public and private.

3.2.5 It is important the work done by the private sector to assess implementation times and the types and performance qualities of

new technology based on existing and future requirements of end users of services. A correct assessment of the potential and actual characteristics of the local market may promote the development of well-conceived technological applications and will prevent the generation of “bubbles” that will eventually be rejected by markets themselves.

3.2.6 The process of investing in networks, equipment, and knowledge by providers stimulates other industries and service companies. To be mentioned are the considerations made in this connection by some Administrations and nongovernmental organizations of the sector:

a. Company decisions tending to direct their input procurement towards the domestic, national, and regional market will generate a productive network that builds the national telecommunication industrial complex. It is possible to take such decisions when local markets have products that meet international standards of quality and price;

b. The combination of local research and development and input procurement on the domestic market would constitute a long term business strategy that promotes growth of demand for telecommunication services, being at the same time the core of an employment generation process;

c. It is advisable for the private sector to direct investment and reinvestment towards local and regional markets, committing themselves to their development, as they constitute a source of that sector’s own profitability;

d. By taking this approach in their strategic decisions, high-tech industries have an opportunity to address one of the major imbalances faced by less developed or poorer countries: high rates of unemployment, affording themselves through both intellectual and manual work, a genuine opportunity to include marginalized populations for the benefits of development;

e. Organization of the sector workforce is of assistance in achieving the balance that is required for well-conceived and harmonious deployment of telecommunications. Labor unions are established spokespersons for both the state and enterprise as, together with protection of professional interests, they contribute to the formulation of public policies and business strategies that take account of employment and production.

### **3.3 The role of large, medium, and small-scale enterprise**

3.3.1 Large telecommunication, service, and equipment companies are in a position to be promoters of global development and the growth of national economies. Their investment capacity and financing mobilizes a series of subsidiary and complementary industries.

3.3.2 Regional and world integration processes, and the scale of productive systems and their operational complexity have generated, and continue to generate, processes of concentration in large corporations. These corporations impose economic and commercial change that stimulates regional and national economies but, in turn, their corporate policies need to be adapted to legal and regulatory requirements and to the socioeconomic environment of the countries where they operate.

3.3.3 Along with the growth and concentration of large corporations, throughout the world there is fresh appreciation of small, and medium-scale enterprise (SMEs). Their contribution to production, innovation, and absorption of manpower is essential for productive and geographical diversification and to overcome situations of poverty and exclusion.

3.3.4 The web and operation of productive, commercial, and service activities constitute an interactive whole, in which SMEs operate and grow to the extent that successful businesses and comprehensive business

strategies are in place. This is reinforced when governments and business strategies generate sound economic conditions in keeping with both the development needs of companies and the needs of their surrounding communities.

3.3.5 For their establishment and development, medium and small-scale companies require active public policies containing fiscal and credit measures, and providing for guidance and training programs. However, their greatest potential lies in their entrepreneurial capability and creativity to meet the needs of productive systems and their customer base through innovative solutions. An attempt should be made to link them to the system of large corporations as, without them and their operating power, there are no markets for raw materials, semi-finished products, components, manufacturing equipment, tools, and systems supplied by the SMEs.

3.3.6 The mix of different private sector players in a nationally, regionally, and/or internationally integrated market is, in the telecommunication sector, a force driving the national and regional economic and productive apparatus, promoting development with equity through the distributive effect that higher levels of employment generates in societies. Expanding local enterprise and increased expenditure on wages and salaries in turn mean greater demand for telecommunication services.

3.3.7 The expansion and growth throughout the world of large telecommunication service providers and providers of telecommunication products generates “global demand” for products and technological solutions. Some countries consider that the possibility of participating in global supply constitutes an expansion opportunity for companies supplying inputs. This would mean they could design their business plans based on higher volumes and more demanding quality standards. Large corporations should be encouraged to promote the development of the

industries and technological solutions in the countries where they operate.

### **3.4 Corporate social responsibility**

3.4.1 A company’s main function is to serve as a structured unit for the production of goods and services, while striving for profitability, quality, and growth. Efficient achievement of these objectives makes the business sector, the state, and workers, pillars of an organized community, which countries need for their harmonious development.

3.4.2 National and international business expansion and their impact on the life of societies and the world have given rise to other, complementary responsibilities. Accordingly, corporate social and environmental responsibility is now a topic of study, as stated by the leaders of the American countries at the Third Summit of the Americas (Quebec City, Canada, 2001), which recognized: “the central role that businesses of all sizes play in the creation of prosperity and the flow and maintenance of trade and investment in the Hemisphere” and noted that “businesses can make an important contribution to sustainable development and increasing access to opportunities, including the reduction of inequalities in the communities in which they operate, and taking into consideration the increasing expectations of our citizens and civil society organizations that businesses carry out their operations in a manner consistent with their social and environmental responsibilities.”

3.4.3 In this context, it has been recognized that businesses have responsibilities to the society in which they operate. To that end, the most effective way to contribute to sustainable development is through economic interaction with production, growth, and local work, which will lead to the reduction of inequalities in their communities.

3.4.4 Just as state entities should have transparent and predictable regulatory and oversight policies that do not obstruct private

sector initiative, businesses are also responsible for carrying out economic activities on an ethical basis. Irresponsible management and fraud must be prevented because of the harm they can cause to sector activities, shareholders, and society. This is achieved by ensuring strict compliance with technical and accounting regulations, in both formal terms and as genuinely and publicly reflected in responsibly audited accounting, financial, and tax statements.

3.4.5 As a result of sector privatization and deregulation processes, almost all global

networks and systems are in the hands of the private sector. For this reason, in addition to provisions and regulations issued by governments, a broad corporate commitment is required in the area of security, both to prevent criminal activities and to fight terrorism. In that connection, the Inter-American Committee against Terrorism (CICTE/OAS), in paragraph 7 of its Declaration of Montevideo of January 2004, cites: “The need for private sector cooperation to facilitate the resolution of terrorist and related crimes that involve the use of global communication networks.”

## **4. Technological development**

### **4.1 Public and private investment in research and development**

4.1.1 Research and development in information and communication technologies is the foundation on which the future of telecommunication services rests. However, ongoing efforts to incorporate new technologies do not necessarily imply progress in the development of specific solutions for different local situations. Bearing in mind also that telecommunications increasingly relies on software to perform its functions, local software customization may be one example.

4.1.2 Generating solutions to problems specific to locale is one of the main incentives to local technological development in countries. However, such incentives are only effective to the extent that they result in the production of international quality goods and services. Through local technological development some Administrations also seek to create a stable employment environment by establishing relations with universities and technological institutes, and by promoting and establishing laboratories at the three levels: basic research, applied research and evaluation, and development and quality control.

4.1.3 Recognizing that private sector investment in technological research and innovation has an ongoing and cutting-edge dynamic for telecommunication services; and

4.1.4 State bodies with competence in the telecommunication area might assist entities with responsibility for generating public policies that promote scientific and applied knowledge activities and to incorporate in such policies the following actions, among others, in accordance with decisions taken by each Administration:

a. Provision to all sectors, including SMEs, of conditions of non-discriminatory access to what has been termed the “knowledge-based society,” facilitating technology transfer and protection of locally developed intellectual property.

b. Ongoing evaluation of new technologies, including consideration by the state of the possibilities afforded by the application of such technologies in developing the community and its productive undertakings.

c. Promotion of public-private partnerships in association with universities and other public institutions to network coordinated efforts and resources.

### **4.2 Promotion of research and development**

4.2.1 Some Administrations consider that generating and fostering a research and development culture entails the need to promote primary, secondary, and university education. This would result in raising expectations regarding the technology available in the country and its benefits the expectations in the availability of and benefits from technology in the country.

4.2.2 Accordingly, one of the challenges is to coordinate between the public sector, the private sector and academia the contents and objectives of sector-related courses of study imparted by national institutions, so as to meet future demands.

4.2.3 In this context, such institutions could become the private sector’s great ally. The state may take steps to promote these relationships by encouraging institutions to make available their capacity for development, research, and collaboration with other specialized centers.

4.2.4 Such public/private sector coordination policies would make it possible to evaluate

the impact of new technologies and their benefits for the community as a whole, national interests, and private sector investment.

### **4.3 Technological development and its impact on national direct and indirect employment**

4.3.1 Telecommunications and information technology are rapidly converging. The integration of new and existing technologies and infrastructures is contributing to the democratizing of knowledge, freeing individual creative and productive capacity, and affording companies new opportunities.

4.3.2 It is now time to seek to develop cutting edge technologies that meet market needs, provide financial return, and target the welfare of society.

4.3.3 Today, as in the past, technology is a highly liquid investment with great potential. A country cannot disregard technological development without disregarding its own future.

4.3.4 Localized technological development does not mean reinventing the wheel, but rather the development of solutions genuinely adapted to the country's needs along with the training of professionals of the widest array of profiles and levels of academic studies and training.

4.3.5 One of the main challenges faced by some countries of the Americas is how to build an economy with the capacity to produce goods and services but also characterized by social inclusion while still participating in the global marketplace. In that regard, information technologies have a fundamental part to play and may become a force driving the economy, not only because of their own capacity to generate employment and efficiencies but also due to the beneficial effect that incorporation of information technologies can have on the other sectors of the economy and on societal players.

4.3.6 In this context, in some countries, the national telecommunication industry is perceived as a source of development to create and attract companies or projects that develop high quality technology, with the hope of increased local employment opportunities.

4.3.7 A transparent pro-competitive regulatory environment accompanied by an attractive educational and business environment (rule of law, tax structure, licensing, customs, shipping, mutual recognition agreements) causes local business to flourish and attracts foreign companies and concerns to locate and invest in country as well. All resulting in higher employment, ongoing training, and technology transfer, etc.

4.3.8 In addition, so that technological development will have positive impact on direct and indirect employment in each country, governments could encourage directing the purchasing power of telecommunication service companies towards projects that make effective investment in national industrial complexes, promoting technology transfer.

4.3.9 In such a case, state bodies with competence in the telecommunication sector, in the exercise of their functions could collaborate with other players involved, in order to provide guidance regarding technological options, taking account of :

a. Positive impact on the level of employment, serving to generate sources of work, using technology as a tool for humankind, and not as an end in itself;

b. Ongoing training and development that promotes refresher training to prevent deterioration in job quality;

c. Extension of benefits to society as a whole, without discrimination in terms of purchasing power, including instead even the neediest sectors.

### **Case 4.3.1: The experience of Brazil**

In Brazil, policies fostering science and technology have never been a priority or much promoted. Today it is estimated that investments in science and technology do not account for more than 1.2% of GDP. Despite this, the country has internationally-competitive centers of excellence. One of them, in operation for over 25 years, is devoted to telecommunication technology research and development.

Established as the technological arm of the state telecommunications company, the Research and Development Center (CPqD) has always played a strategic part in the sector. In its early years, its efforts were focused primarily on emerging technologies, researching, developing, and transferring various state-of-the-art technologies to local industry. At the time, the goal was state-of-the-art technology at the least possible cost.

The country was then making efforts to modernize telephony services, implementing a telecommunication network to supersede hundreds of telephone companies, most of which were at the municipal level and operating with obsolete equipment. This initiative could not have been implemented in so short a time without import substitution and investment in technological innovation, thereby developing alternatives to products of foreign suppliers.

The transition then began from analog to digital technology, electromechanical switching to digital exchanges, and from wire to fiber optic cable. The development of equipment adapted to Brazilian realities has not only been successful, but has also made it possible to conserve foreign currency and reduce equipment costs. Technologies such as the Trópico family's digital exchanges and public telephones with inductive technology cards, among so many other things, are still used today, not only by Brazil's telecommunication operators but also by users.

Work, however, has not been confined to academic research, the historical role of universities, or to industrial production, but efforts have been made to occupy a technological development space, applying research to the demand and needs of the telecommunication operator market. To support its projects, the CPqD has also taken advantage, by funding research projects, of the critical mass of researchers found in Brazilian universities.

Despite its huge success, research and development in telecommunications was the target of constant criticism. The principal objection was that the benefits would not cover the costs. An international consulting firm hired in the early 1990s to study the true viability of the CPqD showed that each dollar invested has yielded three times as much in direct and indirect benefits for Brazilian society.

The heavy investment which, in the 1970s and 1980s, enabled Brazil to become technologically autonomous through the CPqD's efforts, began to dry up in the 1990s, a decade when the increasing push to digitize equipment altered the reality of the telecommunication sector. In consequence, Brazil lost its elevated position as the world's fifth largest producer of state-of-the-art technology and became a importer and assembler of foreign technology.

The impact on the balance of trade of this policy of technological dependence can be summed up in the figure of US\$6 billion, the amount of Brazil's annual negative trade balance in "high value-added products."

Until the technological leap is taken that renders obsolete today's digital referent, the priority is no longer equipment production, but the development of software and integrated telecommunication applications.

In the 1990s, during the process of privatizing the telecommunication operators, the need was recognized to preserve all assets that had accumulated in the years of heavy investment in technology. In order to protect this enclave of technological development, the General Telecommunication Act transformed

the CPqD into a private foundation adapted to the new reality of the Brazilian telecommunication market.

Today, the CPqD is financially self-sufficient, and is heavily involved in both the Brazilian market and the competitive international market.

However, in Brazil, technological development in telecommunications is not confined to the CPqD alone. Multinational telecommunication companies such as Ericsson, Lucent, Motorola, and Siemens are taking advantage of the deductions of the industrialized goods tax for which the Information Technology Act provides, investing up to 5% of their turnover to fund research and development projects in their own research centers or in partnership with Brazilian research institutions. These projects have become part of the strategy of industries that are developing applications for products intended for the Brazilian market, and are generating foreign currency income from exports.

The path being taken to innovation and adaptation of technologies to the Brazilian reality is evident in the research under way in the Brazilian Digital Television System. This project brings together a large number of scientific institutions that are conducting research on six topics considered priority: transmission and receiving; channel coding and modulation; transport layer; interactivity channel; signal coding; middleware services and applications; and content. For the most part, these surveys are being funded by the Telecommunication Technological Development Fund (Funttel).

As analog television is found in over 90% of Brazilian households, digital television research does not focus on making available an elite service but mainly on how to take advantage of the platform analog TV constitutes. This research therefore seeks to make such televisions interactive and provide them with Internet access via a signal converter known as a set-top box. Digital inclusion, which, owing to poor income distribution, would not be possible through dissemination of computer use, might become feasible thanks to research currently under way on interactive digital TV.

That project has another important characteristic, namely, research in consortium through joint actions, such as those that made possible, at the international level, the successful Genome Project, which decoded the human genetic code.

The lesson of Brazil underscores, on the one hand, the success afforded in the 1970s and 1980s by investments rationed but targeting technological innovation, and on the other, the disastrous consequences for the country's economy in the 1990s of interruption of this policy. That strategy of withdrawal, as indicated earlier, is being reviewed in the 21<sup>st</sup> century, according priority to technological objectives such as digital TV, and to gradual consideration of investments intended to produce if not autonomy at least reduction of the balance of trade deficit in transactions involving electronic or high value-added goods.

## **5. Regulation and deregulation**

### **5.1 Introduction**

5.1.1 Some countries of the region have acquired a wide array of experiences of processes of liberalization and deregulation of telecommunications, which have led to the opening up of markets and to models of competition. This is indicative of the macroeconomic policy alternatives available for public utility services, including telecommunications, and their respective legal frameworks. Such countries might consider reviewing the gradual process of opening up the market and preserving state strategic decisions in order to facilitate the development of communication infrastructure and the incorporation of new technologies.

5.1.2 The reasons and objectives that lead a country to open up its telecommunication services market to competition need to be quite clear and transparent from the outset.

5.1.3 Competition may be introduced into the different telecommunication markets to different extents, to be assessed by each country's policymakers and regulators. Experience shows that different factors have been taken into account by the regulatory authority in making this assessment, involving items such as competition policy (especially relating to how former large monopolies are to be divided up or consolidated), the future shape of the markets (regarding the weight and importance of the different parties involved), or the need to develop the infrastructure.

5.1.4 The state has a fundamental role to play in regulation, not only in terms of the enforcement and impact of competition, but also of private sector participation and levels of investment in networks and new technologies.

5.1.5 Among the benefits of competition, are:

a. Increased efficiency;

b. Better response to user needs (including additional service choices and more attractive prices and tariffs); and

c. Innovation.

5.1.6 A competitive environment creates strong incentives for service providers, while offering good products at attractive prices, to be efficient in order not to lose business to rivals. Meeting customers' needs should be regarded as a commercial stimulus, and never, as tends to happen under monopoly conditions, as a problem. Competition tends to ensure that new services will be offered quickly in the interests of the customer. There is less incentive for a monopolist to innovate; the monopolist is not pressed to do things in a different way since the customer has no alternative. On the other hand, a competitive telecommunication operator cannot delay the introduction of a new technology if it will enhance its performance.

5.1.7 Some countries believe that it could be useful to establish the following criteria and rules before opening a market:

a. Interconnection should be obligatory. The terms and conditions governing interconnection should be nondiscriminatory, agreements should be adopted with time limits for the completion of negotiations between the parties, and the authority should set up a dispute resolution mechanism (details regarding contract conditions are given in the section on interconnection);

b. Interoperability, encouraging the use of open architectures, facilitates the exchange and transmission of information between different operators' networks and means that establishes similar quality conditions;

c. The regulatory authority should undertake to draw up and administer the basic technical plans for telecommunications through a clear and transparent process of consultation;

d. When rights of way are offered to licensees, they should be offered to all licensees without any discriminatory or exclusive treatment;

e. Arrangements should be made to establish cross-border links. In general, efforts will be made to ensure reciprocity in access conditions in both markets, and national and nondiscriminatory treatment should be offered, in accordance with the commitments made in international organizations and bilaterally;

f. Appropriate measures should be taken to ensure that public network users can have access on equitable terms to information, directory, emergency, reverse-charge, and operator services, among others.

5.1.8 The corresponding authority should draw up social and rural coverage programs involving all public networks providing telecommunication services, which any licensee should be able to provide.

5.1.9 The corresponding authority should require that the carrier guarantees uninterrupted service in those places where there is insufficient competition.

5.1.10 The regulatory authority will determine under what conditions service providers can set their tariffs. Efforts will be made to eliminate cross-subsidies. It will probably be desirable to establish a tariff register that can be consulted by the general public. Tariffs should be applied on a nondiscriminatory basis and service providers should keep separate accounts for different services so as to avoid cross-subsidies or monopolistic practices.

5.1.11 Also, specific conditions should be laid down for operators who have substantial power in the market in question, in accordance with the country's regulations or law on competition.

5.1.12 As the telecommunication sector becomes more competitive, the authority

concerned should consider modifying the way the sector is regulated so as not to restrict the development of full competition in the market and at the same time to achieve the objectives set.

5.1.13 In other words, the regulatory authorities should eliminate regulatory intervention in those areas in which action is inefficient or costly, and redirect their efforts to areas in which regulation is needed in order to limit the ability of the public or private companies which, owing to their market power, may act contrary to user interests.

5.1.14 The abuse of market power in certain markets, and other phenomena, such as monopolization of essential resources and participation by competitive operators in the same market with the same majority shareholder, makes it possible to establish prices below costs to prevent the entry of potential competitors or by eliminating the present competitors by means of a predatory pricing strategy that constitutes unfair competition. It is important for the regulatory authority to seek to ensure that such practices do not occur and also provide for mechanisms to avoid the monopolization of essential resources.

5.1.15 When assessing a firm's market power, the market which must be studied is one composed of products that have reasonable interchangeability, taking into account price, use, and quality.

5.1.16 When a firm possesses a monopoly or substantial market power over a public telecommunication service, the regulatory authority usually imposes a full panoply of regulation: regulation of prices; publication of terms and conditions of service; prohibitions on discrimination between providers; an obligation to provide universal service; equitable and reasonable charges and practices; and prior approval of significant changes in services or terms on which they are offered. The above provisions are considered necessary to ensure that

consumers are provided with essential services on reasonable terms.

5.1.17 In highly competitive markets, regulation can be significantly reduced. For example, it may not be necessary to control prices. Excessive regulations create entry barriers in many sectors and discourage potential entrepreneurs who would be willing to introduce products and processes. In fact, service providers should be free to respond to the specialized needs of customers, offering attractive conditions. Where there are competing operators offering similar service, an operator's unilateral refusal to provide a service or his exit from the market will not normally leave consumers without that service.

5.1.18 In many countries, both dominant and competitive service providers currently must coexist. The market thus may contain both service providers that are subject to specific regulatory conditions and others not subject to such conditions. In this environment, the regulatory authority should be empowered to prevent abuses by the dominant provider, but also must be scrupulous to avoid using regulations to control the operation of the competitive marketplace. For example, the regulatory authority should seek to ensure that costs are reasonably allocated between monopoly and competitive services, but otherwise should hesitate to intervene in the pricing of competitive services.

5.1.19 The countries that delayed introducing competition have tended to show less successful performances. Nevertheless, some analysts believe that the competitive development of industry in the region has shown deficiencies. For example, some countries believe that competition has resulted in the presence of an excessive number of operators, especially in view of the small size of some of the countries. This seems to have been the case for the development of mobile and long-distance telephony. Nevertheless, other countries believe that the counterargument is that these

phenomena are inherent to some of the phases of the evolution of a competitive market. These countries believe that efforts to identify and rectify perceived excessive entry may only create entry barriers for more efficient future suppliers and countries should focus their efforts on ensuring that competition policies do not attract inefficient entry.

5.1.20 Despite the above, there is a consensus that the objective of regulatory policy and policy promoting competition should be the implementation of a competition model. To be noted, however, are differences regarding the most efficient methods to attain this objective. There are those who indicate that the only and most efficient course is the dismantling of entry barriers and tariff deregulation. On the other hand, if not carefully implemented, rapid deregulation may lead to restoring monopolies in the private sector.

5.1.21 Although major progress is apparent in terms of coverage, expanding service supply, and pricing, the current situation is far from being satisfactory. Indeed, the companies that are locally dominant still record high levels of participation, although over the past few years a reversal has been observed in some cases. It would seem that the effort that is being made is not well channeled.

5.1.22 Recently, some countries, after implementing regimes of relative exclusivity, have taken the road to full implementation of a competitive scheme. Some countries have delayed the implementation of sector liberalization to be able to learn from the experiences of other countries. Thus, there is a gradual nature to the process, the application of the sequence considered best, among which we can indicate: constitutional reform, the subsequent promotion of legal reform and, alongside this, the establishment of a strong and independent regulatory authority, and the permanent application of measures aimed at strengthening future competition (as for example: bidding

processes for mobile telephony licenses before privatization, restrictions on participation in bidding processes so as to ensure, over the long term, various strong operators in all segments). It has yet to be proved whether the application of these recommendations emerging from evaluation of the experience will yield the expected results.

## **5.2 Competitive services and facilities-based competition**

5.2.1 Competition can take place over different underlying infrastructures (facilities-based competition) or over the same facilities. This means that when there is, for example, a monopoly involving the network for the local telephone service, competition could still occur in services provided over that network. If the monopoly exists only for the basic telephone service, then competition could take place for value-added or other non-monopoly services. If there is no legal monopoly but still only one basic network, then the regulatory authority could allow the resale of services within its jurisdiction. A division of the network according to geographical criteria or the granting of monopolistic licenses for different regions may not be considered as services provided on a competitive basis.

5.2.2 Some countries believe that it is important to consider the need to regulate the excess capacity of infrastructures that might be used for the provision of telecommunication and to require collocation of equipment, in an effort to avoid inefficient use and/or unnecessary duplication of same. These countries submit that sharing as indicated above reduces economic and social costs generated by the duplication of networks, efficiency of networks is promoted, and the entrance of new operators is stimulated.

5.2.3 For the purposes of the Blue Book, resale is defined as the subscription to communication services and facilities by an

entity (the reseller) and the reoffering of those communication services and facilities to the public for profit. The regulatory authority, depending on the national telecommunication legislation, may impose some restriction on resale, or allow it to be unrestricted, whether or not the reseller “adds value.” Regulatory authorities should recognize, however, that resale restrictions can discourage efficient entry and that such restrictions should therefore be limited. In this respect, it should be underscored that the possibility of leasing lines or the authorization of resale must not be confused with toleration of improper or illegal use of the services or facilities in question by the reseller or with their use of predatory or anti-competitive practices.

5.2.4 Resale as defined above may be an attractive activity when the underlying carrier:

- a. Makes available bulk discounts; and
- b. Offers a private line service, but makes that offer contingent on subscription to that service for a minimum time period.

5.2.5 According to the policy set by the regulatory authority, resale can prove beneficial in:

- a. Creating opportunities for new entrants to combine the underlying carrier’s offerings into innovative packages to meet customer needs;
- b. Providing communication services at rates more related to costs, since if the prices of the underlying carrier are sufficiently low, resellers will make the profit; whereas if the prices are discriminatory or too high, other firms will duplicate the infrastructure (in the long run);
- c. Ensuring better management of communication networks;
- d. Avoiding waste of communications

capacity; and

e. Creating additional incentives for research and development on ancillary devices to be used with transmission lines, since resellers will want to apply the latest technological advances in order to make the most efficient use of the carrier's capacity.

5.2.6 One interesting economic characteristic of resale is that it does not require substantial investment to provide telecommunication services, or economies of scale in each fraction of the market in question. If, based on these principles, an Administration implements a policy encouraging competition; it should take into account the provisions of ITU-T Recommendation D.1, which establishes the general principles applicable to the provision of services with leased telecommunication networks and circuits.

5.2.7 Some countries might deem it appropriate to promote competition in the local segment by allowing new entrants to use the incumbent's local network. It has been considered by many countries that resale and sharing of networks were instruments facilitating the deployment of new operators, although they were not intended to prevent them from building their own facilities in the long term. The basic idea was to make it possible for new entrants to develop a strategy combining the use of their own facilities and those of third parties. This analysis is true only if the prices for shared facilities approximate their true costs. If not, those processes can encourage excessive entry, deter facilities-based competition, and distort network investment.

5.2.8 The reality has been more complex than assumed. Some analysts sustain that, over the long term, unbundling of networks discourages the building of new infrastructure, which is a problem because new facilities constitute an indispensable condition for the development of competition over the long term. Furthermore, even the fiercest critics sustain that the sharing

of networks has led to increased controversy within the industry, required heavier regulation, and even discouraged incumbents from making their own investments.

5.2.9 It may be concluded from experiences in the Region and analyses made, that a competitive development is possible through the sharing of networks together with investment in infrastructure for a long-term, balanced and sustainable competition, based on the use of a variety of technologies.

#### **Case 5.2.1: The experience of Brazil**

In Brazil, the effort to establish a competitive model did not focus on the unbundling of networks, but rather on local telephony, where its option was to privatize the regionally de-structured state monopoly. For each of these companies, a bidding process was conducted for a license to operate on an exclusive basis fixed wireless telephony based on Wireless Local Loop (WLL) technology, which was awarded for a three-year period to the so-called "mirror" companies to assist in establishing a major competitor in local telecommunications.

The logic behind the policy was to give the second operator in local telephony an advantage, that is, exclusive use of the new technology, to partially offset the advantages deriving from control by the monopoly over the traditional fixed network. After the three year period, however, the incumbent would be able to use the new technology, if it so deemed advisable.

### **Case 5.2.2: The experience of Chile**

Chile's experience was similar. Although in 1999, the possibility of unbundling and reselling the networks arose, the experiment has moved ahead slowly and was based in particular on resale, showing some importance in broadband provision. However, the principal competition that the local network has had to face has been cable television-based. A significant number of users in fact access telephone service and broadband Internet service via cable television.

## **5.3 Public/social interest**

5.3.1 The governments are constituted to serve the interests of the citizens, including promotion of their economic well-being and social equality. A variety of direct and indirect means may assist in accomplishing that objective, including regulation of monopolies to ensure fair pricing; allocation of public funds to a specific public works project; or adoption and enforcement of laws seeking to promote democratic principles and human rights. For purposes of the Blue Book, the term "public/social interest" is used to encompass citizens' economic, social, and political needs.

5.3.2 Public/social interest should be examined with respect to three elements:

- a. The decision to legislate or prescribe a specific regulatory system for the telecommunication sector;
- b. The actions of the regulatory authority in applying or developing the principles set out in the legislation;
- c. The decisions by the reviewing body (whether judicial, quasi-judicial or administrative).

5.3.3 In each case, the policy-making authority must test possible actions against the public/social interest standard,

recognizing that each regulatory action may have repercussions in terms of the credibility of the regulatory authority itself and the willingness of other market players to rely on the regulatory system.

5.3.4 Naturally, the legislation is the primary legal source determining how the public/social interest principles are to be applied. It is important to take into account that these principles may be extremely broad if the legislation gives the regulatory authority the function to decide on what specific regulatory policies and mechanisms are best suited to accomplish the legislative objectives.

5.3.5 The legislation may provide the regulatory authority with an array of jurisdictional bases and may permit the use of various tools to protect the public/social interest. The regulatory authority must be given some discretion in selecting which jurisdictional base and which regulatory tools will be the most effective in achieving the legislative objective. The regulatory authority, however, must be attentive to the need to articulate the principles it has applied, as well as the reasoning behind its findings. This focuses attention on the values to be served by its decision, and fosters public confidence in the process and judgments of the regulatory authorities.

5.3.6 Public participation in the process helps the regulatory authority (and reviewing bodies) to determine how best to serve the public/social interest. The regulatory authority's information regarding the day-to-day operations of the telecommunication market will always be limited. This is even truer as the market expands to include new, competitive suppliers and services. The public's response is the most reliable test of opinion and quality of telecommunications and broadcasting, as in most areas of public utility services. In order to serve public/social interest objectives, it is essential that the regulatory authority monitor on the public's reaction to guide its own official conduct.

5.3.7 Some examples of public/social interest may be cited. In general, in considering the advisability of regulating a given service or certain aspects thereof, the regulatory authority must weigh the costs of regulation, both to the public and the service provider, against the benefits to be achieved by regulation. For such purposes, stimulating competition is generally viewed as benefiting the public interest, as competition may normally produce lower prices and introduce more innovative products. For example, in competitive services (such as paging or cellular), prices may fall naturally over time to reflect an expanding customer base and lower marginal costs of providing service and the improvement of the structure by the service provider as a possible instrument in price reduction.

5.3.8 In the case of licensing, the regulatory authority may proceed most effectively by establishing minimum criteria to be met by applicants to ensure that the public interest is objectively protected. This would include matters such as the applicant's financial stability, situation (for example, no criminal record, etc.), and service commitments. In general, applicants may be asked to demonstrate as part of their respective applications that they satisfy the minimum criteria. If several applications that meet these criteria are submitted, a procedure in which the applicants bring forth new arguments in support of their application may provide the necessary basis for a decision.

5.3.9 The regulatory authority's judgment regarding how the public interest is best served should be transparent and nondiscriminatory when any disposition adopted by that authority is the subject of an appeal. In that case, the regulatory authority has a duty to take account of the analysis and examination of the facts on which the request for review is based. To that end, the regulatory authority should provide a justified explanation of its decision, in accordance with its legal and regulatory authority. The regulatory authority as an expert body should protect the public interest.

Telecommunication service providers that are considering recourse to the courts must first exhaust administrative remedies.

5.3.10 Policies and regulations should be adapted as necessary, in accordance with the public interest. In that case, the authority, prior to their approval, will make public the terms of the new regulations and will take account of the recommendations of the interested parties to the extent it considers them compatible with the general interest.

## **5.4 Universal access/service**

5.4.1 One of the objectives of telecommunication regulation is to ensure that the public has access to telecommunication services at a reasonable cost. Universal service refers to the need for regulations to ensure universal geographical availability, equitable treatment through non-discriminatory access, and reasonable rates. The regulatory authority should give detailed consideration to how these goals are to be met, but the scope of the services to be provided under a universal service scheme (for example, basic tele phone service) should also be defined, so that the services in question are clearly identified and can be supported by the community. It is also very important that the amount of subsidies and their specific application be both measurable and identifiable. In this connection, there have been a number of interesting experiences in the region, where independent and impartial bodies have been given responsibility for the use of resources destined to fulfill universal service obligations, which are hired out on a competitive basis.

5.4.2 Nowadays, a distinction is made between the concepts of universal service and universal access. Universal access is regarded as the availability of communications facilities within a reasonable distance and universal service as the goal of having a telephone in every household.

5.4.3 Another fundamental factor in the choice of telecommunication policies and drafting of legislation and regulations on universal access or service is the outcome of the negotiations on basic tele communications which concluded in April 1997 with the adoption of the Fourth Protocol of the General Agreement on Trade in Services (GATS) of the World Trade Organization (WTO), which was signed by most countries in the Americas region. The Reference Paper, which some countries attach to their lists of commitments, indicates that each member has the right to define the type of universal service obligation it wishes to sustain.

5.4.4 Additionally, some countries have adopted policies related to community access and universal access. These commitments will not be considered anti-competitive in themselves if they meet the requirements of transparency, non-discrimination, competitive neutrality, and not imposing more stringent obligations than necessary. This signifies that the implicit subsidies that used to be applied through cross-subsidization in the days of monopolies are replaced by explicit subsidies and predictable programs. Furthermore, in a competitive environment, or in the context of the transition towards openness, countries would have to consider carefully and in an orderly manner other questions which ultimately affect the universal access/service equation, such as the rules governing interconnection, international settlement procedures, and tariff rebalancing.

5.4.5 It has been customary for tele communication monopolies to implicitly subsidize the basic local telephone service from other tele communication sources. This has been the main approach for financing the implementation of, or attempts to achieve, universal service. Such cross-subsidies occurs between:

- a. Different services (e.g., from national and international long-distance to local communication services);
- b. Different user groups (e.g., from

commercial to residential users); and

- c. Different geographical areas (e.g., from urban to rural areas).

5.4.6 However, in a context of competition, these implicit subsidies present problems of being unsustainable and lack of transparency.

5.4.7 If a country decides to privatize the monopoly telecommunication operator and at the same time allows 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 will concentrate solely on 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. Clearly, this could initially serve as a means of encouraging the entry of new service providers and of forcing the existing local operator to be more efficient but, in the long run, it could prove harmful to the public interest. Therefore, 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.

5.4.8 Notwithstanding all of the above, 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, has been already taken up satisfactorily. In order to make such a competitive regime possible, suitably rebalanced and cost-based tariffs are required, along with a system prescribing 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, and 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).

## **5.5 Development of unserved areas**

5.5.1 In developing their national universal service/access policies, Administrations should take account of some of the following considerations:

a. The existence of urban and commercial concentrations with very high demand for telecommunication services, which generates imbalances in the deployment of networks, jeopardizing the infrastructure's capability to meet the requirements of the community and productive activities of interior regions;

b. The adoption of precise public policies, including actions intended to provide information and guidelines to the private telecommunication sector for investment in potential markets. Consideration might also be given to prospects for the growth of regional output in order to estimate future demand for services.

c. The fact that the scale, extension, and quality of infrastructure may be parameters for the integration of some national economies and the growth of small and medium-scale producers in remote areas, as well as generators of wealth and work. In this regard, contributing to building the national and international productive network

will promote industry and trade as the hubs of community integration.

5.5.2 Companies in the sector should also be encouraged to plan their investment and to develop their networks towards the countries' interior regions, either to fulfill their contractual commitments or to expand their markets.

## **5.6 Issues for setting rates and their impact**

5.6.1 It is advisable to analyze how telecommunication service costs are measured, taking into account criteria and guidelines appropriate to the place where such services are provided in order to identify the true prices of service provision.

5.6.2 Traditionally, two types of control have been used in determining service prices:

- a. Rate of return; and
- b. Direct price controls, including price caps.

In addition to these models, some countries use forward-looking economic costs models or other models to determine cost.

5.6.3 Rate of return is the ratio of funds available for distribution to investors to total investment. Under rate-of-return regulation, service prices are set at levels that generate the rate of return that is needed to encourage maintaining service, investment, and operating stability.

5.6.4 The rate-of-return approach requires that the regulatory authority establish the operating firm's net revenue and an acceptable rate of return, which further requires that the following be determined:

- a. The revenue and cost structure of the operating firm;
- b. Whether the firm's expenses are

incurred based on economic need;

c. The firm's existing investment base and cost of capital;

d. Whether property, investment, and other costs have been properly allocated among regulated and unregulated lines of business for purposes of price -setting; and

e. Appropriate accounting treatment of revenue and expenditure, including the rate and method of depreciation to be applied to the firm's assets.

5.6.5 Based on the accounting and financial analysis outlined, the regulatory authority may also consider it appropriate review and approve the operating firm's proposed schedule of rates. In addition to confirming that the proposed schedule meets the financial objectives, the regulatory authority may also evaluate the tariff system in light of general pricing policies.

5.6.6 Administrations should draw up methodologies to exercise their regulatory functions, as an objective survey of the components of the real cost of telecommunication services is an essential tool.

## **5.7 Method of cost determination**

5.7.1 Regulatory authorities and operators must to be provided with objective elements to determine not only tariffs and prices but also investment decisions. To do this, an analysis must be made of the measurement of communication service costs based on continuous assessment and study that take account of technical guidelines and criteria appropriate to the place where the services are offered. In doing so, those conducting the analysis should:

a. Classify the data involved;

b. Establish a methodology based on objective and uniform criteria; and

c. Assure durability of the analysis over time.

5.7.2 The study to be undertaken should be considered for each investment to be made in the service, in keeping with the country's economic reality and taking into account the various social profiles and how they are likely to evolve, so as to achieve a multiplier effect on the potential and balanced development of the sectors involved in the process.

5.7.3 It is of the utmost importance to underscore the need to establish a permanent mechanism for information exchange between companies, suppliers, and the government in order to incorporate new technological service parameters based on technological comparisons, which market transparency makes possible. It should also be possible to analyze alternative or substitute goods, date of purchase, their use, and supplier, in order to take account of their actual useful life and replacement value.

5.7.4 In cost analysis, an attempt should also be made to distinguish clearly between:

a. Operating or running costs of the service, broken down in as much detail as possible in order to see the variations of each item; and

b. The composition of the capital depreciation costs over the real life of the good and its respective residual value.

5.7.5 Each of these distinctions should be based on information from the companies and providers, depending on the analysis that is intended.

5.7.6 Both the parameters for measuring historical costs and the projections of such costs over the medium term should enhance ongoing comparison of the players mentioned in order to be able to define more clearly the objectives of the investment.

## **5.8 Basic and legal principles of interconnection**

### **5.8.1 General conditions for interconnection**

5.8.1.1 The basic underlying telecommunications networks that are used by all service providers must allow for interconnection and interoperability.

5.8.1.2 Telecommunications service providers should consider the following principles when establishing the conditions for interconnection to their networks:

- a. Non-discriminatory treatment of applicants;
- b. Protection of the integrity of the interconnected network;
- c. Confidentiality of all information, including any confidential information regarding users.

5.8.1.3 In establishing the conditions for interconnection to their networks, service providers must avoid the following:

- a. In negotiations for the establishment of interconnection contracts, any conduct prejudicial to free, full, and fair competition among service providers operating in the public and private sectors;
- b. Cross-subsidization between telecommunication services. To prevent this, dominant operators must maintain separate accounts for the services they provide;
- c. Unauthorized use of information obtained from competitors, that is contained in the interconnection contracts;
- d. Omission of technical and commercial information required by third parties to provide telecommunications services;

e. Imposition of abusive conditions for conclusion of the interconnection contract, such as confidentiality clauses that prevent the regulatory authority from obtaining information or prohibiting such contractual revisions as may be required as a result of amendments to the regulations in force;

f. Any action that intentionally obstructs or delays the negotiations;

g. Any coercive measure employed to bring about the conclusion of the interconnection contract;

h. Imposition of conditions that result in inefficient use of interconnected networks or equipment.

### **5.8.2 Quality of service**

5.8.2.1 The interconnection should ensure compliance with the applicable service quality standards, as stipulated in the interconnection contract.

5.8.2.2 The service quality standards adopted in interconnecting networks of providers of the fixed switched telephone service must be such as to permit the attainment of the objectives established in the general plan of quality objectives.

5.8.2.3 Service providers are not required to offer a level of quality higher than that prevailing in their own operations or established in other interconnection contracts.

5.8.2.4 Interruptions of service resulting from faults on the network, of any kind, which may affect a significant number of total accesses in a particular locality, sector, or region must be notified immediately to the regulatory authority, the general public, and any providers who have networks interconnected to the faulty network, .

5.8.2.5 The notification of an interruption of service must minimally include an objective description of the fault, its location, the

number of accesses affected, specific details of the interruption, the diagnosis of the fault, and corrective actions taken.

### **5.8.3 Technical requirements**

5.8.3.1 All technical requirements related to interfaces, including the characteristics of signaling, synchronization, transmission, numbering, quality of service, and network performance are applicable to the interconnection.

5.8.3.2 Providers of services of collective interest must provide for contingency alternatives in order to guarantee continuity and quality of service in the event of faults at interconnection points.

5.8.3.3 Operational availability is recommended at each point of interconnection, where such availability is defined as the ratio of the time in which the system delivers the specified technical and operational characteristics to the total time considered.

### **5.8.4 Sharing means and implementation of the interconnection**

5.8.4.1 Providers of telecommunication services of collective interest may share equipment, infrastructure, facilities, and other means for the purpose of implementing interconnection between the networks.

5.8.4.2 When planning their installations, providers of telecommunication services of collective interest must observe the need for available infrastructure located in the same installations of a point of interconnection or point of presence for interconnection in order to enable third parties to install collocate equipment used for the interconnection.

5.8.4.3 The infrastructure needed for collocating of equipment must include, apart from the physical space, the other facilities

required, including power supply and distribution.

5.8.4.4 Access must be guaranteed to the area where the equipment of the other providers is installed under procedures stipulated in the interconnection contract.

5.8.4.5 Providers must be accountable to the regulatory authority administratively if they commit excesses or abuse in the exercise of the rights referred to under this heading.

5.8.4.6 In the event it is not possible to install equipment of third parties within the installations of the requested point of interconnection, the provider who has received the request for interconnection must offer the other provider, at no extra charge, an alternative location for installing the equipment situated as close as possible to the point of interconnection originally requested.

5.8.4.7 Relations between providers of collective interest services must include the industrial operation of means, which must be offered on a fair and nondiscriminatory basis.

### **5.8.5 The interconnection contract**

5.8.5.1 The interconnection contract must stipulate:

- a. Terms and conditions on which the interconnection shall be provided;
- b. Rights, guarantees, and obligations of the parties;
- c. Access prices to be charged, when not established by the regulatory authority;
- d. Arrangements for settlement of accounts, as agreed by the parties;
- e. Terms and conditions for infrastructure sharing (e.g. rights-of-way, poles, ducts);

f. Technical conditions related to the implementation and quality of the interconnection;

g. Applicable fines and all other sanctions;

h. Forum and procedures for extra-judicial resolution of contractual disputes.

### **5.8.6 Interconnection tariffs and network access fees**

5.8.6.1 Competition may be introduced into the telecommunication market initially by permitting:

a. The interconnection of private networks and equipment to the public network;

b. Competitive long-distance operators to interconnect to the local exchange segment of the public network; and

c. The interconnection of networks to provide value-added services, wireless networks, and other local networks to the local segment of the public network.

5.8.6.2 In each case, the regulatory authority must create clear guidelines regarding the relationship between the operator or operators of public network for the purpose of interconnection. These guidelines will normally require that the public network operator permit interconnection unless harm will be caused to the network. The guidelines will also set forth the type of charges that may be levied, the terms and conditions that may be set by the public network operator; how they may be established; and what remedies are available if the parties are unable to agree on terms.

5.8.6.3 The charges levied may be included in a standard offer by the public network operator, or may be determined in an individual negotiation between the public network operator and the new entrant. The

regulatory authority must determine what costs the public operator should reasonably recover from the interconnecting party, which may include:

a. Costs directly allocated to the services to be provided (e.g., connecting long-distance calls to the local subscriber), including a reasonable proportion of overhead and return on related assets;

b. Other costs incurred in constructing/operating the network;

c. Contribution to universal service obligations, if any.

5.8.6.4 If interconnection is subject to private negotiations between the incumbent and new entrant, regulatory supervision must be sufficient to ensure that the incumbent does not engage in discriminatory or anti-competitive practices. The publication of standard terms and conditions for interconnection can provide protection for new entrants and enable providers to project costs and design services better.

5.8.6.5 It is important that the regulatory authority be granted the authority to review the proposed interconnection tariffs or network access charges and other terms and conditions to ensure that the charges are nondiscriminatory and reflect a reasonable calculation and distribution of service costs. If the network operator is or was recently a monopoly provider, there may be difficulties in establishing and allocating its costs appropriately. Also, the new service provider may be injured if the process is unduly protracted. If network access charges are to be set by the parties after negotiation, the regulatory authority must also be empowered to intervene at the request of either party to resolve intractable negotiation disputes.

## **5.9 Common use of infrastructure access and use of public property and rights of way**

To foster competition on local telecommunication markets, an important step is to provide alternatives to operators to ensure that they have reasonable and nondiscriminatory access to established telecommunication infrastructure, as well as the underground and aerial part of roads, bridges, sidewalks and other public property. For this purpose, it is necessary to create regulatory mechanisms that make it possible to use existing infrastructure so as to promote the adoption of new technologies and the introduction of new services and the resale of existing ones. In drawing up the regulations, it is recommended that the definitions and principles indicated below be taken into consideration.

### **5.9.1 Definitions**

**5.9.1.1 Rights of way:** The rights to access and use public property, contained in a license or permit issued by the competent national authority. Rights of way have been construed to mean the right of a beneficiary operator to pass its network and the elements comprising it through a specific property.

**5.9.1.2 Public property:** Property whose use belongs to the nationals of a country and whose management is in the hands of the state, such as streets, roads, bridges, sidewalks, trails, highways, rivers, etc. that may be used by telecommunication operators for the purpose of providing service.

**5.9.1.3 Public facilities:** Facilities that belong to governments and which may be authorized for private use. Among these facilities are conduits, poles, railway and electrical corridors, gas pipelines, multipurpose pipelines, electrical transmission lines, and other public property that may be used by telecommunication operators to provide service, in strict

compliance with applicable laws and regulations.

**5.9.1.4 Established telecommunication facilities:** Elements comprising the infrastructure of established telecommunication operators that are directly related to service provision.

### **5.9.2 Principles**

**5.9.2.1** Operators that are legally authorized to install or establish telecommunication networks will benefit from the shared use of infrastructure and access to public property and public rights of way to the extent necessary to establish the public telecommunication network in question.

**5.9.2.2** In addition to the pertinent common regulations on interconnection, the technical, economic, and legal aspects of the shared use of infrastructure and authorization of access to public property and public rights of way will be governed by the principles of equality, transparency, nondiscrimination, equal treatment, continuity, adaptability, availability, permanence, and quality.

**5.9.2.3** Rules and regulations should ensure that telecommunication operators permit other telecommunication operators the shared use of infrastructure that cannot be easily duplicated in technical and economic terms and that is essential to provide service. They should also ensure that no operator offers to another operator conditions less advantageous than those offered to its affiliates or subsidiaries or to other operators unless they are made available to all applicants.

**5.9.2.4** Shared use of installations, infrastructure, or property for telecommunication services should be the subject of a technical and commercial agreement between operators. In the absence of such an agreement and with a view to promoting competition, the competent telecommunication authorities may require operators to make a baseline offer specifying

minimum conditions under which the shared use of infrastructures will be permitted.

5.9.2.5 Operators providing services of collective interest may be required to make available on fair and nondiscriminatory terms elements such as:

- a. Cables;
- b. Fibers;
- c. Ducts;
- d. Poles;
- e. Towers.

5.9.2.6 Nondiscriminatory interconnection normally implies that the network operator should provide interconnection to all purchasers under the same terms and conditions as those that the operator makes available to its own companies or internal divisions. Such terms and conditions include price, quality, service standards provisioning intervals and physical collocation.

## **5.10 Spectrum management**

### **5.10.1 Introduction**

5.10.1.1 Historical arguments for technical, social, or political control of the radio frequency spectrum (i.e., spectrum) are the need to avoid harmful interference, promote efficient use of the spectrum, and allocate frequencies in accordance with the ITU Radio Regulations.

5.10.1.2 To that end, the regulatory authority should be given the authority to enforce telecommunication laws in order to guarantee efficient, effective, and appropriate use of the radio spectrum in accordance with international agreements.

5.10.1.3 In discussing spectrum management, this chapter focuses especially in respect to management policies, regulation in a

competitive market, allocation and coordinated use of the spectrum in Region 2, licensing and renewal of licenses, new technological solutions for wireless services, liberalization versus regulation of services, future trends, monitoring, and conclusions.

### **5.10.2 Spectrum management policies**

5.10.2.1 The explosive development of wireless communications, particularly mobile services, has prompted a sharp increase in the demand for radio frequencies, especially in the bands suitable for these services. At the same time, convergence, technical advances, and new commercial approaches are generating new services that directly or indirectly result in new demand for access to the spectrum. In some cases, some experiences have shown that traditional approaches to spectrum management and frequency assignment, which aim to avoid interference by distributing this limited resource on a “first come, first served” basis, have proven inadequate to deal with the requirements of an economy based on information and on competition among telecommunication service providers.

5.10.2.2 Spectrum congestion in today’s telecommunications represents more than ever a barrier to development and innovation in networks and services. The present policy imperatives confronting spectrum managers are, among others:

- a. To maximize efficiency in the use of radio frequencies by trying to quantify, where applicable, the economic value of such use, that is, the benefit that can be produced for the economy in general as a result of allocating a particular band to a user or service;
- b. To strike the best possible balance between the requirements of the competitive market and the need for strict regulation of a limited public resource, taking into account, at the same time, the international commitments entered into at ITU conferences;

c. To discourage frequency hogging through price policies based not just on traditional administrative criteria but also on marginal value, ensuring at the same time that this does not result in excessive burdens on the consumer/final user or lead to discrimination against small companies;

d. To emphasize the social and economic benefits of spectrum use for the benefit of the public in general, digital inclusion, competition between operators, universal access to services, and service cost reduction.

5.10.2.3 The regulatory authority must therefore lay down guidelines for frequency bands identified as suitable for operation of a given service. These guidelines should address technical, engineering, and legal aspects, as well as the procedure selected for invitations to tender, as indicated below:

a. Before starting the process, the spectrum manager will have to specify clearly the technical aspects that will define the band or bands to be licensed.

b. The engineers analyze the licenses in order to determine their occupancy and geographical location in relation to systems already in operation, so as to avoid harmful interference. The propagation characteristics will also have to be specified in order to determine the channels and blocks to be put out to tender and the part of the band to be kept in reserve for future applications. A schedule of public invitations to tender will have to be established.

c. From the legal standpoint, an invitation will have to be issued to interested parties, the basis for tendering, if tendering is appropriate, clearly defined for the participants to follow. Additionally procedure manuals must be prepared establishing the rules under which the process is to be conducted, together with operating manuals for the computer program to be used to record tenders and models of the license

that will be granted to successful bidders.

d. The procedure selected for invitations to tender for the frequency bands will depend on the policy of the country and on the regulatory authority. Regardless of the method selected, it is important to note that, when licenses are being granted at the same time for a series of frequencies which are close substitutes for each other, they generally end up in the hands of those who attach most value to them.

### **5.10.3 Regulation of spectrum use in a competitive market**

5.10.3.1 One of the regulatory authority's main functions is the efficient planning, management, control, allocation, and assignment of the spectrum, and monitoring of radio emissions. In this way, it can encourage the development of infrastructures using this finite resource, in order to provide fixed and mobile wireless telecommunication services, thereby promoting the penetration of such services in the country.

5.10.3.2 Spectrum management needs to be solidly supported by computer systems for the management, registration, and processing of requests and the preparation of technical reports to ensure the viability of the systems in operation. All these systems should be based on the ITU recommendations.

5.10.3.3 Regulatory authorities should also periodically review their national frequency allocation tables in order to keep them up to date and to ensure that the commitments entered into at ITU World Radiocommunication Conferences (WRC) are being fulfilled. WRCs are held roughly every four years to review the Radio Regulations and, on a case-by-case basis, to discuss and allocate frequency bands for new technologies that may be utilized in each of our countries in due course.

5.10.3.4 Spectrum monitoring networks also form an essential part of the work of a

regulatory authority operating in a competitive market. Such networks help monitor radio emissions, and at the same time take measures to detect and deal with interference. These systems are likewise used in collaboration with the international community, principally the ITU, to address problems of interference between private systems, as well as emergency situations.

#### **5.10.4 Attribution and coordinated use of the spectrum in Region 2 (Americas)**

5.10.4.1 In addition to the work done multilaterally in the ITU, at the regional level, CITEI has a Permanent Consultative Committee (PCC.II) dealing with broadcasting and radiocommunication topics. Through that Committee, the Region seeks to harmonize the use of the spectrum, principally in order to meet the common needs of the region, including universal service, with the use of new wireless technologies.

5.10.4.2 In recent years, CITEI has produced a series of recommendations on frequency bands that may be considered by the countries with a view to achieving greater penetration of basic services. It may be noted that the dialogue not just with licensee industry but also with the telecommunication equipment and systems industry is facilitating the rapid introduction of new wireless services in accordance with the Americas Region's own requirements and priorities.

5.10.4.3 One of the objectives of regional coordination in the allocation and use of the spectrum is to permit roaming by cellular service users in the countries of the Americas. Such coordination will have to be accompanied by roaming agreements among operators and agreements for mutual recognition of technical standards for terminal equipment and interfaces. Attention may be drawn in this connection to the Inter-American Mutual Recognition Agreement for Conformity Assessment of Telecommunications Equipment, on which

CITEI's PCC.I is working.

#### **5.10.5 Spectrum control and monitoring**

5.10.5.1 Spectrum control and monitoring is one of the essential tools of spectrum management. Spectrum control and monitoring techniques are evolved with a view to ensuring adherence to stipulated parameters, characteristics, and technical standards of radiocommunication systems and with a view to assisting in effective and efficient utilization of spectrum.

5.10.5.2 Spectrum control and monitoring serves as the eyes and ears of the spectrum management process. It is necessary in practice because in real life authorized use of the spectrum does not ensure that it is being used as planned. The control and monitoring system provides a method of verification and closes the loop on the spectrum management process. The purpose of spectrum control and monitoring is to support the spectrum management process in general, frequency assignment, and planning functions. Specifically, its purpose is to:

- a. Assist in resolving interference, whether on a local, regional or global scale, so that radio services and stations may exist compatibly, reducing and minimizing resources associated with installing and operating these telecommunication services and providing economic benefit to a country through access to interference free, affordable telecommunication services;
- b. Assist in ensuring the general public an acceptable level of interference in radio and television reception;
- c. Provide valuable control data to an Administration's electromagnetic spectrum management process, such as actual use of frequencies and bands (i.e., occupancy), verification of proper technical and operational characteristics of transmitted signals, detection and identification of illegal

transmitters, and generation and verification of frequency records.

5.10.5.3 Spectrum control and monitoring, therefore, further supports the spectrum management effort in general by providing general measurement of channel and band usage, including channel availability statistics, the effectiveness of spectrum management procedures, and the collection of statistical information of a technical and operational nature on spectrum occupancy. Control and monitoring is also useful for planning, in that it can assist spectrum managers in understanding the level of spectrum use as compared to the assignments recorded on paper or in data files.

5.10.5.4 The functions of spectrum management and control and monitoring are closely related. Therefore, linking these capabilities by means of an integrated computer system can result in increased efficiency and savings, in the two systems. In implementing a spectrum control and monitoring system, it is vitally important first to develop a database structure and system that protects the integrity of the process. If the key elements of each authorized use of the spectrum are not adequately maintained on file, regulatory authorities are limited in their ability to effectively monitor spectrum use. In the case of an inadequate database, a combination of control and monitoring and enforcement techniques can be used more effectively in applying resources and helping to improve the database.

5.10.5.5 Databases of information, including details of all authorized users of the spectrum, provide the administrative and technical basis for the process. Analysis of the information in these databases facilitates the spectrum control and monitoring process and supports the decisions for spectrum allocations, frequency assignments, and licensing. Spectrum control and monitoring provides the inspection, verification, and enforcement necessary to protect the integrity of the spectrum management process.

5.10.5.6 Therefore, when a complaint concerning interference is received, the interfering signal can be monitored by the enforcement agency to determine the location of the signal, the type of transmission, and other technical parameters that may aid in identifying the source of interference. The spectrum control and monitoring database can then be searched to determine if the source of interference is a licensed signal that is operating outside of its authorized technical parameters or an illegal operator. Once this has been determined, appropriate action can be taken.

5.10.5.7 A measurement system can therefore help in some instances where a solution to a problem requires more than knowledge of theoretical characteristics of radio systems. It also gathers information on the operation of individual stations for regulatory, enforcement, and compliance purposes, and can be used to establish the location and identity of stations causing interference.

5.10.5.8 The benefits of a spectrum control and monitoring system cannot be realized if users do not comply with their license or licenses and their technical rules and regulations. Rules and regulations usually include provisions stipulating the actions that can be taken if a user is found to be in violation. Depending on the gravity of the violation, penalties can range from warnings to fines to revocation of licenses and termination of the operation of systems.

5.10.5.9 However, Administrations must bear in mind that without effective enforcement procedures, the integrity of the spectrum control and monitoring process might be compromised.

5.10.5.10 In conclusion, the ability of an Administration to enforce established rules and regulations pertaining to the operation of radio communication systems is clearly dependent upon both an effective spectrum management system and an integrated spectrum control and monitoring system.

### **5.10.6 New technological solutions for wireless services**

5.10.6.1 The new technologies that have fostered the tremendous development of radiocommunication services, such as mobile services and radio LANs, have become a fundamental element in affording the public greater opportunities for access to telecommunication systems. The user's wireless loop and cellular service today represent a solution for rapid deployment of telecommunication services at reasonable cost, particularly in developing countries, which, for the most part, lack fixed network infrastructure.

5.10.6.2 In the face of growing demand for the spectrum generated by competition, and in order to fulfill the obligation to provide universal service, the challenge for the regulatory authority should be to ensure efficient use of frequency bands in order to facilitate the expansion of networks and services, through appropriate regulation of fixed and mobile radiocommunication systems.

5.10.6.3 Taking into account the convergence of services, the regulatory authority should promote the efficient use of the radio spectrum, facilitating provision of multiple services in one frequency band.

5.10.6.4 The need thus arises to establish new policy guidelines for the allocation and management of the spectrum, as congestion or inefficient use of the spectrum (e.g., frequency hogging) can create obstacles for the development of the market and hence economic losses for the community.

## **5.11 Regulation of broadcasting**

5.11.1 Generally speaking, no license is required from government authorities to start up a newspaper or magazine. The reason usually adduced seems to be that anyone may found a newspaper as, apart from economic considerations, there is no inherent reason for

limiting the number of newspapers in a given community. The opposite is true with broadcasting, which utilizes spectrum, a scarce and limited resource. Access to this medium of expression has been available to only a few. However, over the years, this reasoning has been losing ground on account of technological progress.

5.11.2 Indeed, today the landscape is much altered, and continues to change. In a given community, the number of radio and television stations generally far exceeds the number of local newspapers or magazines. This is one reason why representative sectors of society are taking a fresh look at old and well-established ideas about broadcasting, and are examining the balance between the corresponding social/political regulation and freedom of expression. Of course, newspapers do not use this state-controlled medium – the spectrum – but for other reasons today there seem to be fewer printed media outlets than electronic media outlets. Furthermore, cable TV and other multi-program distribution services add to the diversity of electronic media outlets. It should be noted, moreover, that in many cities throughout the Americas, the number of channels used by MW, FM, and TV (VHF and UHF) stations is nowadays usually in excess of 40.

5.11.3 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. No one could be heard if everyone were allowed unfettered access to the spectrum. 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 social, economic, and cultural development efforts. As 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.

5.11.4 All radiocommunication services are subject to technical and administrative regulations in order to avoid harmful interference situations and promote efficient use of the frequency 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:

- a. Political use; and
- b. Coverage of issues of importance and interest to the local community.

5.11.5 The legislation and the regulatory authority should otherwise avoid encroaching on the freedom of expression of the broadcaster.

5.11.6 In view of the huge number of electronic media outlets 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.

5.11.7 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.

## **5.12 International Public Telecommunication Numbering plans and numbering resource considerations**

5.12.1 The national numbering resources established by the International Public Telecommunication Numbering Plan and each national numbering plan are limited and constitute public assets administered by the Administration, regulatory authority or other government entity designated by the Administration. Numbering resources are to be administered for the overall good and use of the telecommunications community, and as such, are not to be considered "owned" by the assignee. Assignment of numbering resources by the Administrator confers use of such resources only for the specific application.

5.12.2 The National Numbering Plan administrator shall administer the national Numbering resources in order to ensure their efficient and appropriate use and may, in consideration of the public interest, restrict the use of specific numbering resources. Telecommunications services requiring a national numbering resource may be defined in the national numbering resource guidelines. The same treatment may be given to telecommunications services using IP protocol.

5.12.3 In establishing the national numbering plan the following requirements should be considered:

- a. The adequate supply of national numbering resources available to meet the needs of the telecommunications community, the provisioning of services and to enable the development of telecommunications;

- b. Understanding and use of the plan by the users should be facilitated through the establishment of simplified dialing procedures, uniform lengths, and standardized formats;

- c. The plan should allow telecommunications service providers equal

access to national numbering resources based on a transparent and independent process for the administration of numbering resources including identical dialing procedures for providers competing in the same service category;

d. Modifications to the national numbering plan should be minimized whenever possible, when modification is necessary interference caused by modifications and user numbering should be minimized through the establishment of methods and practices to ensure adequate advance notice of such modifications and a transition plan for the modification. This plan may include simultaneous operation of the old and new numbering and the interception of communications as provided for in the Regulations governing the service;

e. The compatibility of the national numbering plans with the appropriate ITU-T recommendations, international agreements, and treaties must be ensured.

5.12.4 In organizing the national numbering resources, the regulatory authority or the designated administrator shall be responsible for:

a. Guaranteeing, to all telecommunications service providers, access to national numbering resources associated with and necessary for the provision of telecommunications services;

b. Creating conditions to ensure that the development and availability of national numbering resources are accomplished in harmony with the development of telecommunications services in the nation.

5.12.5 The national Numbering plan exist for and should be assigned to serve the needs of the telecommunications community for the evolution of services generated by a market that is open to competition. The information represented by each national numbering plans, numbering resources should be uniform and standardized throughout the

national territory, regardless of the topology and technology used by the telecommunications service support networks.

5.12.6 When designing the national Numbering plan, Administrations should establish adequate numbering resources which will enable the evolution of telecommunications services provided under the public and private regimes, and provide access to value-added services while ensuring access to services of public interest including emergency services.

5.12.7 The national Numbering resources are organized pursuant to the ITU-T E.164 International Telecommunication Numbering Plan, other relevant ITU-T recommendations and national numbering plans and are classified according to their purpose, as:

a. Telecommunications service numbering plans, which identify the national numbering resources employed by service providers for the establishment and the realization of telecommunications services; and

b. Telecommunications network numbering plans, which identify the numbering resources used exclusively by telecommunications network elements for the establishment and realization of telecommunication services.

5.12.8 A national numbering plan should comply with the appropriate ITU-T Recommendations on basic technical plans while recognizing the needs of the national market.

5.12.9 Among the matters that may need to be the subject of regulatory action are the following:

a. Introduction of access codes for the long-distance service enabling the different competing networks to be accessed on a nondiscriminatory basis;

- b. Assignment of dialing access codes for each of the different networks;
- c. Migration of national numbering to a larger number of digits;
- d. Portability of non-geographical numbers;
- e. Elimination of unnecessary prefixes among complementary networks (e.g. fixed-to-cellular and vice versa);
- f. Consolidation or extension of local areas;
- g. Planning of non-geographical numbering;
- h. Assignment of special numbers;
- i. Exchange of digits between networks;

5.12.10 Alternative procedures to dialing the long-distance operator by code requires pre-subscription, and is a process adopted in a number of the region's countries. Operators consider this procedure a good way of keeping customers loyal. However, when there are various operators in competition, it requires a complicated process of control to ensure transparency and avoid anti-competitive practices.

**Case 5.12.1: The experience of Peru**

The alternative mechanisms to dialing the long-distance operator by code are: (i) pre-subscription (pre-selection); and (ii) call-by-call (selection of an operator each time a call is made). Such mechanisms are advantageous for operators and users, as the customer or user may freely choose the operator that best suits him. However, when there are various competing operators, in implementing these mechanisms, a process of control is required to ensure transparency and avoid anti-competitive practices.

5.12.11 Some administrations may consider it appropriate to engage a firm to establish and administer a long-distance carriers user' database. This firm would be responsible for the establishment and ongoing maintenance, including updating of customer records related to the customer selection and pre-subscription of a long-distance carrier for private or business purposes.

5.12.12 At the same time, a publicity campaign should be undertaken among the general public providing information regarding the services offered by the various long-distance carriers to enable them to make an informed decision when selecting their carrier of choice. Pre-subscription can be brought in throughout the country at the same time, or can be gradually introduced in areas as it becomes available.

5.12.13 Forms will have to be designed and produced for users to complete. A decision will have to be taken on what to do with those who do not respond (i.e., whether they should stay with the established operator or be shared out between that operator and the new entrants). Special attention will need to be given to implementing users' changeovers and updating long-distance databases.

5.12.14 In general, the use of the national numbering resources is determined by their compatibility with the telecommunications services to be provided and their effective use over time. For purposes of the allocation, assignment, and designation of numbering resources, consideration should be given to the rational, efficient, and nondiscriminatory implementation of national numbering resources in a manner that stimulates competition and does not cause harmful interference to the telecommunications services being provided. Harmful interference is considered any use of national numbering resources that impairs the quality or realization of the particular service or other telecommunications services.

### **Case 5.12.2: The experience of Peru**

In the case of pre-subscription (pre-selection), forms are designed and produced to be completed by users. A decision will have to be taken on what to do with those who do not respond (i.e., whether they should stay with the established operator or be shared out between that operator and the new entrants). Special attention will need to be given to implementing users' changeovers and updating long-distance databases.

5.12.15 The authorization for the use of national numbering resources is the administrative act linked to the concession, license, permission, or authorization for the provision of telecommunications services that awards the interested party, on a nontransferable basis and for a term equal to that granted for the associated concession, license, permission, or authorization, the right to use national numbering resources in accordance with the conditions established in the legislation and regulations.

5.12.16 The use of national numbering resources requires prior authorization by the appropriate government agency of designated Administrator.

5.12.17 The authorization for the use of national numbering resources shall be transferred with the corresponding concession, license, permission, or authorization for the provision of the telecommunications service with which such authorization is linked. The approval for the use of national numbering resources shall expire when its authorized term for use has elapsed or in the event of its improper transfer, as well as in cases of the forfeiture, termination, surrender, or nullification of the concession, license, permission, or authorization for the provision of the telecommunications service to which such authorization is linked.

5.12.18 The use of national numbering resources is subject to the fulfillment of the

obligations inherent in the provision of service, the corresponding authorization for the use of national numbering resources, and permanent oversight and enforcement, pursuant to the regulations.

5.12.19 The costs associated with the administration of national numbering resources shall be borne by the telecommunications service providers that use such national numbering resources, pursuant to the terms and conditions established in the regulations.

5.12.20 The extraordinary growth in cellular networks and the corresponding demand for numbers would have been unimaginable only a few years ago. Furthermore, roaming requirements in the countries of the region lead to problems in the numbering structure. An additional complication is the fact that the different countries have introduced different technological solutions at different times, in order to meet national requirements, which are sometimes difficult to make compatible internationally.

5.12.21 Finally, the Internet and IP networks will generate other challenges related to interoperability with traditional telecommunication networks. This will be due to the significant differences that exist between the two networks' address schemes. In addition, as IP services develop, the complexity of numbering issues will increase, as it is being noted in different forums.

5.12.22 The present and foreseeable challenges related to numbering indicate that technology is advancing faster than regulation. A further reason holding up the adoption of new approaches is the user's reluctance to change telephone or fax numbers or addresses, which everyone wants to maintain for social and work purposes.

## **5.13 Portability**

5.13.1 In 1986, ITU-T expanded the international numbering plan, adopting 15

digits instead of 12 (ITU-T Recommendation E.164). At the time, this was considered to be enough to meet all countries' needs over many years. There was no sign of the explosive increase in requirements for numbering resources that would be generated in a multi-operator competitive environment, in which, in addition to user mobility, a variety of advanced services would be provided. That is the case in many countries in the Americas region, and regulatory authorities in those countries are thus faced with a great challenge.

5.13.2 The challenge becomes even more obvious when new services have to be introduced, such as number portability and other services, including Integrated Services Digital Network (ISDN) ones, which may require multiple numbers associated with user interfaces. While there may be solutions for number portability which do not require additional digits, they will have to be analyzed carefully by each Administration, bearing in mind the functionalities of the country's networks.

5.13.3 The need to take those initiatives to create conditions for number portability is of growing importance for the development of competition. Some have emphasized implementation costs; others, with a longer-term perspective, without denying the need to evaluate the costs and benefits of the initiative, insist on tackling the issue because number portability facilitates convergence and competition.

5.13.4 What is meant by this concept? The ITU has defined it as the ability of consumers to retain a specific number despite changes in service provider, network, or geographical location. What could be referred to as full portability is a long-term process of successive approximations where it is likely that we will be progressing at different paces depending on the characteristics prevailing in the different countries. It is possible that it will begin with provider portability, that is, the possibility of keeping the same number while changing providers within in the same

primary zone; or with service portability, that is, when users keep their number when changing the type of service in the same primary zone; or with geographical portability, which makes it possible to keep the same number despite a change of primary zone. There are various methods of implementing portability, but basically they consist of various schemes of intelligent exchanges that are consulted on how to gain access to a number that having been originally assigned by a company must vary its routing because the user has changed his/her provider or location.

5.13.5 Naturally, there may be significant costs involved if progress is to be made in this area, such as the industry's initial expenditures to develop the required databases and the capacity to administer them. The cost for operators also increases when switch board centers are modified to permit queries in the databases and, in general, the requirements for improvement in the networks to permit rerouting the numbers that have been displaced.

5.13.6 The advantages of portability, however, amply exceed its costs. For companies, this means that their clients will be able to locate them regardless of the changes that might take place. It involves a radical change of culture; until now the numbers have been controlled by the service provider companies; in the new scenario however, the users have greater control of the numbers. It will be a form of "empowerment" for the users, as it will be much easier to change a provider if the service they are receiving turns out to be deficient. Regarding this, customer loyalty to an operator will no longer be based on the exit barriers but rather on the excellence of the service, thereby stimulating competition in telecommunications, which is decisive to ensure the dynamic growth of a key sector in increasing efficiency and competitiveness in the economy.

## 5.14 Consumer Protection

5.14.1 Consumer protection must be analyzed regardless of the private or public nature of the provider. In this respect, competition may result in benefits for consumers, price reduction, and service enhancement, although it is insufficient to ensure consumer protection. It is known that many telecommunication services, in particular, fixed services, are provided in a *de facto* monopoly and, in most countries, these monopolies are controlled so as not to affect consumers adversely.

5.14.2 Consumers' rights, once defined by legislation or the regulatory authority, should be protected. In many countries, legislation defines as basic consumer rights the following:

- a. the right to have basic needs satisfied;
- b. the right to choose;
- c. the right to information;
- d. the right to safety;
- e. the right to representation;
- f. the right to compensation;
- g. the right to education; and
- h. the right to a healthy environment.

5.14.3 As far as telecommunication service consumers are concerned, the eight basic rights that must be respected could be the following.

5.14.4 **The right to have basic needs satisfied:** telecommunication services are essential to the development of a good quality of life and their provision should be one of the basic needs that consumers must satisfy. Therefore, policies must be in place to ensure universal access to the service, with good quality and fair and reasonable prices for

lower income consumers.

5.14.5 **The right to choose:** consumers must have the right to choose providers who offer services of the best quality and at the lowest price. As many services are provided by monopoly operators, it is not always possible to exercise the right to choose. In such cases, actions must be taken in order to avoid adverse impact on consumers.

5.14.6 **The right to information:** public consumers have the right to receive adequate and clear information regarding the different products and services, correctly specifying quantity, characteristics, composition, quality, and price as well as risks involved. This implies not only transparency in regulation but also protection against misleading and false advertising, coercive and unfair business practices and abusive practices and clauses imposed in supplying products and providing services.

5.14.7 **The right to safety:** the regulatory authority must ensure that services are rendered in such a way that they do not pose any risk to consumers' health and safety.

5.14.8 **The right to representation:** consumers have the right to be represented by associations, which must have access to administrative agencies with a view to avoiding any pain and suffering, emotional distress, and/or physical injury or damage, whether individual or collective, ensuring consumers of legal, economic and administrative protection.

5.14.9 **The right to compensation:** consumers have the right to effective prevention and to compensation for pain and suffering, emotional distress, and/or physical injury or damage, whether individual or collective, caused by products or services provided by operators. To that end, it is important that consumer complaints are addressed, not only by companies but also, at a higher level, by regulatory authorities that may impose sanctions on operators, if necessary.

5.14.10 **The right to education:** education on and dissemination of the appropriate use of products and services, thereby ensuring consumers freedom of choice and equity in entering into contracts.

5.14.11 **The right to a healthy environment:** consumers must receive services that do not cause harm to the environment and that meet environmental quality standards.

5.14.12 Many countries have legislation of their own dealing with consumers' rights. Such rights may often be taken into account in telecommunication regulations and legislation. In such cases, potential ambiguities resulting in loopholes that may be detrimental for consumers must be avoided.

## ANNEXES

### SECTION 5.2 : COMPETITIVE SERVICES AND FACILITIES-BASED COMPETITION

PERU: LEY N° 28295 - LEY QUE REGULA EL ACCESO Y USO COMPARTIDO DE INFRAESTRUCTURA DE USO PÚBLICO PARA LA PRESTACIÓN DE SERVICIOS PÚBLICOS DE TELECOMUNICACIONES

PERU: DECRETO SUPREMO N° 029-2004-MTC MODIFICAN EL D.S. N° 062-2003-MTC QUE REGULÓ LOS SERVICIOS ESPECIALES CON INTEROPERABILIDAD

### SECTION 5.4: UNIVERSAL ACCESS/SERVICE

BRAZIL: DECRETO N° 2.592, DE 15 DE MAIO DE 1998. APROVA O PLANO GERAL DE METAS PARA A UNIVERSALIZAÇÃO DO SERVIÇO TELEFÔNICO FIXO COMUTADO PRESTADO NO REGIME PÚBLICO

BRAZIL: DECRETO N° 4.769, DE 27 DE JUNHO DE 2003. APROVA O PLANO GERAL DE METAS PARA A UNIVERSALIZAÇÃO DO SERVIÇO TELEFÔNICO FIXO COMUTADO PRESTADO NO REGIME PÚBLICO - PGMU, E DÁ OUTRAS PROVIDÊNCIAS.

PERU: DECRETO SUPREMO N° 049-2003-MTC “LINEAMIENTOS DE POLÍTICAS PARA PROMOVER UN MAYOR ACCESO A LOS SERVICIOS DE TELECOMUNICACIONES EN ÁREAS RURALES Y LUGARES DE PREFERENTE INTERÉS SOCIAL”

### SECTION 5.6: ISSUES FOR SETTING RATES AND THEIR IMPACT

CHILE: REGLAMENTO QUE REGULA EL PROCEDIMIENTO, PUBLICIDAD Y PARTICIPACIÓN DEL PROCESO DE FIJACIÓN TARIFARIA ESTABLECIDO EN EL TÍTULO V DE LA LEY NRO. 18.168, GENERAL DE TELECOMUNICACIONES

### SECTION 5.8: BASIC AND LEGAL PRINCIPLES OF INTERCONNECTION

ARGENTINA: GENERAL INTERCONNECTION REGULATIONS (GIR)

BRAZIL: GENERAL INTERCONNECTION REGULATIONS

BRAZIL: RESOLUÇÃO N° 30, DE 29 DE JUNHO DE 1998. APROVA O PLANO GERAL DE METAS DE QUALIDADE PARA O SERVIÇO TELEFÔNICO FIXO COMUTADO.

DOMINICAN REPUBLIC: REGLAMENTO GENERAL DE INTERCONEXIÓN PARA LAS REDES DE SERVICIOS PÚBLICOS DE TELECOMUNICACIONES

### SECTION 5.12: INTERNATIONAL PUBLIC TELECOMMUNICATION NUMBERING PLANS AND NUMBERING RESOURCE CONSIDERATIONS

PERU: DECRETO SUPREMO N° 062-2003-MTC PRECISAN EL NUMERAL 2.10.3 DEL PLAN TÉCNICO FUNDAMENTAL DE NUMERACIÓN APROBADO POR R.S. N° 022-2002-MTC

## **6. Administrative procedures**

### **6.1 General framework for the regulatory authority**

6.1.1 Decisions by regulatory authorities are at all times subject to legal principles. What in practice is not very clear is how decisions are to be implemented under civil law systems, especially when telecommunication markets are by their nature international. It is important for regulatory authorities to move forward in designing enhanced regulatory practices.

6.1.2 Among the problems generally faced by regulatory authorities are:

a. Difficulties in understanding the regulatory function as a function shared between the executive and legislative branches. In this connection, regulatory authorities must make ongoing efforts to disseminate information;

b. Lack of flexibility in designing solutions to specific cases, especially where special circumstances attach to the market or service. In a precedent-based system, more experience of this type of process has been acquired; and

c. A requirement for immediate results, in accordance with the political agenda.

6.1.3 The regulatory authority should know how to handle adequately expectations that are generated when a regulatory decision is about to be issued. Identifying the factors affecting legitimacy, efficiency, or effectiveness facilitates such control. As discussed below, the development of regulatory principles will contribute to both aspects of regulatory decision-making.

### **6.2 Transparency**

6.2.1 National Administrations operate by means of systems of checks and balances. In

the regulatory area, transparency is the balance offsetting administrative autonomy. Transparency means accountability or the accessibility of information generated by the regulatory authority.

6.2.2 The relevance of transparency is evident from the fact that obligations regarding the accessibility of regulatory information were included in the Reference Paper annexed to the General Agreement on Trade in Services (GATS).

6.2.3 In addition to making information publicly available, the regulatory authority should seek to examine and maintain records of regulatory decisions. This will facilitate the planning of future actions.

6.2.4 The regulatory authority may ensure transparency:

a. Prior to the regulatory process, when the authority indicates its intention to regulate;

b. During the regulatory process when the regulatory authority has formally begun to examine the positions and interests of the parties concerned, taking account of the objectives to be achieved; and

c. After the regulatory process, when the regulatory authority needs to review the scope of the regulation or ensure that it is implemented appropriately.

6.2.5 In the first case, transparency is ensured by describing the circumstances that might lead to possible intervention by the regulatory authority. It is also ensured by disseminating the procedural provisions and criteria that are to guide the action of the regulatory authority.

6.2.6 In the second case, the regulatory authority ensures not only that the interested parties have full knowledge of how the process will be implemented but also of how to incorporate arguments and sufficient evidence in order to permit the most wide-

ranging and in-depth discussion possible so that a positive or negative decision may be taken (generally referred to as cost-benefit analysis).

6.2.7 In the third case, transparency is ensured by means of an activity report. This should be published regularly and periodically. And should be a comprehensive compilation of all relevant aspects. As the extent of liberalization of telecommunications may vary from one country to another, it is necessary to keep the most complete records possible of regulatory actions to establish, based on analysis, the differences among them, even where administrative procedures were the same, in accordance with national legislation or regulations.

### **6.3 Drafting of provisions and public participation therein**

6.3.1 In drafting regulations, it would appear contradictory to require both the broadest participation possible by interested parties and, at the same time, prompt decision-making. In addressing this dilemma, regulatory authorities should take into account that regulation requires extensive analysis of the impact it may have on the market, and that market dynamics require dynamism of the participants, and therefore so too of the authority.

6.3.2 One area where some regulatory authorities have made progress is in the identification prior to the announcement of a possible regulation of those who would be directly affected or involved. More directly, the user, consumer, or provider could be required to set out their arguments and present evidence they consider relevant, so that the authority may decide whether the information is sufficient and appropriate.

6.3.3 Other areas where regulatory authorities have moved ahead are in:

a. Identifying and defining the problem, asking questions such as why regulate, whom

to regulate and for how long, and in estimating the costs and benefits of implementation;

b. Gaining experience of receiving the observations of the public, either in writing or via public fact-finding hearings;

c. Making available to the user public information on the impact of the regulation, such as numbering changes, implementation of portability, etc.;

d. Striking a balance between the principle of due process and protecting the public interest, regardless of how often regulatory decisions are challenged.

### **6.4 Mechanisms for review of regulatory authority decisions and other forms of recourse**

6.4.1 The scope for review of regulatory authority decisions is important. Review may involve administrative control, which may impede implementation of the regulation. Such review, when reaching an adjudicatory stage, may involve recourse to the country's legal system.

6.4.2 Reviews of errors of fact are conducted in accordance with the regulatory provision in question, not only to correct possible errors but also for the simple reason that the (economic) conditions of a market or service may have changed substantially since the initial decision was taken.

6.4.3 Review of legal interpretation is an institutional control mechanism, but it may also jeopardize the effectiveness of sectoral regulation/competition, especially when the adjudicatory body lacks expertise in the area of markets and services.

6.4.4 Each country should give careful consideration to the principal criterion to be applied in regulatory authority review, as review in accordance with political criteria, or accountability, impacts the re-election

prospects of those to whom the regulatory authority is subordinate. In accordance with legal criteria, review involves consistency with legal principles and provisions.

## **6.5 Oversight, monitoring, and arbitration**

6.5.1 In a competitive system, along with the issuing of additional licenses, the state's control function is evolving towards oversight to detect the causes of inadequate market operation. With the entry of alternative providers, users have the possibility of changing operators if service quality is not adequate or if their demands are not met. Regulatory authorities should strive to operate mechanisms that facilitate the comparison of services and costs, in view of the complexity of telecommunication services

6.5.2 The regulatory authorities of most countries use some of the following practices to effect oversight:

a. Establishing the fulfillment of all obligations established in licenses, regulations, and documents signed by telecommunication service providers by means of actions such as technical inspections and audits;

b. Inspection of the correct use of limited, essential telecommunication resources; and

c. Ensuring that operators periodically provide information regarding the service or services they provide.

6.5.3 The regulatory authority should make provision to ensure the obligations imposed on operators allow for effective oversight, seeking not to overload operators with responsibilities that will become unnecessary or that may in any way injure the continued existence of operators and, particularly, the establishment of new operators.

6.5.4 Furthermore, the regulatory authority should have an internal review process that enables its decisions to be monitored and to understand when it is adopting a position in favor of further regulation, maintaining the status quo, or reducing the regulatory burden. This means incorporating quality indicators on the regulation. At first, this may appear difficult, but it can strengthen the position of regulatory authority in responding to questioning during adjudicatory review. The regulatory authority should monitor those cases that merit their intervention, especially when its effectiveness is jeopardized. The authority should review the results to establish whether the actions implemented were sufficient to address the problems detected.

## 7. Licensing and renewal of licenses

### 7.1 Basic principles of licensing and renewal of licenses<sup>4</sup>

7.1.1 The gradual liberalization of markets or market segments in the Americas region requires ministerial and regulatory authorities to adopt new licensing arrangements for service delivery, network operation, and spectrum use, based on models that differ from traditional licensing procedures applied to monopoly operators.

7.1.2 In a competitive marketplace, licenses are the instrument through which the regulatory authority lays down the conditions for compliance with the law or for application of the regulations. The principles governing the licensing system in each country are similar worldwide and take account of the following requirements:

- a. Protection of the public interest;
- b. Promotion of network expansion and a wider range of available services;
- c. Prevention of anti-competitive behavior by new entrants.

7.1.3 This means that licenses may serve as a filter, allowing only qualified and financially solvent operators with appropriate technological infrastructure to enter the market. The granting of a license to a new entrant would secure access for the latter to limited resources, such as the spectrum, numbering, and interconnection rights.

7.1.4 With regard to the technological aspects, each country should adopt models providing for a measure of flexibility, so as not to erect unnecessary barriers to the adoption of new technologies, which – as is

currently the case with the most modern wireless systems – may lead to more efficient spectrum utilization. Maximum regulatory flexibility means allowing the market to adjust to public demand and to the availability of new technological options and associated supply in terms of facilities and services. Conversely, the granting of licenses on the basis of compliance with technical and operational standards recognized at regional or world level is a more reassuring option, but one that is less geared to innovation.

7.1.5 Regulatory authorities in developing countries may face problems involving industrial conflicts of interest and scarcity of regulatory resources, as well as lack of clarity of certain provisions or stricter administrative procedures. It lies with each country in the Americas region to strike the right balance between the above-mentioned lines of approach and the primary objective of not impeding development of the sector.

7.1.6 The use of frequencies of the radio spectrum requires coordination, virtually always within the framework of international agreements on the allocation of frequency bands for specific services and national decisions on the assignment of part of those bands to users. National coordination usually involves administrative authorization for the use of frequency bands, in the form of a license.

7.1.7 The rationale for requiring a license for the use of the spectrums is:

- a. The radio spectrum, orbit positions and satellite orbits are scarce natural resources;
- b. Not everyone wanting a radiocommunication channel can have one;
- c. For efficient operation, radiocommunications must be free from harmful interference.

7.1.8 In cases of installation or operation of telecommunication systems that use the spectrum, there may be other public interest

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<sup>4</sup> A “license” is the one of the different types of administrative authorization, such as concessions, permits, authorizations, licenses, and registrations.

considerations that may impose a need for a license to build or operate a station, system, or network for providing services to the public. For example, in the case of the switched telephone network, there may be public interest in assuring the continued operation of the network on a non-discriminatory basis. Therefore, the license is an instrument which enables the regulatory authority to protect the public interest.

7.1.9 The license to provide a service is linked to the frequency assignment. When spectrum shortage is not a concern and when unlimited entry is possible and a fully competitive market is to be encouraged, individual licenses will not be required and only a simple registration or general authorization will be sufficient.

7.1.10 The experience of the some countries in different regions makes evident that the process of convergence of networks and services is generating a new landscape that makes it imperative to consider establishing regulatory conditions for uniform treatment of the different networks to the extent that digitization and computerization enable them to be used to provide different services. Indeed, it may be noted that specialized networks such as the telephone, cable TV, and fiber optic networks are able to provide telephony, data, and image communication services. Artificially maintaining differences between networks may eventually generate significant distortions. At the same time, these experiences make it possible to conclude that efforts to generate a uniform regulatory framework makes it more necessary to take measures to preserve and promote competition.

## **7.2 Licensing process**

7.2.1 The process to select a spectrum user (licensee) will normally involve the following steps:

a. Public announcement that the

regulatory authority is to initiate a process to select a licensee to use a given segment of the spectrum. When it does not present guidelines for prior consultation, the authority will announce the service area, the relevant technical parameters, the technical, legal and financial requirements to compete for selection, etc.;

b. All interested parties will have a reasonable period of time within which to apply for the license or, as appropriate, to make suggestions or submit enquiries on the selection process or the service;

c. The regulatory authority, applying appropriate selection methods, will announce its decision as to who can be granted licenses;

d. Any interested party which considers the decision unjust should have the right to appeal against it, either directly to the regulatory authority or to a higher authority. Judicial remedy—within the parameters established to govern the scope of its intervention—should also be a permissible tool for redressing an injustice. Appeals should be regarded as permissible whether they question the regulatory authority's procedural measures or shortcomings in the evaluation of the applicants' technical, legal and financial qualifications.

## **7.3 Licensing methods**

7.3.1 The following licensing methods may be used:

a. Comparison;

b. Lottery;

c. Auction;

d. First come, first served;

e. Open entry;

f. A mixture of one or more of the above.

7.3.2 The method best suited to a given circumstance depends on a number of factors, including:

- a. Number of applicants;
- b. Number of licenses to be granted;
- c. Type of service associated with the spectrum;
- d. Degree of complexity of the subject;
- e. Cost and time involved in examining each application;
- f. Economic and social context;
- g. Legal status of existing licensees.

### **7.3.3 Comparative method**

7.3.3.1 The comparative method consists of an evaluation of the relative merits of each applicant. While it is the most time-consuming method, it may yield the more meritorious service provider. Its use is appropriate only if there are true differences between applicants that are relevant to performance. In many cases, licenses for broadcasting services have been granted through a comparative process.

7.3.3.2 This method is also known as the “beauty contest,” defined as the process whereby the license is granted to the operator that submits the most attractive projects from the standpoint of public policy objectives. The project should define objectives in terms of investment, coverage, and intervals in which the planned investment will be made.

7.3.3.3 It is also important to consider whether the regulatory authority will allow resale or transfer of the license; if it will, the disadvantages of the comparative method stand and its advantages fall as, in the event that the license is transferred, the ultimate licensee may not be the person the regulatory

authority deemed most worthy.

7.3.3.4 In a comparative procedure, it may be appropriate to grant some type of preference, whether this is established in the legislation or on grounds of public/social interest. It may be the country’s policy to promote diversity in ownership of telecommunication facilities or services with a view to obtaining more active participation by minorities, or to give incentives and reward to innovators, including those that have created new services or technologies or significantly improve the efficiency, vis-à-vis the public, of existing services and technologies.

7.3.3.5 In a variation of the comparative method, the Administration establishes specific public interest objectives to be met (e.g., population coverage, geographical coverage, speed of operation and/or tariff applicable for a given period), and those applicants which satisfy the stipulated technical and economic requirements compete against one another to determine who can best meet the objectives. Bids may be compared transparently and automatically by computer. This method has been used successfully in granting national licenses for mobile communications.

### **7.3.4 Lottery**

7.3.4.1 The granting of a license through a lottery can in some cases be a simple matter for both applicants and regulatory authority. To optimize the benefits of this method, applicants should initially be required to submit only essential information; the applicants selected on the basis of this information should be then required to provide a full set of detailed information. The burden imposed by this method, although very time-consuming, tends to be much lighter than that imposed by the comparative method. This method is only appropriate where a merit-based comparison of the applications is neither necessary nor relevant.

7.3.4.2 The question of preferences is also relevant in the case of lotteries. As mentioned above, a preference might be granted in order to give a greater say in telecommunications to minorities or innovators. The system of preferences must be clearly spelled out before the selection procedure is initiated.

### **7.3.5 Auction**

7.3.5.1 Auctions may be conducted on the basis of either sealed or oral bids. The sealed bid is simpler to administer, less subject to manipulation, and generally likely to promote higher bidding values in cases where there is only one bidder. The need to set a floor level or minimum permitted bid is more obvious in case of auction through oral bid. There are several ways in which the amount of the winning bid may be paid, among them:

- a. In cash (one payment);
- b. By installment during the period of validity of the license;
- c. A down payment plus payment of a fee in cash (as a percentage of revenue in cash or of profits).

7.3.5.2 Although fewer applications will be received than there would be in the case of a lottery, here too there could still be frivolous applications. One way of preventing this would be to require a guarantee or a sufficiently large deposit which would be refunded to losing bidders, while the winner's refund would be subject to certain pre-established conditions.

### **7.3.6 First come, first served**

7.3.6.1 This method consists of granting the license to the first applicant who meets the legal, financial, and technical requirements. It may be employed, for example, when the available portion of spectrum exceeds the corresponding demand, and is probably the simplest and least burdensome of all licensing

methods.

### **7.3.7 Open entry**

7.3.7.1 The open entry method is very similar to the first come, first served process. All parties which submit their application within a given time period and are deemed to meet the legal, financial, and technical requirements are granted a license. Where applications are mutually exclusive, it may be necessary to coordinate among applicants, assign fewer channels to each of them, or have recourse to one of the competitive methods discussed above.

## **7.4 Renewal of licenses**

7.4.1 Among general principles for license renewal, in order to encourage substantial investment and reliability in the provision of services, it is important that license renewal conditions be known when licenses are granted. In many cases, Administrations have preferred to grant permanent licenses with a view to developing services and attracting stable competitors.

7.4.2 It is also very important, where monopolistic licenses or dominant positions are granted (this is not the case with true competition, where positions are regulated by the market), to set reasonably short intervals and clear guidelines for review of the terms.

7.4.3 Regarding the spectrum, this last point above is of fundamental importance. To reach this conclusion, one need only look at the radical, dramatic changes that have taken place in the sector in a very short space of time owing to technological development.

7.4.4 In general terms, many of the procedures that are followed when awarding initial licenses apply also to renewals, such as the possibility of effective public participation, transparency, objectivity, and legal certainty. In the process of renewing use of the spectrum, other important elements

are:

- a. Examining the performance to date of the licensee together with its plans for future operation;
- b. Comparing the incumbent licensee with new applicants, taking into account, *inter alia*, their respective promises and the incumbent's performance to date;
- c. Assessing the need to impose digitization of the service to obtain better use of the spectrum;
- d. Studying the feasibility of introducing new applications in the spectrum;
- e. Considering other applications for spectrum use by new operators and technologies;
- f. Taking into account international trends for spectrum use in world telecommunication organizations;
- g. Ensuring the compatibility, to the greatest extent possible, of spectrum use by existing users as well as by new operators/services;
- h. Analyzing whether the spectrum is being used well by the incumbent and whether new applications could make better use of it so that incumbents could be required to return part of the spectrum for the introduction of new applications.

7.4.5 In many cases, simply examining previous performance may be sufficient to enable the regulatory authority to evaluate the public/social interest and decide on the renewal of a license. One advantage of permitting competing applications in a renewal process is the incentive for the incumbent licensee to perform well. But the regulatory authority must consider all aspects that are presented, in addition to the local aspects, to take a decision on use of the spectrum.

7.4.6 In the case of broadcasting, for example, the regulatory authority may

establish that a licensee rendering minimal service will receive no preference and that, to speed up digitization of the service, service operators that give undertakings to ensure digitization will be given preference.

7.4.7 Finally, to take another example from cellular communications, a licensee should be able to expect renewal which, under the relevant provisions in force, may or may not require payment, subject to its:

- a. Having efficiently used the frequency spectrum corresponding to its license for the intended purpose;
- b. Having modernized its technology with equipment enabling persons to enjoy the best possible services;
- c. Having substantially complied with the relevant provisions, rules, regulations, and policies; and
- d. Having performed well, in accordance with the conditions established in the license.

## 7.5 General authorizations

7.5.1 The developments in technology, innovations in services offered, price reductions, and improvements in quality brought about by the convergence of the telecommunication, broadcasting, and information technology sectors are reshaping the communications market.

7.5.2 From the standpoint of communications infrastructure and related services, convergence makes the traditional separation of regulatory functions between these sectors increasingly inappropriate and calls for a coherent regulatory regime. It requires the establishment of an authorization system covering all comparable services regardless of the technologies used.

7.5.3 In this context, some countries, most of them European, have reviewed their

current regulatory frameworks for communications with a view to addressing the need for a more horizontal approach to regulation of the convergence of communications infrastructure. The aim was to establish a harmonized market for electronic communications networks and services by limiting regulation to a strictly necessary minimum.

7.5.4 The main innovation was replacement of individual licenses with general authorizations, while a special scheme for allocating frequencies and numbers, as scarce resources, remains in place.

7.5.5 In accordance with this principle, the provision of electronic communications networks or services may only be the object of a general authorization. In other words, the undertaking concerned may be required to give notification but it would not be required to obtain an explicit decision or any other administrative document from the national regulatory authority (NRA) before exercising the rights emanating from the authorization. A clear distinction is drawn between the conditions applicable under the general authorization and conditions related to the rights to use frequencies and numbers. In other words, in many countries the general authorization allows operators to explore several types of service, but if any frequency or numbering resources are needed, an individual authorization is required under the country's specific rules.

## **7.6 Licenses for value-added services**

7.6.1 In countries where value added services are regarded as telecommunication services, providers in many cases are required to obtain the corresponding enabling authorization from the regulatory authority. In such cases, it is recommended that the enabling authorization be issued in the most expeditious manner possible.

7.6.2 In countries where they are not regarded as telecommunication services, there is no specific regulation of value added services. Therefore, they are governed by other laws and regulations. However, it is important to bear in mind that regulation of telecommunication service may have an impact on the implementation and operation of value-added services.

7.6.3 In some countries, value added services are considered state-regulated telecommunication services. In others, these services, despite being directly connected to telecommunication networks, are not regarded as telecommunication services.

7.6.4 As, in many cases, the value added service provider is a user of the supporting telecommunication service, it has all rights and obligations inherent to this special situation. In order to facilitate access to telecommunication networks, the regulatory authority should establish rules regarding the conditions for provision of value added services. By such means, provision of telecommunication services is ensured to those parties interested in supplying value added services.

### **Case 7.6.1: The experience of Brazil**

In Brazil, the most relevant example of value added services is provided by the Internet. Under the regulations in force, Internet service is provided over data, voice, or image transmission networks. Such transmission service is easily identified as a telecommunication service. As it is provided over a telecommunication network, Internet service is regarded as a value added service, and it is not regulated by telecommunication laws.

In the Brazilian case, the legislation defines whether an activity is a value added service or a telecommunication service. In any event, it should always be noted that a value added service is provided over a telecommunication service platform and it is not considered as such because it adds some facility to the telecommunication service that was not previously provided.

### **Case 7.6.2 The experience of Guatemala on frequency licenses (*Títulos de Usufructo de Frecuencias* – TUFs)**

In Guatemala, spectrum frequency bands are classified as follows:

- Frequency bands for amateur radio operators: Frequency bands that may be used by amateur radio operators without obtaining licenses;
- Reserved frequency bands: Frequency bands allocated to state agencies and entities;
- Regulated frequency bands: Frequency bands not defined in law as bands for amateur radio operators or reserved bands.

The right to use regulated bands is awarded by means of licenses (*Títulos de Usufructo de Frecuencias* - TUFs). TUFs are nominative and negotiable, wholly or in part. The general rules applicable to nominative shares apply to TUFs.

TUFs minimally contain:

- The frequency band or range, indicating: operating schedule, geographic coverage area, maximum effective radiation power, maximum strength of electrical field or maximum allowable radiation power in coverage area.
- License number and license registration number
- License issue and expiration dates
- Name of licensee
- Blank space for endorsements or information

TUFs do not stipulate any particular technology as they respect the principle of technological neutrality and may be used to provide all types of services.

The life of a TUF is 15 years, renewable for periods of equal length.

To obtain a TUF, any interested party, whether a natural or legal person, national or foreign, must submit to the Superintendency of Telecommunications an application giving details of the requested frequency band.

The Superintendency of Telecommunications publishes all applications admitted for processing and other parties may express their interest in acquiring part or all of the frequency band or bands requested.

If no opposition is expressed and/or there are no interested third parties, the Superintendency of Telecommunications directly awards the license for use of the requested band.

If there are other interested parties, the Superintendency of Telecommunications invites those interested to

participate in a public auction of the requested band, which it may divide if it so deems necessary to promote competition on the telecommunication market.

The Superintendency of Telecommunications determines how each public auction is to be conducted. All bids must be sealed. Auctions may have one or more rounds and are supervised by a reputable firm of external auditors. The frequency band is always awarded to the highest bidder.

## **ANNEXES**

DOMINICAN REPUBLIC: OTORGAMIENTO DE CONCESIONES Y LICENCIAS  
MEXICO: MODIFICATION OF THE DEED OF CONCESSION OF TELÉFONOS DE  
MÉXICO, S.A. DE C.V.  
PERU: CONCESSION CONTRACT FOR THE PROVISION OF THE PUBLIC  
NATIONAL AND INTERNATIONAL LONG-DISTANCE TELECOMMUNICATION  
TRANSPORT SERVICE

## **8. Internet and IP-enabled services**

### **8.1 General aspects**

8.1.1 Since its launch to the public, the Internet has been recognized as a medium that enables users to reach across geographical and jurisdictional borders to access and disseminate information and conduct business transactions. In addition to facilitating transactions in goods, today the Internet has established itself as a platform for human development, enabling goods and services to be exchanged in a more efficient manner, thus contributing to increased economic growth that in turn improves the lives of citizens across the CITEL region.

8.1.2 Since the primary feature of the Internet is a network where private companies and the public can freely participate in the creation of new applications and services, it is impossible to predict the Internet's full potential or its positive impacts on peoples' social and economic life.

8.1.3 One of the challenges facing policy makers is how to continue policies that encourage the roll-out of telecommunications infrastructure, while simultaneously maintaining a market-oriented approach to the development of the Internet and IP applications and services.

8.1.4 As new technologies, applications, and business models are developed, telecommunication regulatory authorities and policy-makers should keep a close watch on the development of services and applications in order to prepare themselves thoroughly to meet the new challenges brought about by technological progress and to ensure that the widest possible range of consumers will have access to the benefits of the Internet.

8.1.5 As a result of market liberalization and competition in telecommunication services, it has been possible to ensure greater development of both infrastructure and growth in new applications and functionalities. Competition in

telecommunication services establishes the necessary conditions for Internet growth because it provides the basic foundation on which Internet applications can thrive. Competition enables Internet Service Providers (ISPs), and thus consumers, to take advantage of lower access prices, a wide range of choices, and greater innovation.

8.1.6 Regulatory authorities in particular and governments in general have recognized the importance of distributing the benefits of the Internet to as many end users as possible. The challenge is no longer seen as only a problem of access to technology, as it is included within global programs that view the Internet as a way of providing better health and education services and generally improving the relationship between governments and the governed.

### **8.2 Technological aspects of the Internet and IP-enabled services**

8.2.1 The Internet is an international system of computers connected via a network resulting from the integration of numerous networks (a network of networks).

8.2.2 The characteristics of the Internet's design are determined by a series of different protocols, all of which are supported by the Internet Protocol (IP), which may be described as a protocol:

- a. That provides transmission services based on "best effort," without any guarantee;
- b. Where information is transmitted in blocks known as packets or datagrams;
- c. That, when communication is established between two points, there is no predefined route for the transmission of packets, which is why it is said that the IP is not a connection-oriented protocol;
- d. That establishes a scheme of unique addresses for all interconnected devices;

e. That facilitates the integration of multiple networks into a single network.

8.2.3 Based on the functionality of the Internet Protocol, the Internet was designed as a network whose only purpose is to provide transport services for content of any kind. It is therefore said that the intelligence in the Internet is not found at its core (as in traditional networks) but rather at its terminal points, where pieces of computer equipment function as servers for the delivery of applications and services such as e-mail, web browsing, etc. Therefore, the development of new services is completely open to participation by both users and providers of telecommunication infrastructure.

8.2.4 At present, the most widely used version of the Internet Protocol is version 4 (IPv4), which was standardized in 1981. Since then, complementary protocols have been developed that enable some of the limitations of the original design to be overcome. Thus today complementary protocols are being developed that incorporate such improvements as vastly increasing the number of available IP addresses and enhancing upon quality of service/traffic differentiation functionalities.

8.2.5 Widespread adoption of IPv6, a newer Internet protocol, has been quite moderate in view of the technical complexity and expense of updating network equipment. Further, many of the developments made for IPv6 are being used to extend and improve support for the capabilities found in IPv4. Thus rather than being a competing protocol, IPv6 has proven to be complementary to IPv4.

8.2.6 Governments, as major purchasers of technology in each country, can play a role as promoters of the adoption of new technologies that improve or update Internet infrastructure. The impact of this role should be studied by the relevant authorities and, as appropriate, the object of recommendations, as the adoption of new technologies by governments may generate economies of

scale that otherwise would probably not be possible.

8.2.7 Interconnection of the networks comprising the Internet is not hierarchical. Networks were originally interconnected at network access points (NAPs), making it possible for operators, along with NAPs, to choose to interconnect at mutually agreed private points. Thus the Internet developed organically, the number of interconnections increasing in accordance with the needs of operators to make their networks efficient in terms of capacity and costs.

8.2.8 Many Latin American countries have found in the creation of national NAPs a way to reduce Internet infrastructure costs by routing national traffic without using infrastructure beyond their borders. Some consider the creation of NAPs to have been a decisive factor in consolidating Internet infrastructure in the region, although it should be borne in mind that operators will naturally strive for efficiency in their national networks by supplementing their interconnection at sites additional to the sites where NAPs are housed.

8.2.9 Although the design of the Internet Protocol was designed to support voice services, these were uncommon before the Internet became a network in general public use.

8.2.10 Voice over Internet Protocol (VoIP) services began as a curiosity for users who were making computer-to-computer phone calls over the Internet network. Since then, continuous progress has been made so that VoIP services are increasingly providing the same functionality as the PSTN, as well as new services that were previously impossible to offer.<sup>5</sup>

8.2.11 It is now accepted that VoIP is a

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<sup>5</sup> See *technical notebook of CITEI « Telecommunications over IP » developed by PCC.I of CITEI.*

technology that offers a clear competitive advantage to the operator using it, as it is argued that it is a more efficient means of transmission than the traditional telephony network. Intuitively, it seems clear that voice transmission in discrete units (packets) is more efficient than continuously occupying a complete circuit, all the more so as conversations have periods of silence. The use of VoIP transmission media as opposed to traditional telephony depends on many more factors than simply using the Internet Protocol; such as the use of voice compression technologies.

8.2.12 Although VoIP services currently account for only a small share of the total telephony market, their presence is undeniably an additional key factor in market liberalization processes, especially on international routes. In addition, the move towards VoIP network architectures should be analyzed taking into account that it is a technology that reduces not only transport costs but also the amount of investment needed to operate telecommunication networks, that it provides more flexible tariffing options and that in general it enables new applications and services to be designed, planned, and made available on the market more rapidly and economically, always for the benefit of the consumer.

### **8.3 Impact on the telecommunication market**

8.3.1 Revenue streams of Internet Service Providers are unidirectional, from the elements at the terminal points to the elements at the network's core. The end user pays for a means of access (the phone line, broadband access, etc.) and a fee to the ISP for its services. The ISP pays the backbone operator for distributing traffic towards the entire Internet. The backbone operator finally routes the traffic to its destination via interconnection with similar networks or "peer" networks through an NAP or at private points.

8.3.2 Peer network interconnection normally takes place on an unremunerated basis where the participating operators assume that the flow of traffic between the two networks will be more or less symmetrical. It is therefore common for each operator to establish technical criteria that other operators must satisfy to avoid unfairly favoring operators that have made less investment in their networks.

8.3.3 In some countries, regulatory authorities have intervened as they did not consider it appropriate for criteria for authorizing interconnection to be left entirely to the discretion of operators which, in the case of the largest, can use their power unfairly to displace smaller competitors.

8.3.4 This problem does not arise with traditional telephony networks. In telephony, when an operator interconnects a call using the network of another operator, it has to pay a settlement fee, so that it effectively shares the revenue generated by the call. Traffic volumes in both directions may be balanced or asymmetrical, in which case the operator generating the most traffic is obliged to pay a sum to its counterpart.

8.3.5 Two features of the Internet, one technical and the other involving the market environment, make it impossible to use settlement arrangements between operators similar to those used in telephony (use-based):

a. Both the Internet protocol and its associated technologies lack the functionality to enable network traffic flows to be measured;

b. Although the first Internet Service Providers offered their users rate plans that charged for hours of use, historically the market trend for services to both consumers and large corporate users has been towards simpler plans based on fixed tariffs regardless of use.

8.3.6 Different studies have examined the

issue of international Internet cost components. Some defend the status quo, claiming that international connectivity routes are generally more competitive than most domestic routes. This approach explains the generalized dramatic decline in infrastructure prices in all markets of the world.

8.3.7 Other studies have concluded that the PSTN model is not appropriate for the Internet. However, agreement could not be reached on a possible system to replace the existing one, precisely because of the impossibility of quantifying and characterizing the traffic of interconnected operators.

8.3.8 The adoption of new technologies for service quality management has been proposed as a window of opportunity for new operator revenue. When users use their Internet connection for multimodal services, it is desirable for the network to provide preferential treatment to traffic that is sensitive to latency and loss of packets, such as voice, vis-à-vis traffic more tolerant of this type of difficulty, such as e-mail. Operators consider that this need affords an opportunity to provide new services at differentiated charges.

8.3.9 In parallel to the adoption of the Internet Protocol and the Internet as means of transporting voice services, equipment manufacturers have substantially redesigned switching architectures, with many similarities to the migration that the computer industry experienced when shifting from centralized computers to desktop environments. To be noted in particular are:

- a. The migration of equipment that centralizes network intelligence to smaller equipment distributed throughout the network;
- b. The migration of network intelligence to software components.

8.3.10 These fundamental changes tend to reduce significantly telecommunication

network investment and operating costs. The impact on the end-user is unclear as, in changing the economic assumptions that are valid for traditional services and their tariffs, it is possible that incentives for investment in basic services may be reduced or, likewise, that incentives may be provided for new providers to bring their services to places formerly not economically viable.

8.3.11 Although the policymaker should take a position designed to facilitate the development of new Internet applications and services, it should also analyze their impact, ensuring a reliable legal framework that promotes investment.

8.3.12 As access to information is the main purpose of the Internet, large transport networks have typically been concentrated in regions where there is greater density of content suppliers. Until the last few years, content hosting services were provided more efficiently and at lower prices in these areas of greatest infrastructure concentration and development. However, the last several years have been an explosion of content hosting services being provided in a variety of lesser-developed countries around the world, due in part, to the expanding infrastructure. Further, the extent of the flexibility regulatory authorities allow national operators in interconnecting their networks based on purely technical and economic criteria has been crucial in this regard.

8.3.13 The unfavorable relationship between Internet access and cost for end-users and people's purchasing power has hampered Internet dissemination. Historically, the cost of user terminal equipment has been largely unaffordable for most potential end-users in developing countries. These conditions have led to the emergence of an access service supply market in public places, such as Internet kiosks and cyber cafés which, along with similar state-subsidized programs, have been an essential component in the Internet's adoption in some countries of the region.

8.3.14 Although public Internet access

points are essential as gateways for many consumers, over the long term, they cannot be viewed as an option enabling users to benefit on an ongoing basis from the Internet's potential. The emergence of new access technologies and the availability of new services on less-expensive mobile devices is likely to help mitigate this situation.

8.3.15 In many Latin American and Caribbean countries, telephone networks impose time-based charges for local calls. This type of charging is incompatible with the nature of Internet sessions, which are usually much longer (sometimes lasting hours) than telephone calls (which typically last a few minutes). Moreover, as local telephony loses its cross-subsidies in a competitive environment, rates in some countries have to be rebalanced to bring prices into line with local network operating costs.

#### **8.4 Policy and Regulatory aspects and trends**

8.4.1 The Internet was conceived as a network for carrying multiple kinds of traffic that would enable various services to coexist. This unlike traditional telecommunication networks, where the network determines the type of service to be provided and where regulating network infrastructure is automatically equivalent to exercising regulation over the associated service. It is therefore possible to separate the transport function, inherent to telecommunication networks, from the service provision function, which is more evolved as compared to traditional schemes.

8.4.2 It may be gathered from discussions in various international forums that some countries of the region are beginning to examine the necessary aspects to achieve regulatory balance, based on IP platform development. The final objective would be that each state could evaluate the need to enforce regulations, seeking to ensure that

regulatory intervention generates more benefit than harm to societies, taking into account their different realities.

8.4.3 Policy makers have an equally important part to play as a facilitator of access to telecommunications on the basis of non-discrimination and fair competition. The regulator should encourage the provision of adequate public telecommunication capacity, interoperability, and interconnection, and intervene to rectify situations of market dominance and anti-competitive practices and to prevent the latter from causing congestion at some points in the system, in order to ensure for example the availability of resources essential to competition. Regulatory intervention to promote a free and balanced market can thereby also provide support for the development of the Internet and IP applications and services. In supporting such competition, countries can strengthen and expand their Internet networks and, consequently, their economies in general.

8.4.4 A primary objective of economies of bandwidth was to offer premium services to end-users who required higher speed than it is possible to obtain with dialup. In many markets, adjustments have been made so that access may be gained to the Internet through the cable infrastructure of cable TV providers in order to offer higher speeds at more affordable prices. This has become an economically justifiable option owing to savings in local calling charges. Similarly, new wireless technologies based on transmission in spread spectrum offer high speeds for more sophisticated users and, at the same time, an opportunity to offer affordable services previously not economically viable.

8.4.5 Just as states should promote the development of IP services, it is essential that they extend this approach to related new access technologies, offering alternate providers legal certainty that will enable investment to be made in new technological alternatives.

8.4.6 Internet-related policies should take account of the fact that e-business, along with the development of locally-relevant content and applications, may contribute to, among other things, reducing asymmetries in Internet traffic at the regional level. Governments play an important part in the development of applications that improve relations with the general public regarding the dissemination of relevant information, provision of services such as health and education, and applications that encourage citizen participation in the political arena.

8.4.7 The promotion and development of local content and applications, promotion of e-business, and the provision of e-government applications for citizens contribute to developing intellectual capital that may generate benefits for the economy of each country.

8.4.8 The Internet, in facilitating provision of services by skilled human resources from a distance, it is in effect permitting the cross-border flow of labor. Promoting education regarding new technologies is vital if full advantage is to be taken of this opportunity and others that may emerge in the future. This was recognized in the Declaration of Nuevo León of the Special Summit of the Americas (2004), which states that “scientific and technological research and development plays an important role in creating and sustaining productive economies.” They also indicated that they would strive “to improve effective and equitable access to, and transfer of, technology”, redoubling efforts to encourage “universities and higher institutions of science and technology to multiply and strengthen the links among them, and deepen basic and applied research.”

8.4.9 The Internet Protocol is an open standard whose technical details are available to all members of the public, so that researchers may access the information needed to create new Internet applications and services or to use their technical expertise

for criminal purposes.

8.4.10 Data security poses a challenge for Internet applications and services, especially e-business, also involving aspects of taxation and commercial law. The regulator must assess the suitability of laws protecting the information of users of interactive services with regards to how it is stored and used on the Internet, as well as work with other related agencies, in conducting user education campaigns regarding how to identify sites that are probably fraudulent.

8.4.11 The anonymity that the Internet offers users has been one of its fundamental characteristics as a means to promote freedom of expression and the open exchange of ideas. Unfortunately, this element is also the source of various of its challenges, as it may be used to commit cybercrime. Solutions, however, should not lose sight of the balance to be struck between promoting user protection mechanisms and preserving user privacy.

8.4.12 The OAS. through the Meeting of Ministers of Justice or of Ministers or Attorneys General of the Americas (REMJA), the Inter-American Committee against Terrorism (CICTE), and CITEL, in the framework of resolution AG/RES. 2004 (XXXIV-O/04), is collaborating with Member States in preparing and updating national legislation to prevent cybercrime. Interested countries are encouraged to promote the updating, through the corresponding authorities, of national legislation pertaining to this type of crime.

8.4.13 Another growing global concern is that of spam. Spam is unsolicited commercial e-mail sent to large numbers of people. Spam is a concern to users, businesses, ISPs, and governments for a number of reasons:

- a. Waste of e-mail servers’ bandwidth resources and storage space;
- b. Decreased value or usefulness of the

network for the user, as automatic filtering tools to prevent spam and server congestion potentially lead to the loss of legitimate e-mail messages.

8.4.14 Some laws intended to combat spam are not effective as they are not supported by technical mechanisms that ensure enforcement. Similarly, if successful legislation for this problem is in place in one country, the problem can simply be “exported” to a neighboring country that does not have such legislation. Technical solutions proposed take two approaches:

- a. Raising costs for those responsible for sending spam either by establishing tariffs for e-mail service use or limiting the bandwidth available for e-mail services;
- b. Checking the identity of the sender of any e-mail to enable perpetrators of any abuse to be detected.

8.4.15 The regulator’s mission is to check that, in such industry efforts, the functionality available to users and their data privacy is not sacrificed.

8.4.16 Security is in turn related to information access and dissemination, in keeping with intellectual property rights. Thus far, there is no technical mechanism ensuring control over intellectual property rights, as had previously been possible with other means of content distribution. The availability of applications where users can anonymously share content freely without acquiring any license to enjoy it has progressed much faster than any legal or even technological attempt to stop this trend. Although intellectual property issues are beyond the jurisdiction of the telecommunication regulator, coordinated effort among agencies may be the best mechanism to guarantee that the law and user rights are respected.

## **8.5 Internet governance**

8.5.1 In the information society, the exercise of civil rights and participation by citizens in different governmental, economic, social, and democratic activities will depend on the connectivity facilities available to them. The Internet infrastructure is an important element of the communications infrastructure and policies that guide its use and efficient management is a matter of public interest.

8.5.2 Some use the term “Internet Governance” when referring to the scope of policies necessary to achieve widespread use of the Internet, but what policies fall under this term is subject to much international discussion. Some restrict its meaning to the issue of domain name system management and believe that in accordance with ITU PPO2 Res. 102 it involves matters of public interest, responsibility of governments, particularly stability security, freedom of use, protection of individual rights, sovereignty, rules of competition and equitable access for all. Some Administrations understand these principles are applicable to Internet Governance in general. Others take a broader view and use the term to encompass such policy considerations as content, interconnection and interconnection arrangements, security, access, and competition.

8.5.3 The Declaration of Principles and Plan of Action of the World Summit for the Information Society (WSIS) asked the U.N. Secretary General to establish a multistakeholder working group which should, inter-alia: develop a working definition of Internet governance; identify the public policy issues that are relevant to Internet governance; develop a common understanding of the respective roles and responsibilities of governments, existing intergovernmental and international organizations and other forums as well as the private sector and civil society from both developing and developed countries; and prepare a report on the results of this activity

to be presented for consideration and appropriate action for the second phase of WSIS in Tunis in 2005.

## 8.6 Domain names

8.6.1 Another important issue to be considered in connection with IP-based services pertains to domain names and their administration. To be noted in that connection is the fact that the international community is improving its administrative and technical provisions with a view to their better use and dissemination. In that regard, at the regional level, we may note some general considerations to be taken into account:

- a. Addressing the topic of domain names in a broader context, involving various aspects related to Internet governance;
- b. Various Internet-related issues should be considered in this connection, such as domain names, IP addresses, security, spam, backbone interconnection, traffic switching points, and other technical aspects;
- c. Taking a broad approach to the items in order to identify the topics where global policies need to be formulated as well as the roles of the different players (private sector initiative, government, civil society, and universities);
- d. Organizing discussion of the topics at a global forum (intergovernmental committee or organization) in which most governments and other players will participate.

8.6.2 Also, specifically taking account of the issues of domain name administration and, in keeping with the last paragraph, it

may be gathered that the following topics should be examined with a view to defining and enhancing the operations of the players involved:

- a. Description of the current domain name administration model, the domain name system (DNS). Bodies involved: ICANN, IAB, ITU, IETF, etc.;
- b. Sovereignty of the countries in administering their Country Code Top Level Domains (ccTLD);
- c. Establishment of a multilateral, democratic, and transparent governance model for the administration of the domain name system at the national and international levels;
- d. Establishment of mechanisms that channel money collected from the registration of domain names to benefit the local Internet community (used to create NAPs and mirror root servers and to provide community training on security- and spam-related issues);
- e. Encouragement of the implementation of original or mirror root servers in the region, with a view to expanding the security and autonomy of the local/regional Internet;
- f. Keeping abreast and evaluation of the implementation of internationalized domain names (with special characters and accents);
- g. Evaluation of the establishment of new Top Level Domain Names (gTLDs) and the impact on the ccTLD domain name registration market.

## **9. Trade in telecommunication services and equipment**

### **9.1 The WTO agreement on basic telecommunication services**

9.1.1 In the framework of negotiations conducted in the World Trade Organization (WTO), Members are working and coming together to reach consensus on their different interests and needs in order to achieve equitable results with mutual benefits for all.

9.1.2 In that context, it is essential to take account of public policies in the area of trade in goods and services in order to adjust telecommunication sector policy to a dynamic consistent with the country's stance regarding multilateral trade, primarily taking account of the catalyzing nature of telecommunications in other productive sectors.

9.1.3 In contrast to the GATS and its annexes, which are a common text applying to all members, the schedules of commitments are submitted by and thus unique to each Member. The final decision on the contents of a schedule (i.e., which sectors and services are included and which GATS limitations may be indicated) lies with the government concerned and should be evaluated in the context of the negotiations among WTO Members on the details of the commitments to be made, taking into account the necessary balance between all economic sectors involved in order to grant and benefit from mutual concessions.

9.1.4 Commitments cover four basic aspects of trade in services, corresponding to what the GATS defines as modes of supply: cross-border supply, consumption abroad, supply through commercial presence, and supply through the presence of natural persons.

9.1.5 Many governments have made commitments on telecommunications in the GATS framework. Many of these reflect the transformation from regimes with

monopolistic operators for the provision of services to others with free competition in which the state encourages private investment in the construction of infrastructure and the provision of services and promotes, by means of appropriate regulation, sector development based on national government policy objectives for all socioeconomic sectors, which should therefore include protection of the public interest and initiatives that increase rates of social inclusion.

9.1.6 The GATS articles, annexes, and schedules and, if one of the commitments, the WTO Reference Paper on Telecommunication Regulatory Principles, together constitute the obligations, disciplines, commitments, and principles that each WTO Member government is legally bound to apply through its bodies responsible for telecommunication and competition policy, and its regulatory frameworks. In particular, within the Reference Paper, the commitments made in telecommunications cover six main areas and set basic principles applicable to each in the telecommunication infrastructure and service market:

- a. Competitive safeguards;
- b. Interconnection;
- c. Universal service;
- d. Public availability of licensing criteria;
- e. Independent regulatory authorities;
- f. Allocation and use of scarce resources.

9.1.7 The GATS also establishes Most-Favoured-Nation (MFN) Treatment, indicating that "With respect to any measure covered by this Agreement, each Member shall accord immediately and unconditionally to services and service suppliers of any other Member treatment no less favourable than that it accords to like services and service suppliers of any other country."

9.1.8 States are authorized to maintain a measure inconsistent with this article provided that such a measure is listed in, and meets the conditions of, the Annex on exemptions from obligations under Article II of GATS.

9.1.9 In this regard, it should be mentioned that the exemption of a Member from MFN obligations with respect to a particular measure terminates on the date provided for in the exemption. Nevertheless, the GATS itself provides that “in principle, such exemptions should not exceed a period of 10 years” and that “in any event, they shall be subject to negotiation in subsequent trade liberalization rounds.”

9.1.10 For some countries or smaller economies, the method by which they fulfill their obligations and commitments may be affected by the size of their markets or the limitations of their institutional and administrative resources. Under these conditions, they may adopt schemes for regulatory convergence whereby one body would be responsible for standards and regulations for the various sub-sectors (e.g., telecommunications, information technology, media) or public utilities (electricity, telecommunications, etc.), and another to protect competition in accordance with policy principles common to all sectors.

9.1.11 Some smaller economies have entered into associative arrangements within the framework of existing subregional bodies, based on common or similar regulations and standards. Subregional groupings of this kind between the Caribbean countries or the Central American countries, for example, may be beneficial to the participation of their governments and their operators/service providers in the broader international economic setting. The similarity and gravity of many of the technological, economic, and social problems encountered particularly in small countries, and the ethnic and cultural similarities of subregions such as the Caribbean or Central America, can be a catalyst for the formation of regional groups

and can help to increase the ability of those in the regions to participate from a better position in trade in telecommunications, at both the international and regional levels.

9.1.12 Countries should participate in international trade from the standpoint of both demand and supply. To participate in global supply, the countries should develop their own industrial production of services and know-how, promoting the supply of inputs from their domestic markets, generating their own scientific-technological research or in partnership with other countries of the region or with established operators, and training specialized human resources within the sector.

9.1.13 The Declaration signed at the Fourth WTO Ministerial Conference (Doha, November 2001) establishes the mandate for negotiations on different topics, among them, issues related to the application of current agreements, stipulating January 1, 2005 as the deadline for concluding most negotiations, among them, those on services.

9.1.14 However, at the Fifth Ministerial Conference held in Cancun, Mexico, September 10-14, 2003, no progress was made as no consensus was reached, mainly for reasons pertaining to the so-called “Singapore issues” (trade and investment, trade and competition policy, transparency in government procurement, trade facilitation, etc.). In July 2004, at a meeting of the World Trade Organization, agreement was reached on a package of framework agreements to intensify negotiations on Doha Round-related issues.

## **9.2 The Inter-American Mutual Recognition Agreement for Conformity Assessment of Telecommunication Equipment (MRA)**

9.2.1 Policies facilitating trade in telecommunication equipment can contribute to the development of telecommunication infrastructure provided that national industry

is developed. Thus, the implementation of CITEL's Mutual Recognition Agreement for telecommunication equipment and its guidelines should be used by governments to promote mutual recognition of conformity assessment processes for telecommunication equipment, production and expeditious and economical access to these, ensuring compliance with the required national technical regulations and standards.

9.2.2 Certification is a procedure whereby a third party provides written assurance that a product, process, or service meets specified requirements, whereas homologation, a process used by some countries is a permit to market or use a product, process, or service for stated purposes or under stated conditions.

9.2.3 Certification is especially important both to prevent technical damage and interference and to guarantee user safety and access to public telecommunication networks and services.

9.2.4 It is essential to have a mechanism for ongoing surveillance, initial assessments, and periodical reassessments. For this purpose, different technical standards have been established; the most commonly used being identified by the International Organization for Standardization (ISO).

9.2.5 A certification body must meet a series of technical and administrative requirements now identified by international assessment guidelines drawn up by ISO, the International Electrotechnical Commission (IEC), and the Committee on Conformity Assessment (CASCO), and must demonstrate its competence in standards assessment, which determines the scope of its accreditation.

9.2.6 An important part of the operation of a certification system for trade in goods and services is the trust placed in conformity assessment bodies that use ISO/IEC standards and guidelines.

9.2.7 Another a key factor in the scope of

certification is international recognition as this facilitates trouble-free, expeditious trade. However, mutual recognition is based on confidence in the capabilities of the other party to conduct assessments. In that connection, the signature of the Agreement on Technical Barriers to Trade by over 130 WTO Members has facilitated this process by establishing procedures that recommend facilitating such recognition.

9.2.8 Implementation of CITEL's MRA for telecommunication equipment and its guidelines should enable Member States of CITEL to move forward in enhancing national and regional telecommunication infrastructure and services.

### **9.3 New modes of operation**

9.3.1 Different factors have led to the emergence of a new generation of operators, whose main area of activity is the lucrative and growing international communications market.

9.3.2 The commercial success of these new players stems partly from the fact that they enable users to save on international communication costs by applying charges which are usually much lower than those of the incumbent PTO, as well as the fact that they may offer new and better services to consumers. Some PTOs have also proven, either individually or in strategic alliance with foreign partners, capable of entering competitive global markets themselves. In some countries it is forbidden to provide services that represent unfair competition with established operators, as such operators do not pay taxes and or contribute to universal service and network installation and operation, as for example those based on deliberate turnaround of traffic.

9.3.3 Traditionally, and for many years, national and international long distance tariffs have been well above the real costs associated with transmission links. Under the monopoly system, this was partly justified by

the need for cross-subsidies to fund less profitable segments such as the local network or the universal service obligation, while maintaining the technical and administrative management systems typical of state operators.

9.3.4 Technological progress has generated substantial growth in the supply of both national and international transmission media and a considerable reduction in costs. However, the reduction in costs will not be fully reflected in the incumbent operator's charges to users, even in a competitive environment. The business opportunity for the new generation of national and international operators lies precisely in the difference between historic PTO charges and the real costs involved in domestic and international calls.

9.3.5 Recent reforms have determined the framework for the establishment of new operators that can build and operate networks in countries to provide both domestic and international service in direct competition with the incumbent operator and, like the incumbent, they bear the costs of infrastructure development. Such operators

should contribute to building national networks and to increasing domestic service penetration levels. For such reasons, some governments in the Americas have opted to make commitments in the WTO framework regarding these services, which should be accompanied by appropriate sector policies.

9.3.6 The growing global trade in telecommunication services has fostered the establishment of strategic alliances, or even mergers, among international and national operators in countries, both developed and developing, with intense traffic interchanges. There are many motivations for such alliances, among which may figure an interest in allowing, in some cases, what is commonly defined as "one-stop shopping." Regulatory authorities should alleviate the risk of excessive market dominance by such alliances by continuing to promote and enforce a market that is inclusive and generates employment and investment opportunities with the implementation of programs that consolidate the establishment of small and medium-scale enterprise in a competitive environment.

## **ANNEXES**

### **COMMISSION OF THE ANDEAN COMMUNITY: DECISION 462 - PROVISIONS REGULATING THE INTEGRATION AND LIBERALIZATION OF TRADE IN TELECOMMUNICATION SERVICES IN THE ANDEAN COMMUNITY**

## **10. Agenda for Connectivity in the Americas and Strategies for the Information Society**

### **10.1 The part played by telecommunication infrastructure in integration**

10.1.1 Telecommunication infrastructure is a key factor in the geographic and social integration of each country and of the hemisphere. Such infrastructure is a means to fulfill the need of all inhabitants to communicate with one another and provides communities with an element essential to their balanced development.

10.1.2 To evaluate and assess the prospects for infrastructure growth, two aspects should be considered: on the one hand, the physical deployment of networks to and from the most geographically isolated populations and regions, with their difficulties of productive economic integration; and, on the other, affordability of all social sectors to services, which are of the utmost importance for their integration into modern society.

10.1.3 For all such purposes, account must be taken of all telecommunications services, in addition to basic telephony, which has not as yet reached every corner of our hemisphere. It may be said that today, a digital society, an analog society, and an excluded society all coexist. The progressive integration thereof that is achieved will be a yardstick of the true impact of network development in all its technological alternatives.

10.1.4 The versatility of today's technology is of decisive importance in attaining the integration objectives made possible by telecommunications. In that connection, broadband deployment should be promoted as a key element in obtaining the coverages required by communities to achieve social inclusion, most importantly through its impact on the productive sector and the development of new business.

10.1.5 Also to be noted is satellite technology and its capacity to make different services available. Governments should formulate policies and regulations to promote its development and applications, principally in areas where terrestrial infrastructure is not feasible.

### **10.2 Information Society**

10.2.1 A Digital Revolution is transforming societies, making them better informed, and more efficient, contributing to a better quality of life. People all over the world are at the threshold of "An Information and Knowledge-Based Society."

10.2.2 An Information and Knowledge-Based Society is the one where the use of information and communication technologies (ICTs) plays a key role in social and economic development.

10.2.3 The Declaration of Nuevo León (Special Summit of the Americas, 2004) notes that: "We are aware that the information revolution brings new opportunities for increasing access to knowledge for development, and for enhancing equitable citizen participation in the sustainable development of our societies, particularly in rural, remote, and marginalized areas."

10.2.4 ICTs make possible almost instantaneous information exchange, and facilitate the use of innovative applications in several sectors, including government, trade, education, and health. The opportunities provided by the digital revolution can be realized if those with access to ICTs also have the capacity to use them.

10.2.5 Increased penetration of telephony in some countries of the Americas over the last 20 years is largely a reflection of the opportunities generated by privatization and market liberalization policies. Exceptions to this trend are Uruguay and Costa Rica, which have maintained state telephony monopolies,

as their performance in this area has been among the most outstanding in the hemisphere.

10.2.6 Although ICTs have been swiftly disseminated in the last decade, levels of penetration vary between and within countries, generating a digital divide between those with good access and those without. In many countries, basic telecommunication services are not yet available for most of the population.

10.2.7 At the Third Summit of the Americas (Quebec, 2001), the Heads of State and Government of the Americas indicated that “appropriate public policies, access to technology and human resource development and training are key factors to reducing poverty and inequalities, raising living standards and promoting sustainable development” and they were conscious of the “disparities in cost and access to technology within and between our countries.”

10.2.8 Subsequently, the Declaration of the Ministerial Conference of Latin America and the Caribbean, in preparation for the first Phase of the World Summit of the Information Society, underscored the importance of this topic.

10.2.9 The disparities in access to new technologies represent a critical barrier to the development of the Information Society, and are at the core of the digital divide. Therefore, it is a matter of urgency to further promote the Agenda for Connectivity in the Americas and Plan of Action of Quito (ACAPAQ) via national, subregional, and regional strategies, to address the challenge of the digital divide and accelerate the integration of the hemisphere into a knowledge-based society.

10.2.10 A global society for development must be established and, in cooperation with the private sector, the benefits of the new information and communication technologies made available. The aim is to afford the citizens of the Americas opportunities to develop and use knowledge so that they can

profit fully from the Digital Revolution.

10.2.11 Connectivity is not an end in itself. The objective of connectivity must be to promote social, economic, and cultural development and improve people’s quality of life.

### 10.3 Agenda for Connectivity

10.3.1 At the Third Summit of the Americas (Quebec, 2001), it was recognized that an extraordinary technological revolution of profound social, cultural, political, and economic consequence is under way, and that the region is entering a new economy and society defined by its vastly enhanced capacity to access and disseminate information and to transform that information into knowledge.

10.3.2 The Summit expressed its firm conviction that promotion of an Agenda for Connectivity in the Americas, in the form of national agendas or strategies, would facilitate the integration of the Hemisphere into an increasingly knowledge-based society, particularly in developing countries, smaller economies, and among rural and disadvantaged groups. The aim is to provide the citizens of the Americas with opportunities to develop and use knowledge so as to profit fully from opportunities to strengthen democracy, generate prosperity, and fulfill their human potential.

10.3.3 To carry out this task, CITELE has coordinated the preparation of an Agenda for Connectivity in the Americas.

10.3.4 **Connectivity:** An Agenda for Connectivity should be a consensus instrument which sets out [a series of interrelated strategies] to ensure that full advantage will be taken of communications, information technologies, and content in the economic, social, cultural, and political development of a country, with the ultimate aim of preparing it to evolve towards the information and knowledge-based society.

**10.3.5 Definition of Agenda for Connectivity:** An Agenda for Connectivity should be a consensus instrument which sets out [a series of interrelated strategies] to ensure that full advantage will be taken of communications, information technologies, and content in the economic, social, cultural, and political development of a country, with the ultimate aim of preparing it to evolve towards the information and knowledge-based society.

**10.3.6 Players:** Each Agenda for Connectivity must be conceived and executed with ongoing, active participation by society's fundamental players: civil society including the private sector, and their respective governments. Participation by these players must be reflected in the entire life cycle of the connectivity process, that is, assessment, design, implementation, evaluation, integration, and financing of the respective agendas.

**10.3.7** A successful connectivity agenda should adhere to three premises.

a. It must be conceived and executed with the participation of all society's fundamental players, civil society including the private sector, and the respective governments in their capacity as those with institutional responsibility for sovereignty and the public interest. It must also be developed around three fundamental components: infrastructure and access to it, utilization of that infrastructure, and the quantity and quality of the content available on the information superhighway;

b. The design and implementation of a connectivity agenda must be guided by principles of equity and universality, that is, access for everyone everywhere, at a cost truly within the reach of most of the public, while preserving incentives to private sector investment; and

c. Promotion of the use of infrastructure, and development of national

and regional content to promote countries' respective cultural identities. The use of all languages within each country, including indigenous languages, without excluding or restricting access to international content is encouraged.

**10.3.8<sup>7</sup> Components:** In addition, there are three components essential to developing connectivity. These are:

a. **Infrastructure:** a combination of hardware, software, human resources, and telecommunications networks and services including the audio visual services sector, that facilitate a society's access to information and digital services;

b. **Utilization:** the added value of the use [and application] of information and digital services for the purpose of generating knowledge to enhance the population's quality of life;

c. **Content:** the availability of pertinent high-quality information, applications, and services for the region's people and communities.

**10.3.9** Any country developing its Connectivity Agenda should take a comprehensive approach to these components together, and must take into account the needs and aspirations of each of the fundamental players described above and its socio-economic approach for the Information Society and approaches to hemispheric and global ICT initiatives.

**10.3.10 Strategies:** For each country in the Hemisphere, linking the interests of the players, components, and guiding principles should lead to the design and implementation of specific national strategies.

**10.3.11** Those strategies should aim to promote major improvements in citizens' access to the global information infrastructure and to produce e-communities, e-business, and e-government. To reach their goal, national strategies for connectivity should

addresses a wide range of topics and priorities related to, *inter alia*, education, health, generation of employment, economic opportunities, investment strategies, democratic participation and protection of human rights, gender equality, economic development, particularly small and medium-size industry, commerce and services, tourism, the agricultural and export sectors, culture and recreation. Strategies should also be designed to accommodate periodic review and revision to ensure that they continue to be meaningful and to provide useful guidance to the players working to achieve connectivity.

#### 10.4 Plan of Action

10.4.1 Enabling environment. To optimize the social, economic, and environmental benefits of the information society, governments should create a reliable, transparent, and nondiscriminatory legal, regulatory, and political environment.

10.4.2 Annex 6 of the Plan of Action of Quito, indicates that modern national regulatory framework plays a key role to support and sustain the development of an Agenda for Connectivity. It should be based upon the following principles:

- a. Equitable, universal, and affordable access to information;
- b. Diversity of agents and of supply, and effective competition;
- c. Transparency and clarity;
- d. Technological neutrality;
- e. A competitive ICT industry;
- f. Effective civil society participation in the development of the regulatory framework;
- g. Strengthening the security of communication and information networks  
Training in the use of ICT services;

h. Respect for intellectual property in keeping with national provisions and international treaties;

i. Coordination of legislation governing the information and communication sectors.

10.4.3 The Millennium Declaration establishes goals based on internationally agreed development objectives that may serve as a global reference in improving connectivity and access to ICTs. These objectives may be taken into account in establishing national goals, depending on the circumstances of each country:

a. Connecting villages through the use of ICTs and creating community access points;

b. Connecting universities, schools for advanced studies, and secondary and primary schools through the use of ICTs;

c. Connecting scientific and research centers through the use of ICTs;

d. Connecting public libraries, cultural centers, museums, post offices, and records offices through the use of ICTs;

e. Connecting health centers and hospitals through the use of ICTs;

f. Connecting all departments of central and local government and creating websites and e-mail addresses;

g. Adapting all primary and secondary school curricula with a view to fulfilling the information society objectives, taking account of the circumstances of each country;

h. Ensuring that all people of the world have access to television and radio;

i. Promoting content development and implementing technical conditions that facilitate the presence and use on the Internet of all languages of the world;

j. Ensuring that access to ICTs is within the reach of over half of the world's population;

k. Ensuring participation by government and all interested parties in

promoting ICTs for development;

l. Recalling that the information and communication infrastructure is the foundation on which the information society is based.

**Case 10.5.1 : Peru**

**Funding mechanism:** As part of the restructuring of the telecommunication sector in Peru, the Telecommunications Investment Fund (Fondo de Inversión en Telecomunicaciones—FITEL) was established. The source of the Fund's resources is a special 1% tax on total gross income invoiced and collected each year annually by the telecommunication service operators.

It was decided to provide access to telecommunications and not to increase telephone penetration as service needs can be met by installing a line in each town.

Telecenters were established in many towns.

**Case 10.5.2 : Chile**

**Funding mechanism:** In 1995, Chile started funding universal access projects by means of a Fund drawn from national budgetary resources.

This program has encountered difficulties as licenses were issued based solely on lowest prices without considering delivery times. Consequently, services have been delayed by up to two years. In addition, as towns were not selected based on where greatest social benefit would be achieved, many areas remain unserved.

**Case 10.5.3 : Colombia**

**Funding mechanism:** In 1994, a fund for the development of universal access projects was established, to which an annual percentage of the revenue earned from licensing of cell phone and long-distance operators is allocated. Operators must also contribute 5% of their gross quarterly earnings to this fund.

#### **Case 10.5.4: Ecuador**

**Financing mechanism:** The source of the resources of the Telecommunications Development Fund (Fondo de Desarrollo de las Telecomunicaciones—FODETEL) is 1% of the revenue of telecommunication operators plus 4% of their net profits. This is an interesting case as much has been achieved in a short time.

#### **Case 10.5.5: Dominican Republic**

**Financing mechanism:** The main source of the resources of the Telecommunication Development Fund (FDT) is a percentage of the Telecommunication Development Contribution (CDT). The source of the CDT is: (a) 2% of the invoicing of end users of public telecommunication service (with the exception of broadcasting); and (b) 2% of international account settlement revenue of service providers (except broadcasting). The purpose of the FDT is to fund projects in rural and urban low-income or social interest areas that promote universal service and telecommunication development in accordance with the guidelines of the Social Universal Service Policy and the Biannual Plan issued by the Instituto Dominicano de las Telecomunicaciones (INDOTEL).

### **10.5 Resource mobilization**

10.5.1 All countries and international organizations should contribute to achieving conditions tending to increase the availability and effective mobilization of resources for the financing of development, as established in the Monterrey Consensus<sup>6</sup>.

10.5.2 Developed countries should carry out activities specifically intended to implement their international commitments to finance development, including the Monterrey Consensus, which urges developed countries that have not yet done so to make concrete efforts to allocate 0.7% of their Gross National Product (GNP) to official development assistance (ODA) for developing countries and 0.15% to 0.20% of their GNP to least developed countries.

10.5.3 In the case of developing countries whose debts involve an unsustainable burden,

initiatives should be taken to reduce outstanding debt, and more national and international measures in this area should be considered, including, when appropriate, debt forgiveness and other measures. Special attention should be paid to promoting this initiative for the benefit of heavily indebted poor countries so as to free more resources to fund ICT development projects.

### **10.6 Follow-up and evaluation**

10.6.1 A realistic international plan should be developed to evaluate and establish indicators (both qualitative and quantitative) on quality of operation to serve as comparable statistical indicators and research results in order to monitor implementation of the objectives and goals of the ACAPAQ, taking into account the circumstances of each country.

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<sup>6</sup> *Monterrey Consensus – Final document of the International conference on Financing for Development (México), 18 to 22 March 2002.*

## 11. Network security and critical telecommunication systems

11.1 Governments, the private sector, and citizens are attaching growing importance to ICTs and recognize that, as a result of expanding interconnectivity, essential information infrastructure is today exposed to an ever greater number of ever more varied threats and vulnerabilities. Therefore, new security problems are emerging, which various forums such as the United Nations (UN), the World Summit on the Information Society (WSIS), and the Organization of American States (OAS) are committed to fight by laying the legal foundations to combat the use of ICTs for illicit purposes crimes and for the creation of a world culture of cybersecurity.

11.2 The UN recognizes that international cooperation is a key element in protecting essential information infrastructure, particularly, developing and coordinating emergency alert systems, sharing and analyzing information on vulnerabilities, threats, and incidents, and coordinating investigations into attacks against these facilities, in accordance with national laws.

11.3 CITELE believes that ensuring the security of information systems is a priority matter for the hemisphere, as information networks play an important part in the critical infrastructure of countries, their economies, and societies. Accordingly, CITELE, through its alliances with the private sector and its Work Plan for advanced network issues, especially cybersecurity in next generation networks, could contribute substantially both to raising awareness about the critical issues that may potentially impact the region and to enhancing its work plans in these areas, facilitating focused discussions and information sharing.

11.4 The OAS is committed to the development and implementation of a

cybersecurity strategy to prevent misappropriation and manipulation of information, invasion of user privacy, and the defrauding of business. The destruction of data stored in computers connected to the Internet may stymie government functions and interrupt public telecommunication service and other critical infrastructure.

11.5 The OAS has adopted a Comprehensive Inter-American Cybersecurity Strategy to combat threats to citizens, economies, and essential services that cannot be addressed by a single government or combated via a solitary discipline or practice. The Strategy adopts an integral, international, and multidisciplinary approach based on three main elements:

a. The establishment of an inter-American alert and watch network to disseminate cybersecurity information and to respond to crises, incidents, and threats to computer security;

b. The implementation of technical standards that facilitate the development of trustworthy and reliable information networks and systems; and

c. The adoption of national legal frameworks that protect information systems, prevent the use of computers to facilitate illicit activities, and punish cyber-crime.

11.6 The Comprehensive Inter-American Cybersecurity Strategy relies on the efforts and specialized knowledge of the Inter-American Committee against Terrorism (CICTE), CITELE, and the Meeting of Ministers of Justice or of Ministers or Attorneys General of the Americas (REMJA). The Strategy recognizes the need for all participants in the information networks and systems to be aware of their functions and responsibilities regarding security in order to create a culture of cybersecurity.

## **ANNEXES**

Please see more details in the Annexes.