

## I. INTRODUCTION

### I.1 Background and objectives of study

Countries in Latin American have been world leaders in implementing universal access/service programs aimed at increasing access to telephones and the Internet in rural and unserved areas mainly through the implementation of universal access funds operating with a system of minimum subsidy tenders. Such programs have been enacted in legislation in Argentina, Brazil, Chile, Colombia, Ecuador, El Salvador, Guatemala, Nicaragua, Paraguay, Peru, the Dominican Republic, and Venezuela; however, the fund in Argentina is not functioning at all and in Brazil it is doing so only partially. In Mexico there is no universal access fund foreseen in the legislation but a temporary fund has been established to fund “social and rural coverage programs” mentioned in the 1995 telecommunications law. Some of these funds have been very successful and have served as examples for other countries around the world. Other methods which have been and are continuing to be used to ensure universal access include universal service/access obligations imposed on licenced operators and service providers many of whom must in addition contribute to the universal access fund other financing methods such as those of other government departments and non governmental organizations (NGOs) and through deliberate cross subsidization of the state owned monopoly. In addition in most of these countries there are numerous initiatives sponsored and supported by local and foreign NGOs.

The most prolific universal access programs have until now been in Chile, Colombia, Chile, the Dominican Republic, Guatemala, Peru and Paraguay. Together the universal access funds in these six countries have subsidized the installation of nearly 50,000 rural payphones serving some 30,000 population centres. Colombia, Peru and the Dominican Republic have also used these funds to subsidize telecentres and access to the Internet. Close to 5,000 such installations have been subsidized in these three countries. In Argentina other sources of funds were used to build 3,000 telecentres and in Brazil nearly 400,000 payphones have been installed, not from the universal access fund but

as a result of universal services obligations imposed on operators since 1998 when the sector was privatized.

Studies of first-generation, public telephony and telecentre focused programs show that these have had a positive impact by providing a minimum but essential access in remote communities at affordable prices in many of these countries. At the same time these studies have shown that there is a significant demand and willingness even in rural areas to pay for “individual” telephones such as cellular, fixed residential or limited mobility residential access lines. Based on these findings World Bank has, for example, recently provided a credit to Bolivia to extend cellular service to the rural areas using an output-based aid (OBA) scheme whereby service delivery is delegated to a third party (such as a private company or non-governmental organization) under contracts that link the payment of subsidies to the outputs or results achieved in targeting beneficiaries<sup>1</sup>. These studies have, furthermore, shown that many cellular operators in Latin America would be prepared to extend their networks to rural and low-income areas if governments provided appropriate incentives, including OBA-style subsidies, revised tariffs and the right legal/regulatory framework.

An evaluation of the results achieved, progress to date and the findings of the World Bank study has led the 19 members of Regulatel, the Forum of Latin American Telecommunications Regulators (Box I.1) to conclude that a thorough analysis of and reflection on the future direction of universal access programs in the 19 member countries is warranted at this time.

This present study results from an agreement between Regulatel, the United Nations Economic Commission for Latin America and the Caribbean (ECLAC) and the Public-Private Infrastructure Advisory Facility (PPIAF) of the World Bank intended to assist members of Regulatel to develop and implement more effective, targeted and sustainable universal access programs, including output-based aid (OBA) programs, aimed specifically at increasing private sector investment in telecommunications and information infrastructure in rural and

---

<sup>1</sup> An output-based aid (OBA) approach is intended to provide a sharper focus on objectives, improve incentives for efficiency and innovation, enhance accountability for the use of public resources, and create opportunities for mobilizing private financing.

low-income areas in Latin America. An important outcome sought from the study concerned proposed new models for universal access programs and projects.

The study had six specific objectives:

1. Review and assess current and planned universal access programs in the 19 Regulate member countries including programs with universal access funds in terms of their overall impact, satisfaction of demand for the services being provided and the costs and sustainability of the related investments;
2. Evaluate global best practices of universal access programs focusing on those which are most applicable to Latin America;
3. Analyze the demand and supply for telecommunication services in unserved (rural and urban) areas with specific emphasis on services which are in greatest demand, especially, cellular telephones, fixed wired and wireless telephones and Internet access;
4. Develop an analytical framework to assess the current impact, satisfaction of demand, cost effectiveness, and sustainability of universal access programs and to benchmark, monitor and evaluate these programs in the longer-term;
5. Develop a spreadsheet model to estimate the market efficiency and universal access gaps<sup>2</sup> and recommend a new series of universal access programs to have more impact, better serve the demand for service and obtain higher cost/benefit ratios; and

---

<sup>2</sup> The “market efficiency gap” denotes the difference between the current level of service penetration and the level achievable in a well-functioning competitive market under a stable regulatory environment. The “access gap” denotes those situations where a gap between different population groups (urban and rural, high and low income) continues to exist even under efficient market conditions, since a proportion of the population cannot afford the market prices at which the service is offered. The access gap is defined with reference to a specific set of reasonable universal access objectives that can be adapted and customized to specific country objectives.

6. Propose new models of universal access programs to meet the identified demand for telecommunications services in unserved areas of the 19 member Regumatel countries.

## **I.2 Project team and work program**

A extensive team was assembled for this study. It consisted of: (i) the 19 members of Regumatel represented each by a specialist on universal access (Regumatel member contact point); (ii) 11 local consultants who along with the Regumatel member representatives assisted in gathering the necessary qualitative and quantitative information in the 19 member countries, analyzing existing universal access schemes and reflecting and developing new models for universal access; (iii) five specialist consultants who designed and implemented the analytical framework and spreadsheet model to assess the universal access gap and one of which who assisted in assessing current and new technology to provide access at affordable prices; (iv) experts from the World Bank and the United Nations Economic Commission for Latin America and the Caribbean (ECLAC); (v) the Regumatel Presidency and Secretariat and (vii) the lead consultant who was responsible for overall coordination of the study.

Several large and small operators, service providers, suppliers and systems integrators and manufacturers also contributed valuable information and participated in the reflection.

The key milestones in the study included:

- Development of the analytical framework and development and testing a market and access (spreadsheet) gaps model – second quarter 2005;
- Development and testing of a quantitative and a qualitative survey instrument (questionnaires) – second quarter 2005;
- Hiring 11 local consultants and coordinating their inputs to the quantitative and a qualitative survey instruments – second and third quarters 2005;

- Coordinating complementary inputs from Regulateel member contact points – during course of study;
- Meeting with Regulateel “corresponsales” in Lima (Jan/Feb 2005) and Mexico (Feb. 2006) to explain study method and procedures and to discuss preliminary results and seek more information;
- Organization of a workshop on universal access in La Paz, Bolivia (April 2005);
- Establishment of a special project web site – third quarter 2005;;
- Project review meetings at the World Bank in Washington including one with the participation of operators (December, 2004; January 2005; September 2005; May 2006);
- Presentation of initial results to the Regulateel – European Independent Regulators Group Summit in Sintra, Portugal (Nov. 2005);
- An international conference to present and discuss the results in Lima (November 2006)

This report is organized as follows: a brief review of the telecommunications sector in the 19 Regulateel member countries (Chapter II), presentation of the analytical framework used for the study (Chapter III), the results of applying the gaps (spreadsheet) model which was developed as part of this study (Chapter IV); overview of universal access programs and initiatives in Latin America categorized according to the four broad approaches which have been adopted for this study (Chapter V) and the corresponding chapter (Chapter VI), which presents the results, critical evaluates these programs and initiatives and summarizes the best practices in current universal access fund programs; a discussion of innovative strategies for universal access and best practices most applicable to Latin America and a presentation of new models, pilots and key recommendations for universal access projects in Regulateel member countries (Chapter VII); and conclusions and recommendations for future action (Chapter VIII).

There are eight annexes: (1) Summary of recommendations; (2) Analytical framework and gaps (spreadsheet) model; (3) New models and project pilots for universal access in Regulateel member countries; (4) Telecentre models; (5)

Technological overview: wireline and wireless broadband access technologies; (6) Traditional financing instruments for ICT projects; (7) Regulatory provisions of interest; and (8) Comparison of monthly charges for broadband Internet access in Regatel member countries.

### **Box I.1: Members of Regatel**

Argentina, Comisión Nacional de Comunicaciones (CNC)  
Bolivia, Superintendencia de Telecomunicaciones (SITTEL)  
Brasil, Agência Nacional de Telecomunicações (ANATEL)  
Colombia, Comisión de Regulación de Telecomunicaciones (CRT)  
Costa Rica, Autoridad Reguladora de los Servicios Públicos (ARESEP)  
Cuba, Ministerio de Informática y las Comunicaciones (MIC)  
Chile, Subsecretaría de Telecomunicaciones (SUBTEL)  
Ecuador, Comisión Nacional de Telecomunicaciones (CONATEL)  
El Salvador, Superintendencia General de Electricidad y Telecomunicaciones (SIGET)  
Guatemala, Superintendencia de Telecomunicaciones (SIT)  
Honduras, Comisión Nacional de Telecomunicaciones (CONATEL)  
México, Comisión Federal de Telecomunicaciones (COFETEL)  
Nicaragua, Instituto Nicaragüense de Telecomunicaciones y Correos (TELCOR)  
Panamá, Ente Regulador de los Servicios Públicos (ERSP)  
Paraguay, Comisión Nacional de Telecomunicaciones (CONATEL)  
Perú, Organismo de Supervisor de Inversión Privada en Telecomunicaciones (OSIPTEL)  
República Dominicana, Instituto Dominicano de Telecomunicaciones (INDOTEL)  
Uruguay, Unidad Reguladora de los Servicios de Comunicaciones (URSEC)  
Venezuela, Comisión Nacional de Telecomunicaciones (CONATEL)

This report was prepared by Peter A. Stern, Lead Consultant, David N. Townsend, Economic and Policy Analysis, José Monedero, Telecommunications Policy and Trade Specialist with the support of Caio Bonilha Rodrigues, Technology Specialist and Viet Tran, Expert, Forecasting and Market Demand Analysis