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STUDY GROUP I

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*Report on innovative
solutions for the management
and financing of universal
service and universal
access policies*



International
Telecommunication
Union

THE STUDY GROUPS OF ITU-D

The ITU-D Study Groups were set up in accordance with Resolutions 2 of the World Telecommunication Development Conference (WTDC) held in Buenos Aires, Argentina, in 1994. For the period 2002-2006, Study Group 1 is entrusted with the study of seven Questions in the field of telecommunication development strategies and policies. Study Group 2 is entrusted with the study of eleven Questions in the field of development and management of telecommunication services and networks. For this period, in order to respond as quickly as possible to the concerns of developing countries, instead of being approved during the WTDC, the output of each Question is published as and when it is ready.

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***Report on innovative
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service and universal
access policies***

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Innovative solutions for the management and financing of universal service and universal access policies

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Summary

This report covers the work done since September 2002 by the Rapporteur's Group for Question 7-1/1 of ITU-D Study Group 1 on the subject of the management and financing of universal service and access.

Historically, universal service and access were provided by a public-sector operator or by a regulated private-sector operator as a monopoly provider, and the mechanism for financing universal service/access was conceived accordingly. With the process of market liberalization continuing apace, regulatory authorities are faced with the problem of providing universal service/access and financing it in a marketplace increasingly characterized by competition.

Generally speaking, the concepts of universal service and access are defined as a series of public-interest measures intended to ensure that, under specific conditions, everyone has access to a group of information and communication technology (ICT) services deemed to be essential, at a specified level of quality and at an affordable price.

Implementation of universal access/service nevertheless has major economic consequences not covered by this definition. Thus the policy principles underlying the definition of universal service and access can have a bearing on how the telecommunication services function, with repercussions on national competitiveness and consistency throughout the country. Hence the need for an economic analysis so that innovative solutions may be identified for financing and management of this public service in particular situations.

In this report, we examine these issues by analysing the framework, objectives and various policy options for implementing and financing universal access/service in a number of developed and developing countries, some in a deregulated environment and some in a monopoly.

More specifically, the report looks into the ways in which universal access/service policies are developed, implemented and financed. It begins with the observation that universal service and access are dynamic and evolving concepts which it is worthwhile to review from time to time in order to take account of technical progress, market developments and consumer demand. The report identifies factors affecting the success of policies in a number of developed and developing countries. It then goes on to outline innovative solutions implemented by several countries for the management and financing of universal service and access. Finally, the report proposes guidelines based on analysis of these experiences.

The main lessons learned from the study are as follows:

The domestic environment varies greatly from one country to another, and the various countries offer a wide range of experiences. On the one hand, every country has a different starting point in terms of geographical coverage, teledensity, and financing and investment capacity. On the other hand, every country is implementing a universal access/service policy with a view to achieving either its own development goals or development goals that have been established at a regional level.

The two principal determining factors with regard to policy and financing strategies are the nature of the objectives established by each country and contractual innovations in regard to financing and management.

Analysis of the experiences of 15 countries has highlighted four key factors that have a bearing on the success of universal service and access policies.

The first key factor relates to political will and reform of the regulatory framework. The examples of several countries bear witness to strong political will for sectoral reform. This may take the form of new investments and increased legal stability because the regulatory framework has evolved.

The second key factor relates to the establishment of partnerships and the conclusion of treaties or national agreements between public authorities and the private sector or as a result of international agreements signed.

The third key factor concerns the involvement of rural communities and local groups by promoting access for populations with less education.

The last key factor for success relates to bringing the public and private sectors and civil society together in joint financing partnerships, joint activities, the involvement and sensitization of rural communities, support to local players, private community financing or contractual approaches.

The report's conclusions consist of four guidelines identified through analysis of national experiences:

- defining the needs and rights of consumers, to encourage utilization;
- defining the principal stages of a universal service and access policy;
- establishing a framework to encourage investment;
- applying innovative measures in regard to finance and management.

The final section of the report recapitulates the work programme for the entire mandate of the Rapporteur's Group, from September 2002 to September 2005.

LIST OF ABBREVIATIONS

FRATEL	<i>Réseau francophone de la régulation des télécommunications</i> (network of telecommunications regulators who share the French language)
GSM	Global System for Mobile Communication
ITU	International Telecommunication Union
OIF	<i>Organisation internationale de la Francophonie</i> (international organization of countries in which French is spoken)
TDAG	Telecommunication Development Advisory Group
UNDP	United Nations Development Programme
VSAT	Very Small Aperture Terminal
WAEMU	West African Economic and Monetary Union
WTDC	World Telecommunication Development Conference

FINAL REPORT

Introduction

Access to information communication technologies (ICTs) is often considered a prerequisite for overall development of society. In some countries it is even considered a fundamental right. Therefore, the issue of organizing, managing and financing access to services is crucial in a global information society age.

Such complex subjects often give rise to passionate debate, since it is so difficult to make judgements between different options, with the final choice often ultimately lying with national regulators. For instance, a universal service or access obligation can be imposed on a specific operator; or it can be allocated following a competitive process; the costs of such obligations can be financed by levies on turnover; or by recourse to general taxation. These different regulatory options have direct implications in terms of redistribution.

Universal access/service policies find justification in situations of market weakening and in efforts to promote equity. The economic justification resides in the view that the market does not necessarily provide telecommunication infrastructures and services efficiently. The social justification lies in public authorities' will to avoid excluding categories of user or geographical areas on the grounds of non-profitability. Implementation of universal access/service policies results in there being more users than if no universal access/service obligation existed. Nevertheless, the role of public authorities is to complete rather than substitute the market.

This report does not claim to offer solutions nor indeed to provide an exhausted review of any given country's universal service and access policies. On the contrary, it strives to highlight a number of national experiences in terms of the original approaches they have taken and how they have catered for the populations' needs and uses.

The report is organized in seven sections. In the first, we shall define the objectives of the study of the issue of universal service and access, which have guided our approach throughout. From the second section on, we shall attempt to answer four fundamental questions:

- How should universal access/service be defined? (section 2)
- How should universal access/service be financed? (section 3)
- How should universal access/service be implemented? (section 4)
- What key factors determine the success of national experiences? (section 5)

These questions are common to all of the players involved in universal service and access policy, but they arise in different contexts. Universal service and access are concepts that evolve as a function of needs and practices. They stand both for a political objective and an economic imperative. They raise complex issues with regard to costs and funding. Finally, they play a role in regional development and the fight against poverty.

In Annex A, guidelines are proposed for the elaboration of universal service and access policies.

1 Study of the issue

The “universal service and access” issue has already been examined in depth during the previous four-year study period from 1998 to 2002. The findings of that study highlighted the goals of universal service and access policies (final report on Question 7-1/1, ITU, 2001). However, the matter of how universal service and access ought to be organized and financed was not looked into, and this remains an important issue particularly for the least developed countries.

This first section of the report looks at the objectives of the study of the universal service and access issue (§ 1.1) and then at the methodology used to examine the problems associated with universal access/service organization and financing (§ 1.2). Lastly, it lists the relevant information sources and working documents used in the work of the Rapporteur’s Group (§ 1.3).

1.1 Objectives

The objectives that the Rapporteur’s Group adopted for the study period (2002-2006) are as follows:

Objectives of Rapporteur’s Group	Realized	Implementation
Identify the strategic elements of a universal access/service policy	Yes	International comparisons based on the study of contributions from 15 countries
Identify and examine innovative financing approaches	Yes	International comparisons based on the study of contributions from 15 countries
Produce guidelines and present them to policy-makers at international meetings	Yes	Contribution to the World Summit on the Information Society (WSIS) (10-12 December 2003) Participation in the 5th Global Symposium for Regulators (8-10 December 2004)
Put the lessons learned from examining the issue into practice by mounting training activities	Yes	Participation in a seminar on universal access/service (Paris, 29-30 April 2004)

All the objectives of the Rapporteur’s Group have been achieved.

1.2 Methodology

The Rapporteur’s Group adopted a rigorous methodology for examining and assessing the specific considerations associated with the organization and financing of universal service and access.

As a first step, background documentation on the subject was assembled in collaboration with the ITU-D Regulatory Reform Unit. This made it possible to have at hand a list of various information sources and documents that could be useful for the group’s work, and facilitated the examination of reports produced by international organizations such as ITU and the World Bank, as well as studies produced by consulting firms and research institutions.

The Rapporteur’s Group then decided that empirical research would be useful to supplement its analysis. Accordingly, the members of the Rapporteur’s Group analysed their own countries’ experiences, focusing on success or failure factors.

In all, contributions were received from 15 countries. These served as raw material on the basis of which the Rapporteur's Group has developed guidelines to facilitate the work of decision-makers in formulating universal service and access policies.

This work was conducted via e-mail and was discussed at progress meetings held in Geneva on 17 March 2003, 1-2 April 2004 and 21-22 March 2005, at which the group reviewed the information contained in the contributions and went over the draft layout of the final report.

1.3 Relevant information sources and working documents

The Rapporteur's Group used a variety of information sources: the contributions provided by the participants from 15 countries¹, information and publications provided by BDT (the telecommunication regulation database, working documents at the ITU-D TREG website², on-line information at the G-Rex website), certain contributions presented at the World Telecommunication Development Conference in Istanbul (WTDC-02), and reports and studies produced by research centres (IDEI, TEMIC), consulting firms (TERA, BIPE) and international organizations (the World Bank's InfoDev programme). The report also builds on the outcome of the seminar organized by FRATEL (*Réseau francophone de la régulation des télécommunications*) in Paris on 29 and 30 April 2004.

2 Developing a universal access/service policy

This second section presents the principles of universal access/service policies (2.1). The diversity of the experiences is reflected in the different definitions and implementation methods (2.2). The needs addressed by the policies are analysed in the light of the social and evolving nature of the concept of universal access/service (2.3).

2.1 Principles of universal access/service policies

Universal access/service policies generally consist of a set of public service measures aimed at ensuring that everyone has access, under well-defined conditions, at affordable prices and of a given quality, to a set of services recognized as being essential.

Although policies with respect to universal service and universal access may be different, the two concepts are closely linked. They are based on three broad principles: universality, equality and continuity.

- **Universality:** all users have access to affordable telephone service.
- **Equality:** every applicant can claim the right to a service, regardless of geographical location (hence, rate equalization).
- **Continuity:** there is uninterrupted access to a network or a service at a specified level of quality (free of service interruptions), and services cannot be discontinued unless a replacement is available.
- Provision of a framework for the continuing expansion of mobile network services and access to services and facilities of the fixed network.

¹ Benin (*Office des postes et télécommunications*); Brazil (ANATEL); China (Ministry of Information Industry – MII); Cuba (Ministry of Informatics and Communications); Djibouti (*Djibouti Télécom S.A.*); Spain (Ministry of Industry, Tourism and Trade); France (*Autorité de régulation des télécommunications – ART*); Guinea (Ministry of Communications); India (Telecom Regulatory Authority of India – TRAI); Niger (Ministry of Posts and Telecommunications); Peru (OSIPTEL); Democratic Republic of the Congo (*Agence de régulation des postes et des télécommunications – ARPT* and the Ministry of Posts and Telecommunications); Sri Lanka (Telecommunications Regulatory Commission – TRC); Chad (*Office des postes et des télécommunications*) and Venezuela (*Comisión Nacional de Telecomunicaciones – CONATEL*).

² <http://www.itu.int/itu-d/treg>

Universal service policies are concerned primarily with placing certain services at the disposal of all users on the territory of each country, whatever their geographical situation, with a specified level of quality, and, having regard to prevailing national circumstances, at an affordable price³ Their aim nowadays is to provide or assure the provision of service for those who would otherwise not be covered. This is the situation in particular of people living in areas that are expensive to serve (rural areas and isolated locations), low-income segments of the population, and disabled persons such as those with impaired sight or hearing. In **Sri Lanka**, for example, the government has been encouraging access for disabled persons. This policy consists in particular of having telephone bills issued in Braille and proposing that an international universal-access symbol be adopted to indicate whether a public payphone is accessible to disabled persons (for those with impaired hearing, speech or sight). Plans call for a number of pilot projects to be extended throughout the country, such as the provision of special directories, the issuing of bills in Braille and voice assistance systems.

A distinction is traditionally made between *universal service* as a long-term objective concerned with ensuring that all households have access to a telephone, and *universal access* as a short- or medium-term objective concerned with providing reasonable access (from an individual's home or workplace), with reference for example to a distance measured in kilometres or in minutes of walking time.

The social component of the universal access/service objective is also very important. In many countries, even at-cost, prices are too high for some people to afford. In those cases, universal access policies consisting of the establishment of public call offices or telecentres are powerful tools with which to enable groups of users to share the fixed costs of access services.

2.2 Defining universal service/access

No two countries answer the question “What are universal service and access?” in the same way. The concept is subjective and evolving, and can be interpreted narrowly or broadly, so it is difficult to lay down a precise definition. And yet, the obligations imposed on operators depend on how the concept is defined.

Universal service has long been identified with universal network. With the opening up to competition and the emergence of information infrastructures, however, there is no longer necessarily any direct correlation between universal service and universal network. A given service is no longer systematically associated with a specific technology or infrastructure. Different services can be provided equally well over different networks.

The diversity of the experiences of each country reflects different methods and needs. The subjective and evolving nature of the resulting concept explains why it is difficult to establish a single definition. For a start, every country has its own situation in terms of geographical coverage, teledensity⁴, and financing and investment capacity. Again, every country has its own policy for achieving either its own development goals or development goals that have been established at a regional level. For example, **Brazil** has implemented a universalization programme aimed at achieving a number of national development objectives in regard to public telephony, including the target of extending service to all villages with a population of over 300 inhabitants by 2006. The countries of the **West Africa** subregion belonging to the West African Economic and Monetary Union (WAEMU) have set themselves the objective of achieving a teledensity of 3.5 per cent by 2007.

³ It is difficult to attach a specific meaning to the concept of affordability of services in view of the wide diversity of economic and social conditions.

⁴ An indicator expressed as the number of telephone lines per 100 inhabitants.

Mauritania intends to increase national fixed-network teledensity to 10 per cent, by ensuring that all settlements with more than 3 000 inhabitants have systems for individual and community access to the services of information and communication technologies. These goals demand a strong push to increase bandwidth, for example by making it possible for the citizens to have a connection of more than 384 kbit/s per municipality, as well as the possibility of an Internet connection in all villages with more than 500 inhabitants, and fitting all settled areas having more than 1 000 inhabitants with a station for distributing telephone service.

India has set the following objectives: providing access to telephone services in 600 000 villages, achieving 4 per cent teledensity in rural areas; providing a second public telephone in villages with a population of more than 2 000; and public tele-info centres (PTICs) at 35 000 locations and high speed PTICs at 5 400 locations.

In **Switzerland**, the telecommunication law sets out a number of terms establishing what universal service encompasses. The services to be included depend on the economy, on the needs of society and on the state of technology. The precise meaning of universal service therefore needs to be revised on a regular basis. The law defines only the minimum scope for universal service, which currently includes a telephone connection, telephone booths, access to a telephone directory, price ceilings set by the government, and the actual telephone service. The latter includes, specifically, voice, fax, dial-up Internet access and data transmission.

2.3 Policies tailored to needs

As a rule, *universal service* policies are aimed at promoting or maintaining the “universal” availability of connections for populations to public telecommunication networks. The objective of connecting all or most of the population to public telecommunication networks becomes for operators the so-called “universal service obligation”. Universal service is a specific policy objective in many industrialized countries, but it is not economically feasible in most developing countries, where the focus is more on universal access.

Typically, *universal access* refers to a situation in which every private individual has reasonable means of access to a telephone that is made available to the general public. Such access may take the form of shared access, e.g. public payphones, community telecentres, “teleboutiques”, community Internet access terminals and the like. Government intervention is aimed at facilitating the adoption of new technologies, and at providing consumers with information on the usefulness and associated costs of the new networks and services. the objective of this network access approach is to achieve a critical mass of users.

Still, these definitions may differ from one country to another⁵. In some cases, the terms “universal service”, “universal service obligation” and “universal access” are interchangeable. Some countries such as **Spain**, **Peru** and **Chile** include the Internet within the scope of universal access/service, while other countries such as **Niger** use the term to encompass all means of communication (television, postal services, radio, the Internet).

Because the concepts are evolving continually, they need to be reviewed at regular intervals. Thus, for example, the European directive on universal service and users’ rights with respect to electronic communication networks and services foresees a review every three years in the light of social, commercial and technological developments.

⁵ See Module 6, “Universal service”, in the *Telecommunications Regulation Handbook* (World Bank, 2000).

3 How should universal access/service be financed?

The way in which universal access/service is organized and financed may have an effect on competition in the sector if it affects the viability of existing operators or the process whereby competitors enter the market. The way in which universal service and access obligations are allocated and financed therefore has a significant impact on the manner in which profits made in the telecommunication sector are shared among the different categories of consumer (small and large users, urban and rural, etc.), businesses (subjected or not to such obligations) and even all tax payers.

For these reasons the cost of providing universal access/service must be calculated before the financing system is implemented. Below, we review the methods for calculating the net cost of providing universal services (3.1), the main financing mechanisms (3.2), and the innovative management and financing solutions adopted by several countries (3.3).

3.1 Cost evaluation

Setting up mechanisms for calculating the cost of universal service or access is a complex process. This subsection is intended to present a number of principles, such as the principle of evaluation of universal service/access costs, and two calculation tools, net costs and intangible benefits, to help in understanding the issues and implications.

3.1.1 Principle of evaluation of the cost of the universal access/service obligations

From an economic point of view, the cost of universal service is defined as the losses that are incurred by operators who have a universal access/service obligation as a result of specific rules established by the public authority and to which subsidies or compensation may be attached.

However, it is not enough to define universal service cost in economic terms alone. There are several underlying principles. Universal service cost presupposes that mechanisms and systems have been put in place to minimize costs and provide an incentive to keep them down. It also presupposes that income will be maximized while maintaining or improving the quality of the service provided. It is therefore necessary to verify that any compensation for the provision of universal service does not create unwarranted subsidies for the operator responsible for implementing universal service and access.

The relationship between the quality and the cost of the provision of universal service and access must be the best possible, for the public community. In particular, its financing must not result in subsidies being paid to a company, or to several companies, that has or have a *de facto* monopoly in the activities being subsidized. For this reason, it is necessary to take into account changes in productivity and in the costs of telecommunication technologies. The effectiveness of the network thus depends on the choice of technologies and on prospective costs.

3.1.2 Methods of calculating net cost

Net costs are calculated by setting off the capital costs and operating costs necessary to provide the service against the relevant income. The relevant income includes all income that is directly or indirectly generated by the services. The difference gives the net cost. If the difference is negative, no financing or compensation mechanism is required. A negative figure indicates that income exceeded costs, resulting in a net profit. On the other hand, if the difference is a positive figure, then a system of compensation may be introduced. In this case, the costs are higher than the income generated out of the universal service. The losses incurred may justify a recourse to some kind of compensation.

It is necessary to distinguish between net costs that can be attributed to the universal service and costs which may be the result of inappropriate technical or business choices taken by the operator providing that service. For the sake of efficiency, and to avoid distorting competition, very strict oversight mechanisms must be put in place. To achieve this, one good approach is for the universal service operator to set up separate accounts which can be audited.

In addition, provision must be made for an external calculation of the costs of producing the services that are relevant to universal service. Efficiency and undistorted competition require that direct and indirect sales and intangible benefits from the provision of universal service be accurately recorded. Another way of ensuring efficiency is to establish evaluation and guidance mechanisms to ensure transparency for all operators in the sector, in the mid to long term, regardless of whether they are universal service providers or not.

The definition of geographical zones is a key component in evaluating universal service. The geographical divisions used will directly determine the level of universal service costs. For a zone that spans the entire country, the cost is zero, as losses are balanced by revenue. In such a situation the incumbent operator, responsible for universal service, will record profits. At the other extreme, if each subscriber is taken as a separate zone, then the cost of universal service reaches its maximum, being calculated as the sum of all the uncompensated losses. This raises two crucial questions. First, does the cost of universal service truly represent an unacceptable burden for the operator who shoulders the obligation? Second, what is the appropriate grid size to impose, to calculate the optimum conditions for universal service? Is it better to use a coarse grid, or a fine one? Should the "zones" be defined in terms of administrative boundaries or technical ones? If the zone is an administrative one, should it cover a region, a municipality, a village, a neighbourhood, or a residential unit? If it is a technical one, should it be defined in terms of the local transit zone, local switching zone, feeder zone, or cross-connection zone? These are fundamental questions that are essential for the soundness of universal service calculations.

The situation of the multiservice operator's network must be compared against the simulation of the universal service network. Both have a significant effect on the cost of universal service. Simulating the net cost of universal service isolates the telephone service from all other services offered by the operator, such as leased lines, digital lines and XDSL. Simulation neglects the beneficial effects of income sharing, which can justify deployment of a multi-service network across an unprofitable zone. To avoid distorting competition, simulation of the universal service cost should ideally provide for income and costs to be included in the calculations if shared income is realized outside the boundaries. If, on the other hand, losses are incurred from the sharing, then these must not be included. That decision that should be left to the operator alone.

Calculation of the cost of the geographical component for wire-based technology is carried out in four steps. The first consists of breaking down the costs, including the cost of capital to be retained, by network segment. The second consists of allocating costs to zones. The third involves allocating, by zone, all direct and indirect net income for network costs for transit and for interconnection payments. The last step is to calculate profitability by zone and determining the customer base segments in the case of profit-making zones. This procedure will give an assessment of the cost of unprofitable zones and the cost of unprofitable segments in profit-making zones. Density and dispersion are two key concepts. Dispersion, in cost simulation, plays a crucial role.

3.1.3 Calculating intangible benefits

A growing number of national and international regulators recognize the existence of intangible benefits. In a competitive environment, universal service obligations take the form of constraints imposed on companies. These constraints may nevertheless play in companies' favour by giving the established operator the edge as leading player: the established operator may see fit to set more aggressive rates than its competitor, thus lowering the entry level, even if the incoming operator is in a position to cream the market (Bourguignon and Ferrando [2004]).

In the European Union, a full calculation of net cost must include intangible benefits. The most common examples of intangible benefits are operator presence, operator reputation, brand recognition, and subscriber lifecycle. Operator presence reflects the fact that newcomers arriving in a particular region will make preferential use of the incumbent operator, in the knowledge that the latter is present everywhere; the service areas of the competitors are not necessarily known to them. Operator reputation, enhanced by the delivery of universal service, is a factor in protecting and expanding the customer base. Brand recognition, based on effective marketing, increases subscribers' confidence in the accessibility of the operator. Finally, the notion of subscriber lifecycle is based on the supposition that the unprofitable subscribers won through the provision of the service will tend to remain with the operator after they have become profitable.

In **Belgium**, account is taken, first, of brand recognition, at various levels: the profitability of investment in communication, brand loyalty, and the advertising value of booths and directories. Any advertising on any of the universal service provider's products is amplified as a result of the operator being the universal service provider. With regard to brand loyalty, the view is that the market shares of the incumbent operator would decrease further and quicker if that operator was not the universal service provider. With regard to the advertising value of booths and directories, if the operator was not the universal service provider it would have to pay for its logo to appear on telephone booths and directories. The other intangible benefits relate to the lifecycle of unprofitable subscribers, marketing and operator presence. Account is also taken of the reductions from which the operator benefits (owing to the size of its network) on all investments required for network and equipment maintenance. The "marketing effect" corresponds to the costs which the operator would have to pay for the extremely full database to which it has access, which provides it with valuable information on citizens' telephone habits and behaviour.

3.2 Comparison of financing mechanisms

If the universal service obligation brings advantages that compensate for the cost incurred by the operator, no financing or compensation mechanisms are set up. On the other hand, if the obligation represents a cost for the operator(s) responsible for universal service, a financing system must be established. Choice of financing mechanism depends to some extent on the profitability of the areas served and on what is meant by "profitable subscriber".

The issue of universal service and access can be thus summed up simply as the question of how to finance unprofitable lines. Whether or not a line is unprofitable is determined essentially by comparison against the average revenues generated by the local access network. Consequently, two different categories of lines need to be considered:

- some lines may be unprofitable because the process of rate rebalancing has not been completed. In other words, in the case of lines which carry a low volume of traffic, average revenues fall below the average cost.
- some lines may be inherently unprofitable owing to the geography involved. The cost of building and operating such lines simply exceeds the average revenues they are likely to generate.

The first category of line is usually associated with the social component of universal service, and the second with the geographical component.

Rate rebalancing to eliminate the social component is a delicate task to carry out in developing countries. The reason is not attributable to social concerns, inasmuch as the aim of public-access policy is to ensure that as many people as possible have access to telecommunication networks, but rather stems from a desire to maintain the competitiveness of fixed networks vis-à-vis mobile networks at the level of the individual consumer. The cost of deploying fixed networks in new areas rises as the network expands – the least costly areas are the first to have service installed. This results in a situation in which extending the network means that the average cost of new lines exceeds the average revenues those lines will generate (BIPE, [2000]).

At the same time, the economically viable area, in terms of the percentage of the population served, can vary from country to country depending mainly on the following factors:

- the topography of the area to be served;
- the population density;
- the efficiency with which services are provided;
- policy and regulatory effectiveness;
- consumer involvement;
- purchasing power.

Precise evaluation of the costs and revenues associated with the provision of service in a particular area is therefore an essential part of any universal service and access policy. Indeed, if economic estimates took into account all the marginal revenues generated by investments in rural and remote areas, many areas initially regarded as loss-making would in fact be found to be economically viable. However, most profitability analyses fail to take into account revenues associated with incoming traffic or third-party billing. Yet such revenues often amount to more than twice the revenues associated with outgoing traffic, regardless of whether the customers served are institutions, businesses or private individuals. In the case of public call offices or telecentres, such revenues may be equivalent to as much as 25 per cent to 100 per cent of the revenues from outgoing traffic (TEMIC, [2002]).

The operating deficit, or net cost associated with serving an area that is not economically viable, is the difference between the marginal cost of providing service in the area and the marginal revenues that the area generates. This typically amounts to between 0.2 per cent and 5 per cent of the sector's total revenues (TEMIC, [2002]). Governments around the world have adopted many different solutions to address the problem of the operating deficit.

These may be grouped into four broad categories, although we do not mean this to be an exhaustive list.

They are not mutually exclusive and, in fact, most of the countries studied use a combination of approaches. We shall describe each mechanism briefly, and then look at its advantages and disadvantages.

3.2.1 Service obligations

Service obligations are established as part of licensing conditions and other regulatory measures. Service obligations may be used to push back the boundaries of economically viable areas into adjacent territory to some degree. However, they have a number of drawbacks because they lead to cross-subsidization, distort consumer preferences and reduce economic efficiency (TEMIC, [2002]).

In **France**, public telecommunication service obligations have been adapted to the community rules established by the European directive on universal service. Universal service missions are assigned following a call for bids procedure.

In **India** the universal service obligations included in basic service licences could not be implemented. India's unified access licensing regime has eliminated rural roll-out obligations.

3.2.2 Cross-subsidization

Cross-subsidies are subsidies between different services provided by the incumbent operator. For example, in the presence of positive externalities associated with the telephone, the telephone service may be sold under cost, with a view to boosting network growth, on which the externality depends. As a result, the provision of network access operates at a deficit, the deficit being financed by higher traffic charges. Such internal transfers are known as cross-subsidies; they reflect the internalization of an externality that exists between users in the form of a club effect (Curien and Dupuy, 1996). The additional revenues are intended to financing services that have higher costs or smaller margins, particularly local access lines for private individuals.

However, cross-subsidization between services is usually difficult to implement and is anti-competitive. That is because this method is apt to foster inefficiency and to reduce demand for those services (Internet services, for example) on which artificially high international rates are charged.

Moreover, it becomes a kind of hidden tax; and it may be regressive as well. For example, under a cross-subsidization scheme poor migrant workers who cannot afford a personal telephone line of their own may be forced to pay high long-distance charges that help to finance the provision of individual lines for people who are wealthier than they are (World Bank, [2000]).

3.2.3 Access deficit charges

Charges to cover the access deficit are paid by new operators to compensate the incumbent operator for the operating deficits it incurs. A system of special charges to cover the access deficit is similar to a traditional cross-subsidization scheme except that it is tailored to a competitive marketplace. In a system of this sort, new operators pay subsidies that are used to finance the entire local access deficit incurred by the incumbent operator as a result of providing local service below cost. Like internal cross-subsidization by an incumbent operator, this practice has been criticized because it involves subsidies that are inefficient and potentially anti-competitive (World Bank, [2000]).

Belgium is endeavouring to ensure that the consequences of access deficit are not borne by all operators. The regulator has therefore set a nominal subscription rate such that the access deficit is brought down as much as possible while respecting the affordable, capped price. The regulator has also taken account of intangible benefits and the avoidability of net costs.

In **India** the concept of access deficit charge (ADC) has been direct in TRAI's interconnection regulations of October 2003 which is available on TRAI's Website www.trai.gov.in

3.2.4 Universal access/service funds

Universal access/service funds consist of monies from different sources (from the government budget or from mandatory contributions collected from all operators, usually expressed as a percentage of their gross operating revenues) used to establish targeted subsidies with which to mount universal access programmes in areas where service is not economically viable.

In many countries, the project to be financed is chosen only once sufficient money has been collected. Most countries in the **European Union** have adopted the opposite approach. Financing is estimated based on the project already chosen. Several European directives require that the cost of providing the universal service be calculated and that its burden be shown to be inequitable before the financing system is implemented.

Some universal access funds are run by the government (**Colombia**), some by regulators (**Chile, Peru**) and some by special agencies (**Mauritania, South Africa**).

It is generally accepted that a fund managed by an independent body is less likely to be used for purposes other than those for which it was originally intended⁶ (BIPE, [2000]). Although this mechanism offers several clear advantages, particularly in that it assures genuine financial transparency and does not pose an obstacle to new operators entering the sector, it does present a number of practical problems. First, setting up a universal access fund presupposes that a basis for assessment exists, and that the operators from which contributions will be required have been identified. It also requires monitoring the behaviour of participating operators (introduction of a licensing or authorization process) and regulating universal service/access providers, particularly with a view to encouraging them to reduce their costs. Lastly, the convergence of fixed and mobile networks has to be taken into account. Mobile networks are developing faster, which raises the question of their competing with fixed networks.

These issues have to be dealt with to prevent a multitude of disputes from arising with respect not only to the amount of the mandatory contributions to be made to the fund but also to the efficiency with which universal service and access is being provided.

In the sample of countries looked at, several countries have established a universal service fund. **Peru**, for example, has set up the FITEL investment fund to administer projects in rural areas⁷.

Brazil has also set up a universal service fund known as FUST, to which contributions are made by all operators (fixed service, mobile service, multimedia, etc.). However, the cost of meeting existing public telephony objectives is being borne directly by operators. FUST will be used to fund the next series of information and communication technology (ICT) development objectives that the government plans to establish and assign to operators on the basis of proposals they present.

India has also set up universal service fund which is administered by the Government of India. All the telecom service providers except internet service providers (ISPs) contribute 5 per cent of their adjusted gross revenue (AGR) to the universal service fund. The disbursement to the operators meeting universal service obligations is made on the basis of a bidding process among the existing service providers.

⁶ The possibility that funds will be diverted to other uses is always present if the government budget includes a substantial deficit (BIPE, 2000).

⁷ Peru's *Organismo Supervisor de la Inversión Privada en Telecomunicaciones* [Supervisory Agency for Private Investment in the Telecommunication Sector] (OSIPTEL) is responsible for administering FITEL and selecting the projects that it is to fund. FITEL's purpose is to finance telecommunication services in rural areas and in places considered to have high social priority. FITEL is funded by mandatory contributions from operators equivalent to 1 per cent of their gross revenues.

In **Mauritania**, the resources for universal service access funds come from the collection of official fees, contributions out of the government's budget, contributions from development partners, from funding for resources to combat poverty, remuneration for exercising the project ownership role, and other income and surpluses from activities, investments, donations and gifts. These financial resources are used to execute programmes for the provision of universal access and to finance agency operations. The universal access programmes cover infrastructure upgrades, support for improving service quality and boosting local operator capabilities, the implementation of technical, organizational and economic innovation, and the compensation system.

The **United States** currently has four universal service programmes. These provide aid for areas subject to high costs, low-income populations, internet access for schools and libraries, and rural health centres.

In each state, a regulatory commission surveys the universal service operators in each of the zones, in addition to the boundaries of the zones. Eligible operators receive support out of the universal service fund, in exchange for providing services in the designated zones. An alternative local-loop operator, utilizing the incumbent carrier's lines, receives the corresponding subsidy. Funding is handled at the federal level through an operator-managed fund. Contributors to the universal service fund pay a percentage of invoiced sales, both international and domestic. In 2004 that percentage was estimated at 7.8 per cent. It appears on service subscribers' invoices. In 2001 the universal service fund in the USA was valued at EUR 5 billion.

3.3 Innovative management and financing solutions

In addition to the traditional financing mechanisms described above, it is useful to highlight innovative solutions that various countries have implemented in regard to the financing of universal service and access, such as tripartite financing partnerships and internally generated funding.

3.3.1 Tripartite financing partnerships

China, Niger and Viet Nam have established tripartite financing partnerships.

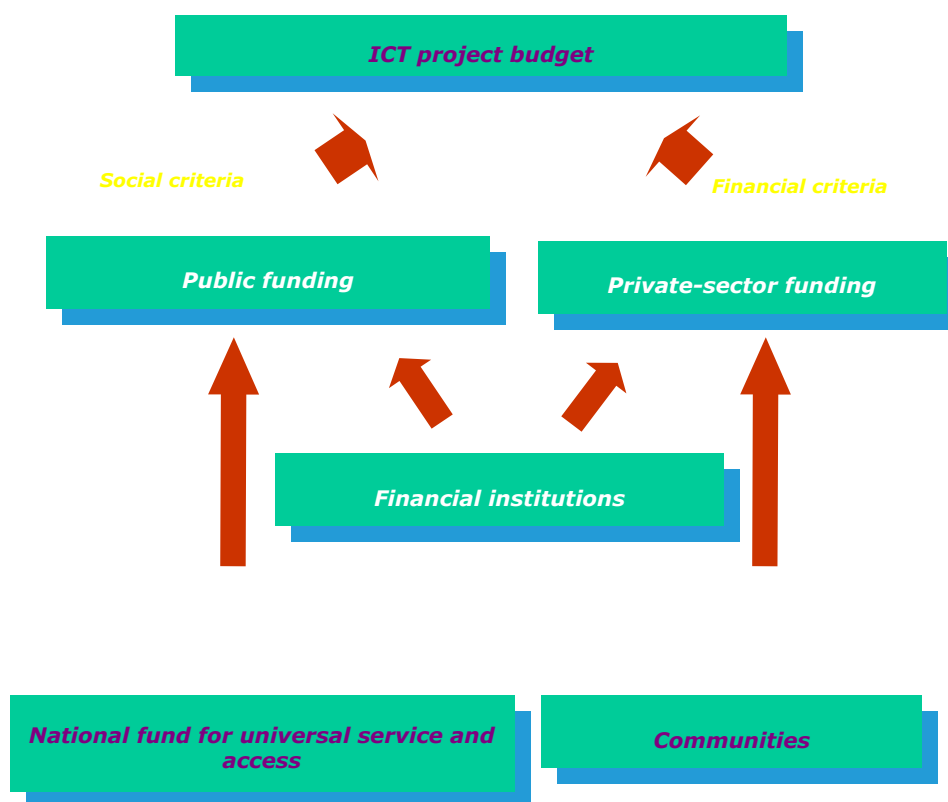
In **China**, the central Government has taken a series of macroeconomic measures ranging from tax breaks to encourage operators to invest in rural areas and government guarantees provided by both the central government and the provincial governments for financing obtained abroad, to the establishment of special universal service funds administered by the central government. In the past ten years, tax incentives have yielded positive results and now the situation has been modified due to new circumstances, whereas government charges such as fees for spectrum utilization and customs levies risk having the opposite effect by financially penalizing operators and their customers. China has also been considering establishing a system for granting low interest rate loans and microcredits to promote the development of networks in rural areas.

In **Niger**, a joint funding system has been organized with participation by ITU, the World Bank, the United Nations Development Programme (UNDP), the *Organisation internationale de la Francophonie* (OIF), the Government of Niger and several non-governmental organizations.

In **Viet Nam**, in order to provide some relief in its investment effort in the fixed and subsequently the mobile network, the Vietnamese operator VNPT has sought partnerships with foreign operators, in the form of business cooperation contracts. These contracts enable VNPT to benefit not only from financing, but also technology transfers.

Diagram 1 below shows the public/private funding chain for ICT projects.

Diagram 1 – Funding chain for ICT projects (From a presentation by J.-M. Blanchard [2002])



National universal access/service funds rely on public financing, and are defined on the basis of social criteria. Projects giving benefits to communities rely on private financing, and are established on the basis of financial criteria. Both public and private financing are supported by financial institutions, with participation in elaboration of the ICT project.

3.3.2 Capacity for generating funds internally

In the **Democratic Republic of the Congo (DRC)**, reforms are under way to establish the technical and financial conditions necessary for devising and implementing a universal service and access programme. As part of this effort, the public operator OCPT is being restructured and partnerships are being forged with foreign investors. Once the capital invested in procuring equipment has been repaid, the public operator should possess an infrastructure that will enable it to serve as a backbone network.

The funds that this arrangement is expected to generate will be put towards financing the development of the local cable network, with a minimum of 10 000 new lines to be built each year. Assuming an average level of traffic of one billion minutes a year and a transit charge of one cent, DRC expects to be able to generate USD 10 million annually which it can then use for universal service and access. In the regulator's view, the key points are having the necessary equipment in place and, above all, managing it properly. The partners (i.e. the equipment suppliers) are willing to provide the infrastructure and have carried out feasibility studies showing that the project is economically viable and that the capital invested will be recovered within one year. Management will be a joint responsibility during the loan repayment period. As well, the regulator (ARPTC) will perform management oversight functions. The government strongly supports this policy of using funds that are generated internally, as it is a concrete example of the government's focus on making use of internal capacities first, whilst leaving open the possibility of seeking external financing if that should prove necessary.

In **Viet Nam**, the operator VNPT has instituted a vast rural telephony programme. This project covers 15 provinces in northern Viet Nam to the tune of EUR 12 million. Another major investment programme with VNPT's own funds is the establishment of a network of payphones through the installation of a new independently managed system.

4 How should universal access/service be implemented?

This section deals with three approaches that the public authorities can take to implementing universal access/service: implementation (4.1), control by the national regulator (4.2), and review of universal access/service arrangements (4.3).

4.1 Implementation

With regard to implementation, technical arrangements and the fact that there may be several operators are of particular importance. Implementation must be neutral vis-à-vis competition, which means that the regulatory policy must establish a fair balance between two potentially conflicting objectives (Laffont and Tirole [1997]). On one hand, neutrality vis-à-vis competition means not giving excessive assistance (or protection) to the operator responsible for universal access/service, as this may inhibit the entry of more efficient competitors. On the other hand, if the universal access/service obligation results in a cost for the operator without appropriate compensation, the operator may be threatened by less efficient competitors entering the market.

4.1.1 Technical implementation

The rapid pace of technological innovation has a positive impact on the implementation of universal service and access policies. Thus, innovative technical solutions can be implemented at less cost provided that suitable technology is chosen based on the population's needs. However, universal service and access arrangements must remain technology-neutral, that is, they must not tilt the scales in favour of any given network when several are in competition on the services market. Transparency in the bidding process is another indispensable condition.

Cellular systems, fixed GSM systems and satellite technology have all demonstrated their usefulness in extending access to rural areas: in **Chad**, desert-dwelling communities are linked by means of VSAT technology; and in **Djibouti**, plans call for extending GSM network coverage along the country's main roads.

In **Cuba**, an ATM data transmission network has been set up to serve all areas of the country. Two cellular networks – AMRT and GSM – cover the major built-up areas with around 60 radio base stations in each network. There is also a shared resources network (trunking), with national coverage, for the use of vehicle fleets.

Infrastructure sharing and local roaming are two technical solutions that encourage the deployment of mobile networks. Infrastructure sharing consists of building a single pylon and sharing it amongst several operators, each of which deploys its own network independently, while local roaming consists of routing all communications over the same network. Local roaming costs less to implement, as a way to provide coverage to large rural areas.

In **France**, a study of mobile coverage showed that close to 20 per cent of the territory remained uncovered, the equivalent of 17 administrative *départements*.

Coverage has become an important issue in regional development. An ambitious programme has been created, with local governments, to extend coverage to the neglected zones. For 2004, 1 250 priority points have been targeted for investment in excess of EUR 150 million.

Two technical approaches have been worked out. The first involves site sharing when the three GSM operators are present in the same zone. The second provides for a system of local roaming in cases where only one operator is present. A country-wide convention was signed on 15 July 2003, between the different levels of government, operators, and the regulator, the *Autorité de régulation des télécommunications* or ART.

ART, now become ARCEP (*Autorité de régulation des communications électroniques et des postes*), must verify a balanced roaming distribution among the three operators, as well as a balance between roaming itself and infrastructure sharing. Lastly, ART must define a method for evaluating mobile coverage. The technical arrangements also include the provision and maintenance of passive infrastructure by the local authorities. For active infrastructure, this is done by the operators.

4.1.2 Implementation by one or more operators

Implementation may be through one or more enterprises which guarantee the provision of universal service and access throughout all or part of the country's territory. As the various country experiences show, responsibility for the implementation of a universal service and access policy no longer necessarily rests on a single operator. The operators responsible for providing universal service and access may be selected either by open invitation to tender or by public auction. In both cases, the distribution mechanism has to be efficient, impartial and transparent in order to guarantee the credibility of the public authorities.

Tenders must be organized only for the zones that are relevant to universal service. They must not cover the entire country, as this would give the incumbent an additional advantage over the competitors. Tendering must therefore follow certain procedures. First, common general principles must be set forth, applicable to all the candidates. Second, the object of the tender must be clearly defined, along with the associated obligations or contract duration. Third, the process must be made credible by, for example, not reopening negotiations on a one-on-one basis.

Three different methods may be followed, if there is a large number of zones. The first involves a round of simultaneous or sequential bidding for the entire package. The second consists of one or more rounds. The last is a hybrid procedure, in which candidates themselves compile a batch of zones for which they wish to bid. In this way, each candidate can bid for a different batch.

Competitive bidding may be undermined in a number of ways. The first concerns the zone defined for the bid. It must be of a sufficient size to be economically viable, in terms of operations and sales. Viability is not limited to incremental deployment. The second concerns the possibility of a transfer of assets, should it be required. The third is failure to respect undertakings. Bidding can only work if the regulator enjoys credibility and undertakes not to reopen negotiations on the tendered package. The temptation can be strong for the regulator to do that, if the results obtained are deemed to be unsatisfactory.

The problem of credibility is particularly acute in the case of universal service. This is why the obligations and penalties contained in the universal service contract must be clearly spelled out. They must also provide sufficient incentive, so as to avoid reopening negotiations. This is the reason for ruling out new candidates in advance and pooling solvency risks, by setting up an insurance fund. Quality control is an important factor. The winning operator may be tempted to deliberately sacrifice the quality of the service provided in order to become more competitive. The regulator must thus establish a strict system of quality monitoring, with signed, incontrovertible protocols that have been subjected to prior validation.

In **Germany** the tender scheme has been suspended. Deutsche Telekom is therefore providing access to universal services without any compensation whatsoever. In other words, Deutsche Telekom, the incumbent, is ultimately the one to provide all the elements of universal service. Until recently, there was no demand for financial compensation. In Germany, universal service covers switched voice services on digital networks and the provision of leased lines. In order to obtain compensation, Deutsche Telekom has to prove that its provision of universal service is loss-making. The bidding arrangements have yet to be made known. They must be objective and non-discriminatory. On the other hand, the designated operator is the one who requires the lowest subsidy. That operator would then operate the assets in question, in Deutsche Telekom's place, having obtained them from the incumbent for a token one euro. If bidding is not successful, then Deutsche Telekom would continue to operate the service, in exchange for the subsidy initially requested.

4.2 Control by the national regulator

It emerges from analysis of the contributions that the provisions governing implementation and control of universal service and access, some of which may be mandatory and others optional, may be the responsibility of governments or of national regulatory authorities.

Governments ensure that universal service and access are provided, to the satisfaction of reasonable requests by at least one operator, and at affordable tariffs. They may take specific measures for the disabled or lay down certain tariff or billing requirements. They may, if necessary, designate one or more enterprises to guarantee the provision of universal service and access throughout the country's territory. They may select the method of designating the enterprises responsible for universal service and access, i.e. invitation to tender or auction. Finally, it is governments that determine the method of financing universal service and access obligations.

National regulatory authorities, for their part, have to monitor trends in the retail tariff level and structure applicable to the public telephone service. They may require the designated enterprises to offer consumers different tariff options or formulas from normal commercial operating conditions, in order to ensure in particular that people on low incomes or groups with specific social needs are not prevented from having access to or using the public telephone service. They must also set performance objectives for enterprises that take on universal service and access obligations, ensure that these are verified, and make sure that the enterprises publish adequate information. Finally, they may seek to ascertain whether the provision of universal service and access represents an undue burden for the designated enterprises.

4.3 Review of universal access/service arrangements

The purpose of reviewing universality arrangements is to propose regulatory changes or reforms, in line with social, commercial and technological trends. Although necessary, this exercise is liable to be fraught with difficulties.

First of all, it requires study of the scope of universal service and access obligations, including the services used by consumers and more particularly their availability, choices on offer and how the services are provided.

It may be useful to ask the following two questions:

- is the fact that such services are not provided or not used by a minority of consumers a source of exclusion?
- does the provision and use of given services yield a net overall benefit to all consumers which justifies the authorities intervening when they are not provided to the public under normal commercial conditions?

5 What key factors determine the success of national experiences?

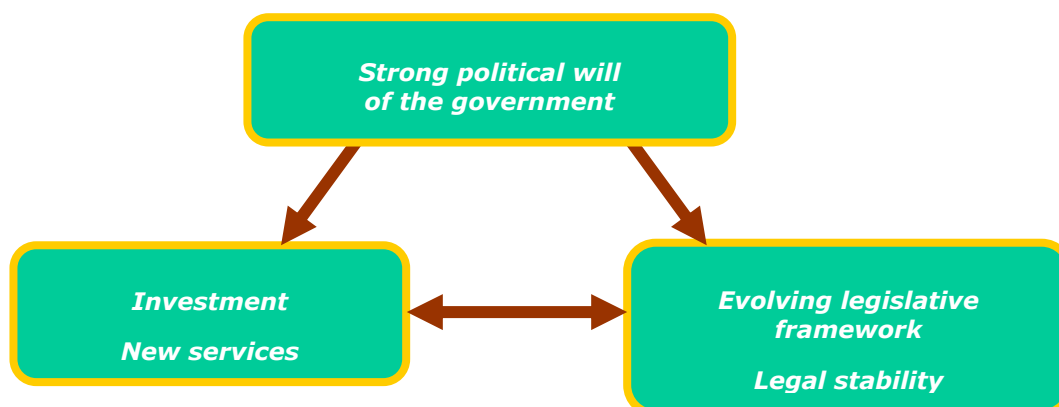
From the contributions by the Rapporteur's Group, certain factors have emerged as relevant to the success of several national universal service and access experiences.

The key success factors thus identified are: political will and sector reform (§ 5.1); public-private-civil society partnerships (§ 5.2); the involvement of rural communities in formulating and implementing universality policies (§ 5.3); and the opportunities that are created by collective access to telecommunication services (5.4).

5.1 Political will and sector reform

A strong political will to reform the sector has been shown in several countries. As Diagram 2 shows, this can take the form of new investments and improved legal stability, thanks to an evolving legal framework.

Diagram 2 – Relation between political will for reform of the regulatory framework and investments



In **Sri Lanka**, the government worked alongside the regulator to find solutions to the problems associated with providing disabled persons with access, specifically affordability and connectivity. The regulator took on the role of serving as the direct contact point between disabled persons and operators. A number of pilot projects (the issuing of bills for fixed services in Braille, voice assistance systems, the provision of special directories and the use of an international symbol to identify accessible facilities) are to be extended throughout the country.

Djibouti has begun to reform its telecommunication sector. *Djibouti Télécom, SA*, which is 100 per cent government-owned, currently remains the monopoly operator and the sector has only partially been liberalized⁸. *Djibouti Télécom*'s monopoly applies to the voice telephony market. However, Djibouti has had a number of successful experiences in regard to universal access thanks to the installation of telephone booths in partnership with small businesses, which has helped penetrate areas around urban centres which previously had no access. Djibouti has also opened up the cybercafé market to the private sector and encouraged GSM network coverage to be extended along the country's main roads and into rural communities.

Brazil has achieved its universality objectives through a combination of regulatory incentives and regular oversight. Thanks to the General Telecommunication Act of 1997 and the opening up of the market to competition in 1998, it has been possible to expand access to the switched public telephone network and to treble the number of telephone booths over a period of five years.

Teledensity has increased from 10 per cent in 1997 to 28 per cent in 2002. Operators have had to demonstrate their support for these objectives in order to extend the scope of their long distance licences⁹.

In **India**, under the new telecommunication policy introduced in 1999, emphasis is placed on universal access and service to provide a public telephone in every village and increase teledensity in rural areas.

Mauritania has a threefold political and institutional agenda. First, there is the strategic framework of the fight against poverty. The national goal is to provide universal access to all basic services by 2015. Second, there is the policy of liberalization, which implies reforms of the infrastructure sectors. Finally, there is the decentralization policy. This option has enjoyed top priority with the national government since the law on decentralization of 1987 was adopted. Since that time the government has realized how important it is to optimize the development of basic infrastructure in rural areas.

In the **Democratic Republic of the Congo**, the telecommunication market has greatly evolved since legislative order No. 254 of 23 August 1940, which applied to the entire country, was repealed. That order had created a monopoly situation. Three new laws were adopted in October 2002, bringing universal access innovations by opening the telecommunication market to free competition and creating a new regulator, *Autorité de Régulation de la Poste et des Télécommunications du Congo* or ARPTC.

The Government elaborated a three-pronged telecommunication policy. One objective is modestly priced access to basic telephony services. Next is a reduction in regional disparities as far as services and infrastructure are concerned. The third part of the government's policy concerns the emergence of new technologies. This policy has been structured in stages. Initially, ARPTC became operational and reforms of the incumbent were initiated. Next, preliminary studies were commenced regarding the universal service fund and telecommunication development.

⁸ Two steps planned for the immediate future are the privatization of *Djibouti Télécom* and the establishment of a regulatory agency.

⁹ Licences are only granted for a period of 20 years, but are subject to review every five years.

In **Senegal**, a new telecommunication code was adopted on 27 December 2001, with the promulgation of law number 2001-15. This code defines the legal framework within which liberalization policy will unfold. It sets forth general principles to be respected by all sector players, in particular as regards transparency, competition and equality of treatment among users.

Senegal's "roadmap" for universal service and access is divided into three phases. During the first phase, the strategy is to be developed, by defining the scope and the objectives of universal service in Senegal and producing recommendations on a strategy for universal access. The second phase concerns the preparation of the tender documents. Finally, in the last phase the universal service development fund will be instituted, which will involve establishing a fund structure and operating methods for the fund.

In **Oman**, Royal Decree No. 30/2002 established the bases for the sector's liberalization and the new arrangements for management and financing of universal access. The Oman Telecommunications Regulatory Authority is thus to oversee the provision of telecommunication services in the whole of the Sultanate.

5.2 Public-private-civil society partnerships

The contributions by the Rapporteur's Group highlight partnerships between telecommunication sector players. There are two kinds: those rooted in international cooperation and those based on domestic accords involving government, the private sector and civil society.

Two examples that illustrate the first sort of partnership are: a) the loan that **China** made to **Djibouti** for building an optical-fibre link around the capital city; and b) the twinning project under the European Union's PHARE programme to support economic restructuring in Central Europe, in which **Spain** worked closely with **Poland** to design a method for planning, implementation and evaluation.

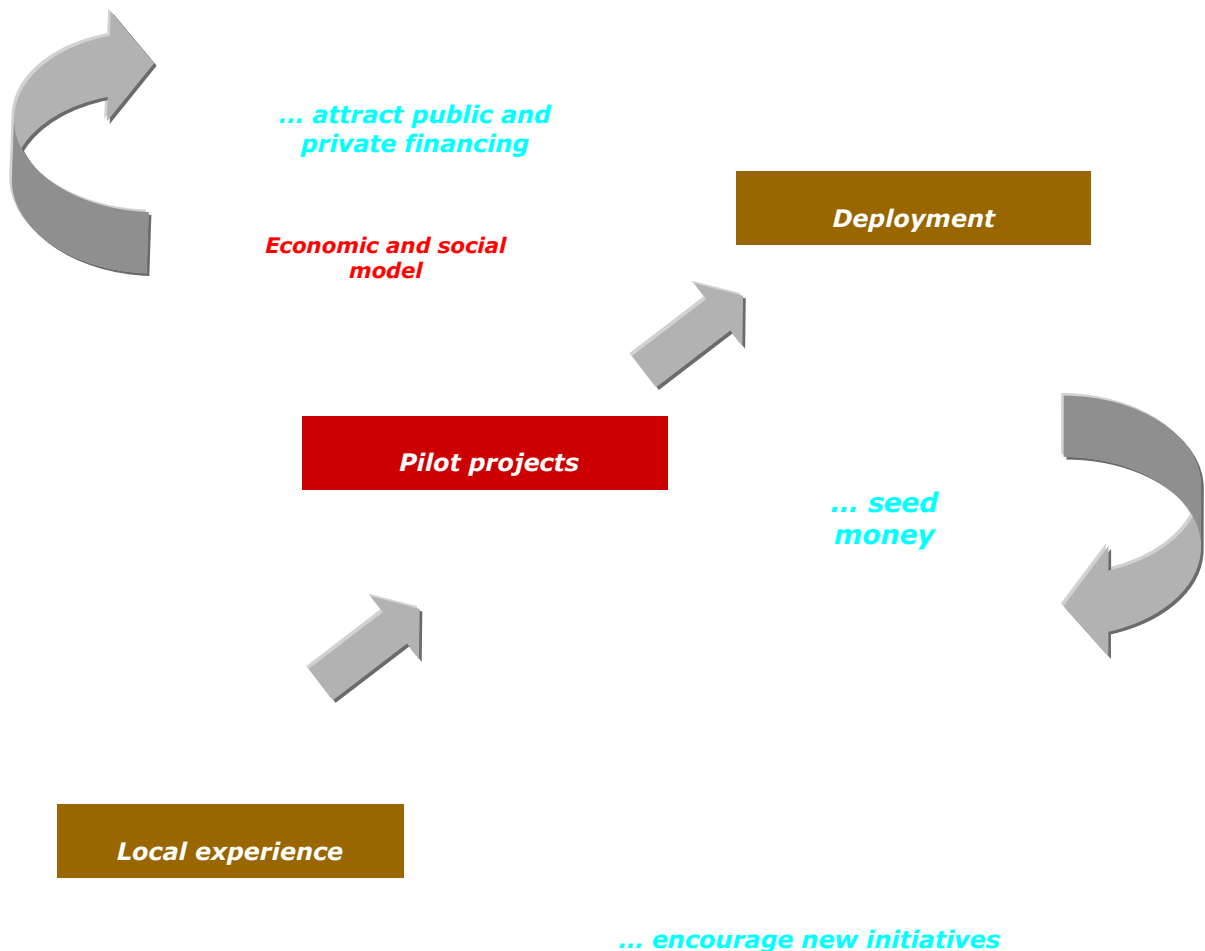
An example of the second sort of partnership may be found in **France**, in the form of an original initiative that was undertaken as a result of a joint effort by the public and private sectors. There are some parts of France, totalling approximately 17 per cent of the country's territory, where it is not economically viable to provide coverage, and where as a result no coverage is provided by any of the country's three mobile operators (Orange, SFR, *Bouygues Télécom*). To serve these areas and their inhabitants, beyond the obligations established under the terms of the operators' licences (which require a network to be able to reach 96 per cent of the population¹⁰), the central government and local departments and communes will cover one third of the cost of installing the physical infrastructure (amounting to 1 250 pylons initially) while the operators will cover two-thirds of the cost for network equipment and maintenance. This agreement was reached under the aegis of the *Autorité de régulation des télécommunications* [Telecommunication Regulatory Authority] (ART).

Mauritania's strategy for universal national access is to use public-private development partnerships to generalize and promote access to basic services; to explore and capitalize on technical and institutional innovation; to develop mechanisms that will guarantee the long-term viability of the basic services; and to find synergies and economies of scale due to its multi-sector nature, in particular.

¹⁰ All the operators have exceeded this target.

In **Canada**, the Government of Ontario has launched the programme *L'Ontario branché: accès régional à la large bande* (OBARLB) [Connect Ontario: Broadband Regional Access]. This programme aims to provide communities in rural areas and in the north of Ontario with affordable access to high-speed telecommunication services by constructing the necessary broadband infrastructure. To benefit from financing as part of the OBARLB programme, regional candidates must have non-profit organizations or municipalities and may include partners such as tourist organizations, chambers of commerce, First Nations and residents' associations. For example, candidates may be representatives of post-secondary establishments, school councils, training organizations, associations of businesses and from the technology sector, hospitals and other local health organizations, public libraries, cultural organizations, local service organizations and other community groups. Proposals eligible under the OBARLB programme must take account of the connectivity requirements of public sector establishments and the creation of a broadband infrastructure accessible to residential users and businesses. Preference goes to proposals that demonstrate their durability, ensure optimum regional coverage at least cost, require the least financial support from the province and have the most contributions from partners (in particular, financing from the federal government).

Diagram 3 – Relation between political will for reform of the regulatory framework and investments
(From a presentation by J.-M. Blanchard [2002])



In diagram 3, local experiences lead to the establishment of pilot projects that are deployed. The projects provide grounds for the development of economic and social models and for seed funds. The models should help to maximize the number of public and private donors attracted. The seed funds provide encouragement for the initiatives.

5.3 Involvement of local groups and rural communities

In **Djibouti**, public telephone booths are administered by the incumbent operator in conjunction with the local community. As a result, telephone booths installed in partnership with small businesses have helped penetrate areas surrounding urban centres and provide access to them. The Government of Djibouti is making a special effort to involve rural communities and encourage them to take on responsibilities in this area. To curb vandalism, public payphones are installed near shops, and shop owners receive a percentage of sales of prepaid cards.

China has made a particular effort to promote the use of telecommunications and information technologies in order to encourage people with little education living in the countryside to use new electronic communication services.

In **Niger**, rural communities administer their own telephone booths and telecentres. In addition, village associations focus their efforts on developing content in local languages concerned with development issues such as waste-water treatment, health and hygiene and so on.

In the **Democratic Republic of the Congo (DRC)**, the government's policy has included setting up telecentres around the country. The initiative for this project originally came from women's associations. ITU defined a number of rules to be followed, in particular as concerns localization, infrastructure and business impact. The rules covered such things as involving local partners, obtaining popular support, and meeting the needs of the inhabitants. ARPTC, for its part, produced and issued the calls for tender, analysed bids received, and short-listed organizations that met the ITU rules. ARPTC also examined applications and created a database at each site. Finally, the regulator also organized prospecting missions. Seven sites were ultimately selected, in the south of the country.

Several conclusions emerge from the studies that were conducted. Access to a telephone is given nearly top priority, after health, with the exception of certain suburban areas, where telephony is ranked fourth after employment, health and food. The Internet does not appear to interest people in the rural population at all, with the exception of those who spend time in the cities. However, the mission shows that once they realize the advantages of this communication tool, they express considerable demand in the area. This study shows the very strong desire among inhabitants of the DRC to escape isolation and marginalization by using new information and communication technologies, which can facilitate commercial transactions and the exchange of data.

The different studies did more than just identify needs, patterns of use and services. They also made it possible to identify problems and constraints that are faced by the population. In particular, there is the shortage of basic infrastructure, the difficulty in defining an optimum technical architecture, the general lack of education in new technologies, and the difficulties which people encounter in attempting to become proficient in using telecentres and the information they provide. Other difficulties include the slow pace of adoption of new information and communication technologies and a low level of general knowledge, which limits the scope of individual demands. Local partners and community players intend to contribute to the success of the project. This community-based spirit is a very important strength.

In **Canada**, most rural, remote, Inuit and First Nation groups do not have access to broadband communication services. Private industry has the incentive to provide broadband services in highly populated areas, as is borne out by the major investment hitherto made in broadband installations in and between metropolitan areas nationwide. Without financing and public support, however, it will be impossible to provide broadband services in rural and remote areas with the same quality and at the same prices as in urban centres.

For this reason Canada is pursuing efforts to extend broadband access to an increasing number of communities by implementing federal, provincial and territorial programmes such as *Villages branchés du Québec* [Connecting Quebec's villages]¹¹, and the federal programme Broadband for rural and northern development (BRAND), which make it possible to finance the development of business plans to extend broadband services to over 2 000 communities that are not served at present. In order to offer broadband access to most if not all unserved communities, the programmes have to be able to raise enough public and private funds to implement the proposals currently being prepared. Two approaches have been envisaged: one is based on broadband access offer, the other on broadband access demand.

The first approach consists of *infrastructure support* aimed at encouraging the provision of broadband transport to a point of presence in an eligible community, and construction of the distribution and access infrastructure in the community. This “offer based” approach implies that deployment of the transport installations and access infrastructure in the eligible communities is financed directly. Selection of equipment providers under this approach is on a competitive basis and third parties have free access to the installations set up.

The second approach involves *community grouping* aimed at stimulating demand for broadband capacity in unserved communities by providing direct support to a “local demand aggregator” or “community champion”. Under this “demand based” approach, the champion is responsible for grouping the community’s demand, creating partnerships, finding a source of financing and carrying out a profitability study for the deployment of broadband installations to and within the community.

5.4 Opportunities created by collective access to telecommunication services

Community access is a fundamental issue, particularly in low-income countries. It touches on regulatory questions that have not been given due attention. In the past, it was thought that no demand for communication existed among the inhabitants of developing countries. Nothing could be further from the truth. There is in fact a universal communication market formed by very small consumers. However, this is a recent discovery. The countries that are in such a situation must adapt to the demand that is expressed by the mass of very small consumers. For those populations, the very paucity of communication makes it a more pressing need.

If the attractiveness of different options is compared, in terms of use, accessibility and convenience, in addition to the cost of services, then cellular telephony may be seen as an ideal entry solution. Thus, low-volume communication is not burdened with subscription charges. Telecentres and prepaid calling are being taken up enthusiastically among certain population groups. Thus, telecentres are able to ideally meet the demand of a large number of small consumers for communication. Simulations of the market structures involved have shown the considerable role of telecentres, with 20 per cent of all calls originating there. If access were to be made universal, the demand for telecentres, in terms of minutes, would reach 40 per cent, and traffic would increase by a factor of 5.4. It is thus clear that the issue of community access has a role to play in the development of those regions and the deployment of telecommunication networks.

¹¹ The objective of the programme is to accelerate the deployment of broadband Internet services throughout the province, and more specifically in its rural and remote areas. The programme finances local and provincial organizations in partnership so that installations are interconnected with the high-speed communication backbone of the *Réseau d'informations scientifiques du Québec* (RISQ) [Quebec scientific information network], with the aim of grouping demand and taking advantage of the network’s existing capacity.

In Africa, the development of those structures is proceeding apace, frequently with the active encouragement of the government, it having been shown that telephone booths are not used as much as telecentres. The latter provide a much-needed service and attract numerous local businesses. The level of services available in a telecentre is superior to that in most telephone booths. Telecentres stimulate the introduction of new services. Nonetheless, numerous barriers remain. They are connected, in particular, with the availability and quality of the lines. Availability is a function of the optimum network arrangement. Quality raises the issue of overloaded communication lines. Both need to be adequate to the needs of the population. Another barrier concerns the size of the security deposit. Operators are aware of the risks that a telecentre represents. For this reason, security deposits are demanded which can be as high as EUR 750. The billing period is much shorter than for conventional lines. There is also the problem of the justification of minimum prices for telecentres. The economic results of telecentres are significant, and stimulate the regular creation of new jobs.

On the economic side, telecentres have many advantages. The prices charged are influenced by the cost of the connection, by any operator transfers, by volume-based charges, competition from neighbouring phone booths, and other factors. Sales depend on the service provided by the telecentre and the operator, as well as on the prices charged, the density of the telecentre network, and the level of associated services, particularly multimedia. Customers may be attracted by a judicious marketing policy, by the support which the operator gives to a centre in terms of increasing brand identification and visibility, by the availability of lines, by the billing system and by the security deposits. Telecentres generate income of two basic types: incoming call service and originating communication. The management must, naturally, meet its obligations, such as lease payments and payment and rental for telephone lines. Considerable profits accrue, making telecentres into a value-adding facility, from an economic viewpoint.

Telecentres are thus part of a winning strategy. They make it possible for users to gain access to services that would otherwise remain closed to them. They serve as an important factor in job creation. For operators, telecentres offer an opportunity to expand networks and increase traffic density. They create new opportunities for the development of new network services. Finally, they are very attractive in terms of revenue generation and collection. For commercial operators, telecentres offer a highly profitable way of creating additional revenue. It is not surprising, therefore, that a wide variety of telecentres has sprung up. These include basic telecentres, telecentres intended for a professional clientele, and family-oriented telecentres. For the country, telecentres represent a means of rapidly developing universal access to services, and offer major and significant economic side-benefits. It is clear that telecentres are a positive factor for the future development of countries that favour their introduction.

However, a number of regulatory questions remain unanswered. The issue of universal access to services raises the question of the possible connection of telecentres to all types of networks, fixed and mobile. The question of public interest obligations in the terms of reference is on hold. There is a need to provide for the reservation of special lines in each network extension, and for advertising and directory costs to be covered by the operator. Lastly, interconnection-related questions remain, concerning, in particular, the impact of tariff reductions on interconnection administration.

In **Senegal**, the number of private telecentre lines across the whole country is estimated at 17 369. Of these, 55 per cent are in Dakar. The telecentres have created 26 000 jobs. They represent 8 per cent of the total number of telephone lines in the country. They make up 31 per cent of the total sales figure of Sonatel. A national telecentre operators' association has been formed, the UNETTS, with 7 000 members. The association works closely with the national telecommunication regulator to develop the telecommunication network across the country. Originally, telecentres concentrated on fixed telephony. Subsequently, their broadened their focus to include GSM fixed telephony. These telecentres can form the core around which universal service can be deployed.

However, the functioning of the market constituted by telecentres cannot work on traditional models. Microcredit represents an important source of experience. Thus, in banking, systems are deployed that meet specific needs and function according to particular mechanisms.

In **Venezuela**, community access points have been established providing information services in different fields (education, health, commerce, tourism, etc.) in order to improve the quality of life of several rural or remote communities.

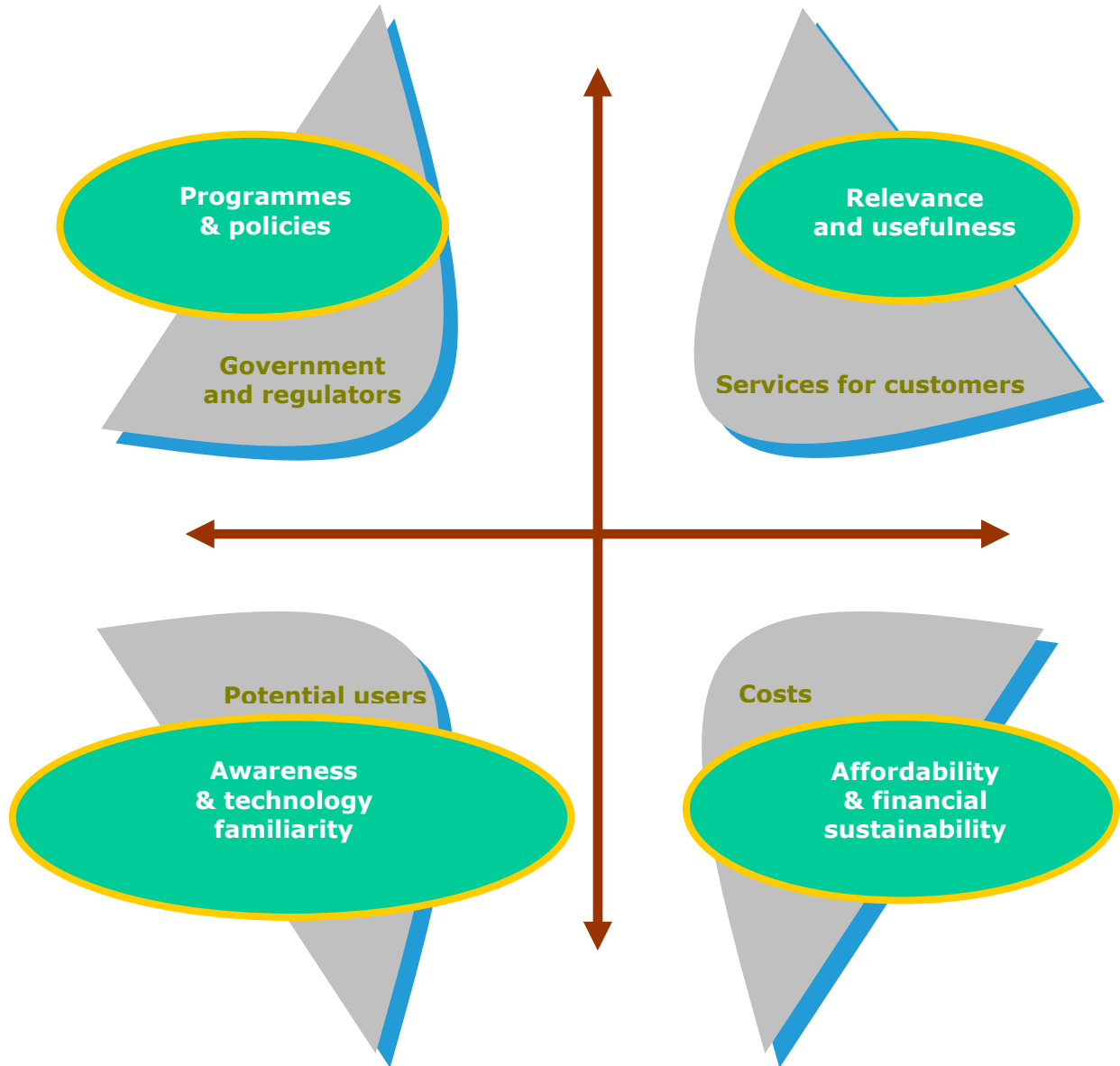
Implementation of the project began with a socio-economic study of the target communities in order to ascertain the community's main characteristics, problems and needs, and available financial resources.

An awareness-raising programme has enabled the community to take over the project, understand its usefulness and importance, and thus better manage the community access point. The project has also sought to make the community more responsible, by entrusting it with ensuring that the project runs well and with the project's subsequent development.

The project's originality also lies in the fact that the community member's problems are expressed and resolved within the local context, in particular with the solutions made possible by use of the community access point for information sharing and skills transmission.

The different points touched on in the above section are illustrated in Diagram 4 below.

Diagram 4 – Key factors for the success of a universality policy (From a presentation by J.-M. Blanchard [2002])



6 Conclusions

Universal access to telecommunication services represents a mammoth undertaking in all countries, be they industrialized or developing. It is a major political and socio-economic challenge.

The prime objective of universal access or service is to provide everyone with affordable, basic telecommunication services. Nevertheless, more and more countries are realizing that universal access/service policies should be flexible and encourage competition. Whatever the policies implemented to extend access to telecommunication networks, their main common objectives remain the incentives they provide for ongoing investment coupled with rapid growth and innovation.

If each State is free to establish its own universal access/service cost evaluation and financing arrangements, in practice this task is entrusted to the regulator. The latter's intervention must be fair and impartial, and must take account of the specific characteristics of each market. This is why the scope and content of universal access/service and obligations attached to it differ from one country to the next.

The telecommunications environment is dynamic and in full growth, which means changes in the definition of and approach to universal access/service. Mechanisms used in the past to finance and manage universal access/service policies are evolving in the light of technological innovation, user requirements and market situations. The new environment calls for new management and financing methods. This report has highlighted a few of them.

Most of the countries studied have common objectives, but the challenges linked to the promotion of universal access/service vary from one country to the next. Whether the objective be universal access or universal service, it is important to identify both short- and long-term objectives and to adopt policies and regulations to make affordable telecommunication services available to as much of the population as possible. This report has therefore endeavoured to highlight key success factors and good practices: political will and sector reform, public-private-civil society partnerships, the involvement of local groups and rural communities, and community access to services.

It is essential to define the principal stages of a universal service and access policy. This is because a universal service and access strategy needs to be reviewed and fine-tuned from time to time in the light of social, commercial and technological developments, if it is to be effective. Once basic measures have been implemented in the telecommunication sector, such as opening the sector up to competition and establishing an independent regulatory agency, it is the responsibility of policy-makers to define specific policy objectives and monitor their implementation by conducting reviews at regular intervals and making any adjustments that may be needed.

Accordingly, the principal stages of a universal service and access policy must be defined: planning, implementation and evaluation. The key tasks involved are defining the scope of universal service and access, ensuring that the price is affordable, seeking out operators that can provide service, calculating the direct costs of providing universal service and access and estimating their indirect benefits, selecting a funding mechanism, and performing management functions.

Policy-makers, regulators and operators will need to develop new competencies as well as the institutional machinery necessary to develop both an appropriate policy and an appropriate strategy.

Setting up an incentive-based regulatory framework will attract investment. Regular, effective regulatory interventions are needed to establish a universal service and access policy. Their function must be to eliminate anything that might impair the efficiency of the market, to quantify the universal access operating deficit, and to establish appropriate conditions for interconnection and/or issue directives with respect to the sharing of revenues.

The universal access policy must be aimed at making services available to as many people as possible. This means that any obstacles standing in the way of investment and the efficient operation of the market must be removed.

Policy-makers and regulators must be given the means to encourage operators to become more efficient so that universal service and access may be offered on as wide a scale as possible. Regulators and policy-makers must also work to ensure that new technologies which can cut costs are adopted.

In regard to finance and management, it is necessary to encourage innovative initiatives, such as:

- self-financing of network development;
- increasing the awareness and responsibility of rural communities in taking over projects;
- systems of licensing for the running of public telephone booths or private telecentres;
- universality funds financed by contributions levied from operators' turnover. Such funds must be administered by an independent body charged with collecting contributions from those operators or suppliers of services that are deemed to be appropriate sources of financial support to help defray the cost of meeting universal service obligations in the country in question.

Annex A

Guidelines

On the basis of an examination of the success factors identified in different countries' experiences of universal access/service, the Rapporteur's Group for ITU-D Question 7-1/1 proposes the following guidelines, which appeared as a contribution to the first phase of the World Summit on the Information Society:

- define consumer needs and rights in order to stimulate usage;
- define the main stages of a universal access and service policy;
- establish a framework conducive to investment;
- make innovations in funding and management.

Defining the needs and rights of consumers, to encourage utilization

In 1996, Pekka Tarjanne, then the Secretary-General of ITU, initiated a project in which several United Nations agencies were to take part, in support of the right to access to communication with a view to providing as many people as possible with access to basic telecommunication and information services. The motivation behind the project was similar to that of the Maitland report, i.e. to overcome the problems of access to resources and unequal access to ICTs as a means of reducing information poverty in developing countries (ITU, 2002).

For this purpose, the concept of universal service and access comprises *both the right to receive service and the right to provide service*. Accordingly, universal service and access policies require the following actions to be undertaken:

- The needs and rights of consumers must be defined in terms of the provision of services and information as well as transparency. Consumers should be able to define the services that they need and can afford¹².
- Effective procedures must be developed for settling disputes between users and operators that provide publicly accessible communication services.
- A users' charter of rights should be drawn up, requiring national regulatory authorities to consult user and consumer groups before taking certain measures. The drafting of such a charter could be included as one of the objectives of the World Summit on the Information Society (WSIS) Action Plan.
- Emphasis should be placed on contracts, ensuring that consumers enjoy a minimum level of legal security in their relations with their operator. Contracts should specify the terms of service, quality of service, procedures for terminating the contract, procedures for terminating service, compensation mechanisms, and dispute resolution procedures.

¹² This point is especially important in the case of telecentres. Experience to date has clearly shown that user involvement in regard to these issues is essential for the success and long-term viability of such facilities (TEMIC, [2002]).

Defining the principal stages of a universal access/service policy

To be effective, a universal service and access strategy needs to be reviewed and fine-tuned from time to time in the light of social, commercial and technological developments. Once basic measures have been implemented in the telecommunication sector, such as opening the sector up to competition and establishing an independent regulatory agency, it is the responsibility of policy-makers to define specific policy objectives and monitor their implementation by conducting reviews at regular intervals and making any adjustments that may be needed.

Accordingly, it is essential that the principal stages of a universal service and access policy be defined: planning, implementation and evaluation. The key tasks involved are defining the scope of universal service and access, ensuring that the price is affordable, seeking out operators that can provide service, calculating the direct costs of providing universal service and access and estimating their indirect benefits, selecting a funding mechanism, and performing management functions.

Policy-makers, regulators and operators will need to develop new competencies as well as the institutional machinery necessary to develop both an appropriate policy and an appropriate strategy.

Establishing an environment conducive to investment

Regular, effective regulatory interventions are needed to establish a universal service and access policy. Their function must be to eliminate anything that might impair the efficiency of the market, to quantify the universal access operating deficit, and to establish appropriate conditions for interconnection and/or issue directives with respect to the sharing of revenues.

The universal access policy must be aimed at making services available to as many people as possible. This means that any obstacles standing in the way of investment and the efficient operation of the market must be removed.

Policy-makers and regulators must implement the means to encourage operators to become more efficient so that universal service and access may be offered on as wide a scale as possible. Regulators and policy-makers must also work to ensure that new technologies which can cut costs are adopted.

Applying innovative measures in regard to finance and management

In regard to finance and management, it is necessary to encourage innovative initiatives, such as:

- self-financing of network development;
- increasing the awareness and responsibility of rural communities in taking over projects;
- systems of licensing for the running of public telephone booths or private telecentres;
- universality funds financed by contributions levied from operators' turnover. Such funds must be administered by an independent body charged with collecting contributions from those operators or suppliers of services that are deemed to be appropriate sources of financial support to help defray the cost of meeting universal service obligations in the country in question.

Annex B

Work schedule of rapporteur's group

Work programme for 2002/2005	Tasks and results
September 2002	Commencement of work and establishment of terms of reference of Rapporteur's Group
December 2002	Information gathering
	Receipt of contributions
17 March 2003	Meeting of Rapporteur's Group in Geneva
September 2003	Meeting of Study Group 1
	Approval of draft annual report for 2002/2003
December 2003	Proposal of training project
	Contribution to World Summit on the Information Society
January 2004	Information gathering
	Receipt of contributions
1 and 2 April 2004	Meeting of Rapporteur's Group in Geneva
29 and 30 April 2004	Contribution to the FRATEL training seminar on universal access/service in Paris (see Annex)
September 2004	Meeting of Study Group 1
	Approval of draft annual report for 2003/2004
9 December 2004	Contribution to Global Symposium for Regulators
January 2005	Information gathering
	Receipt of contributions
21 and 22 March 2005	Meeting of Rapporteur's Group in Geneva
September 2005	Meeting of Study Group 1
	Approval of draft final report
	Approval of new draft definition for Question 7-1/1
December 2005	Presentation and approval of new Question in TDAG
March 2006	Presentation of revised Question at WTDC-06

Annex C

Programme of seminar on universal access/service

Paris, 29-30 April 2004

(Presentation documents can be downloaded from the FRATEL site, at <http://www.fratel.org>)

Thursday, 29 April 2004

Morning

Round table No. 1: The universal access/service issue

The purpose of this introductory round table is for regulators to exchange views on the objectives, strategies and challenges they encounter in determining requirements, uses and services.

Introduction and facilitation: **Prof. Dominique Roux**, Vice-Chairman, FRATEL.

Themes: Evolution and diversity of objectives, strategies and challenges in the face of requirements, uses and services.

Dr Mohamed Ould Dié, Director-General, *Agence de promotion de l'accès universel aux services*, Mauritania.

Mr Oscar Manikunda Musata, Director, Economy and Competition Service, *Autorité de régulation de la poste et des télécommunications*, Democratic Republic of the Congo.

Mr Malick F.M. Gueve, Director-General, *Agence de régulation des télécommunications*, Senegal.

Mr Armin Blum, Head of section: Fixed Networks and Universal Access, OFCOM, Switzerland.

Mr Laurent Gille, Head of Department of Economy, Management and Human Sciences, ENST-Paris.

Exchanges on the definition and objectives of universal access and service facilitated by Prof. Dominique Roux.

Afternoon

Round table No. 2: Financing of cost of universal access services

The purpose of this round table is to highlight the advantages and disadvantages of financing methods (universality funds, taxes, etc.), based on regulators' experiences.

Introduction and facilitation: **Mr Marc Bourreau**, Teacher-researcher in economy and management, ENST-Paris.

Theme: Comparison of financing methods used.

Mr Moctar Traore, Expert, *Comité de régulation des télécommunications*, Mali.

Mr Younous Mahmoud, Administrative and Financial Director, *Office tchadien de régulation des télécommunications*.

Mr Longin Rakotoarivelo, Director of Networks and Services, *Office malagasy d'études et de régulation des télécommunications*, Madagascar.

Mr Sidi Mohammed Drissi Melyani, Head of the Universal Service Division, Operators Directorate, *Agence nationale de Réglementation des Télécommunications*, Morocco.

Exchanges on the advantages and disadvantages of each method, facilitated by Mr Marc Bourreau.

Friday, 30 April 2004

Morning

Round table No. 3: Arrangements for calculating the cost of universal access services

This round table follows on from round table No. 2. Its purpose is to analyse network costs and their calculation arrangements with the aim of introducing universal access/service.

Introduction and facilitation: **Mr Laurent Benzoni**, Professor at Paris II University and founder of TERA Consultants.

Theme: Costs analysis methods used.

Ms Cristina Niculae, Adviser, *Autorité nationale de Réglementation des Télécommunications*, Romania.

Ms Marie-Eve Bondroit Economist Adviser, *Institut belge des services postaux et des télécommunications*.

Mr Laurent Benzoni: Calculation arrangements.

Afternoon

Round table No. 4: Diversity of experiences and new challenges

The purpose of this round table is to put the French-speaking countries' experiences into perspective vis-à-vis other successful experiences or challenges brought to light on one hand by the European Commission, in particular in relation to increasing the membership of the European Union, and on the other by ITU activities.

Introduction and facilitation: **Mr Jean-Francois Soupizet**, assistant chief of the unit responsible for international aspects, Information Society Directorate General, European Commission.


Miss Audrey Baudrier, Rapporteur for universal access/service, ITU-D Study Group 1.

Mr Honoré Vignon, Head of the Universal Access and Rural Communications Unit, International Telecommunication Union.

Exchanges on the experiences and new challenges, facilitated by Mr Jean-Francois Soupizet.

References

- BIPE. *Quels schémas réglementaires pour les pays africains à bas revenus?* [What regulatory structures are appropriate for low-income African countries?]; study prepared for the European Commission, 2000.
- BLANCHARD J.-M. [2002]. *Accès universel aux services de communication: une société de l'information au service du développement*, [Universal access to communication services: an information society in the service of development]. Third Forum on Telecommunication Regulation in Africa. International Telecommunication Union, Ouagadougou, Burkina Faso.
- BOURGUIGNON H., FERRANDO J. [2004]. *Effets concurrentiels d'une obligation de service universel asymétrique* [Competitive effects of asymmetrical universal service obligation]. Claude FOURGEAUD Seminar. *Direction de la prévision et de l'analyse économique*, Ministry of the Economy, Finances and Industry, France.
- CURIEN N., DUPUY. [1996] *Réseaux de communication: marchés et territoires* [Communication networks: markets and territories] *Presses de l'Ecole nationale des ponts et chaussées*, p. 175.
- FRATEL. Report of a seminar on universal service and access held by the *Réseau francophone de la régulation des télécommunications* in Paris, 29-30 April 2004.
- ITU. *World Telecommunication Development Report: Universal access*; “World telecommunication indicators”; 1998.
- ITU. Final report of the Rapporteur’s Group on Question 7-1/1 at the end of the second study period; 2001.
- ITU. World telecommunication regulation database; 2001.
- ITU. *World Telecommunication Development Report*; 2002.
- ITU. *Towards universal access. Strategic approaches in four developing countries*; 2002.
- ITU. Global Symposium for Regulators – Universal Access Best Practices Regulatory Guidelines; 2003.
http://www.itu.int/itu-d/treg/Events/Seminars/2003/GSR/Documents/BestPractices_E_31.pdf
http://www.itu.int/itu-d/treg/Events/Seminars/2003/GSR/Documents/BestPractices_F_31.pdf
http://www.itu.int/itu-d/treg/Events/Seminars/2003/GSR/Documents/BestPractices_S_31.pdf
- ITU. *Trends in Telecommunication Reform 2003: Promoting Universal Access to ICTs, Practical Tools for Regulators*.
<http://www.itu.int/publications/docs/trends2003.html>
- TEMIC. “Universal access and sustainability”. Document 71, World Telecommunication Development Conference (WTDC-02), 2002.
- World Bank. *Telecommunications Regulation Handbook*: Module 6, “Universal service”. Hank Intven, McCarthy Tétrault. InfoDev, 2000.



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