**REGIONAL**

**(RESEARCH & DISSEMINATION)**

**MOBILE BROADBAND AND SATELLITE**

**(RG-T2460)**

**TERMS OF REFERENCE**

**BACKGROUND**

**Justification:** Broadband is well known as an enabler of development for countries in the pursuit of economic and social development since it drives economic growth by contributing to the enhancement of the national competitiveness, to the increase of productivity and efficiency, as well as job creation. In recent years, the economic impact of broadband, through its access, adoption and use have brought clear social and economic benefits, which have been substantiated with concrete statistics. It has been estimated that 10 percent growth of broadband penetration would raise GDP of high-income countries by 1.21 percent and that of low-income countries by 1.38 percent.[[1]](#footnote-2) In particular, in the Latin American and the Caribbean (LAC) Region, it is estimated that an increase of 10 percent in broadband penetration, on average, is expected to be associated with the increase of 3.19 percent in GDP; 2.61 percent in productivity and a net generation of more than 67,000 jobs.[[2]](#footnote-3)

This macro impact relies on the various benefits that broadband brings to the economy in terms of improvement in the delivery of education and accessibility to training, promotion of equality and inclusion of rural or vulnerable communities, support to civil disaster relief, remote medical assistance (known as ‘telemedicine’), increasing competition and social cohesion and interaction.[[3]](#footnote-4) These advantages lead the governments to announce significant broadband development programs in order to take advantage of the new and different technologies that are available.

Countries have been trying to develop a wide range of measures to foster the so-called “information economy”, which is heavily dependent on access to a fast and high quality Internet. An example of these measures is the national broadband plan, a diverse set of initiatives of national governments in LAC developed in recent years, whose main objective is to accelerate the access, adoption and use of broadband services. Countries such as Brazil, Costa Rica, and Panama (developed with the support of the Bank) already have their national broadband plans. Other countries such as Mexico, Nicaragua and Bolivia are currently in the process of developing their respective broadband plan (the three countries are receiving the support of the Bank to that goal).

Despite these efforts, countries of Latin America and the Caribbean faced a triple digital divide. According to the International Telecommunications Union, the average penetration rate of fixed broadband services in the LAC Region is below 5 percent. When we compare this figure with the penetration rate in other countries such as Denmark or Korea, where the penetration rate is around 40 percent, the disparity is clear (first digital divide). Moreover, substantial heterogeneity can be also observed when we compare penetration rates within the LAC Region (second digital divide). Indeed, there are wide differences between countries, for instance, whereas Barbados has a penetration rate above 20 percent, in Honduras or Guatemala it reaches only 1 percent. Even within each country there is a gap between those with and without Internet access (third digital divide). In Brazil, for example, 60 percent of households in the wealthiest income quintile report access to the Internet whereas less than 3 percent of households in the poorest income quintile have access to the Internet.

The causal factors that explain the problem behind the digital divide can be summarized from three perspectives: (i) access (lack of infrastructure); (ii) adoption (low quality, high prices and lack of access to devices); and (iii) usage (low digital literacy). In terms of access, countries in LAC face a major challenge in achieving universality by bringing the infrastructure to underserved areas, where it is very unlikely to have the private sector deploying infrastructure. This is explained by the fact that these regions are quite challenging from technical and economic points of view due to various reasons including: (i) they are very remote areas where is highly costly to bring infrastructure; (ii) the locations have an orography where it is very difficult or highly costly to deploy other technologies; and (iii) they are low density population areas. In those circumstances, the satellite broadband technology is ideal because satellite infrastructure is the only broadband technology that provides full coverage in metropolitan, as well as rural or more remote areas (including oceans and polar zones).

Countries in the Region have already been using satellite to tackle the aforementioned problem. For instance, Bolivia launched last December their own satellite “Tupac Katari” that will provide broadband connectivity to facilities such as telecenters, schools, health centers and government offices, among others.

Despite these facts, the Region still lacks a holistic framework around satellite technology that covers technical aspects for usage, public policy and regulation, and more importantly, that is tailored to the specificities of the LAC Region. This is why the Bank aims to support the governments of the Region to understand the specific terms and conditions under which alternative technologies such as satellite technologies may be a viable option to achieve the goal of universality.

**OBJECTIVES OF THE PROJECT**

The project will build on existing International Telecommunications Satellite (ITSO) work and expertise on satellite technology. The objective of this project is to create awareness about satellite broadband and provide recommendations on how it may be used by countries of Latin America and the Caribbean Region as an additional technological option to bridge the connectivity gap in underserved remote areas.

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**ACTIVITIES OF THE PROJECT**

The tasks included within this Project are articulated around the following components:

1. Component 1: Market/ Benchmark study
2. Component 2: Feasibility Study/ Gap Analysis
3. Component 3: Dissemination

**Component 1: Market/ Benchmark study.** The objective of this component is to identify the key drivers to successful implementation and uptake of satellite services, both on the supply and demand side. The market research will aim at understanding in detail how technology, infrastructure, public policies and regulatory environments affect the roll out of satellite services based on a research in 4 to 5 leading countries where satellite technology was implemented successfully. It will also analyze the necessity of complementary infrastructure and utilities such as electricity.

Working with satellite operators and the broader mobile Internet ecosystem, the research will produce key insights, lessons learned, thought leadership, case studies and replication examples to share across multiple platforms with the mobile Internet ecosystem.

**Component 2: Feasibility Study/ Gap Analysis.** Based on the findings from the research in Component 1, this Component will conduct a gap analysis in the region by identifying the gaps in service and giving the recommendations and correlating actions that would be necessary to ensure the successful implementation of satellite projects in the market place. Moreover, the study will include implementation plans to expand and improve satellite broadband penetration in selected countries, where appropiate. The project will bring together the satellite operator members and the broader Internet ecosystem to address these recommendations and provide relevant intelligence and analysis, driving collaboration, and knowledge sharing for the successful implementation of projects within markets.

To achieve these goals, the analysis will be conducted in 4 to 5 LAC countries. The criteria of selecting the countries will be the following:

* **Impact on development:** countries where satellite technology can have a significant technical and economic impact. At least one vulnerable country needs to be included.
* **Diversity:** the countries chosen need to be sufficiently diverse, in terms of institutional framework, broadband development, cultural factors, and so forth.
* **Implementation:** the selection will include those countries that show eagerness to take into account recommendations. Countries where the firm and/or the Bank have an established, reliable institutional network will be preferred over others.

The final selection will be the result of the agreement between the firm and the IDB.

**Component 3: Dissemination.** The firm is expected to support the Bank in the dissemination of the knowledge product in any of its forms (e.g. workshops, events, promotion on the Broadband Platform, the blog).

It is important to note that the intellectual property of the study remains solely at the Bank.

**DELIVERABLES OF THE PROJECT**

The expected deliverable is:

**A publication on “Satellite Technology and the Provision of Broadband Services in LAC” (as a deliverable of Components 1and 2):** this will cover the role of satellite technology in the provision of broadband services with a specific focus on LAC countries and will explore specific applications of satellite broadband.

The publication will be structured as follows:

* Introduction
* Review of other countries’ best practices around the following axis: technical aspects, economic aspects, policy and regulatory aspects, applications
* Role of Satellite Technologies for the Provision of Broadband Services
  + Policy and Regulatory Environment
  + Technical Aspects
  + Economic Aspects
  + Advantages & Limitations
  + Specific Applications using Satellite
* Gap analysis on 4/5 LAC countries according to the axis above
  + Gaps around the already mentioned axis: technical aspects, economic aspects, policy and regulatory aspects, applications
  + Recommendations
  + Roadmap with timing and budget for the recommended actions and projects
* Conclusion

**PAYMENT SCHEDULE**

1. 30% upon contract signature;
2. 30% upon delivery of an intermediate draft;
3. 40% upon delivery of the final report, which will consider the IBD team comments

**COORDINATION**

The supervision and coordination of this consultancy will be the responsibility of Felix Gonzalez Herranz (IFD/ICS), Team Leader of this operation, [felixg@iadb.org](mailto:felixg@iadb.org), tel. (202) 623-1296.

**CHARACTERISTICS OF THE CONSULTANCY**

* **Type of consultancy:** Firm
* **Starting date and duration:** July 1st, 2014, 12 months.
* **Working place/travels:** The work may be conducted at ITSO’s headquarters and may involve travel if it is necessary to accomplish the goals and quality of the study.
* **Qualifications:** This Project will be conducted by a valuable partner that is the ITSO in coordination and cooperation with the project team of the Bank. The selection of this prestigious partner is justified based on ITSO’s outstanding qualifications and reputation for delivering quality services and research, and for its relevant experience on satellite technology. Additionally, the Bank will facilitate interaction, when necessary, between the ITSO and the relevant stakeholders in the region and will also co-elaborate the different analysis and studies.

The International Telecommunications Satellite Organization (ITSO) is the ideal partner to undertake this project for the following reasons:

* + Outstanding experience in satellite technology with presence in 149 countries and serving 200 countries and territories. <http://www.itsointernational.org/>
  + ITSO has been an efficient catalyst for global cooperation in satellite technology, and it has been influential in connecting developing countries to the global economy and enhancing the competitiveness of their economies.

1. World Bank, 2009. [↑](#footnote-ref-2)
2. García-Zaballos, A. / López-Rivas, R.: Governmental control on socio-economic impact of broadband in LAC countries. IDB, 2012. [↑](#footnote-ref-3)
3. Broadband may lead to development of a new model of education and health, while they could get substantial efficiency improvements in its processes, which would lead to lower costs while enabling disadvantaged areas closer to education and health. McKinsey & Company points out that those SMEs that are intensive Internet users improved their productivity by 10 percent, which is reflected in sales and cost savings. Moreover, the firm concluded that small and medium sized companies that made heavy use of the Internet in business relationships grew twice as fast as those that did not. In addition to the impact of ICT in education, health and productivity / competitiveness of enterprises, there are examples of how ICTs can improve traffic, assist in natural disasters, or monitor certain public services (sewer, electricity, air and maritime transport , etc). Moreover, for the ordinary citizen, the use of ICT services in both their personal lives and in their careers (electronic payment of value added tax, electronic transactions, information search,) helps to reduce the number of transactions needed, increasing productivity and quality of life. [↑](#footnote-ref-4)