TECHNICAL COOPERATION DOCUMENT (TC)

BOLIVIA

I. BACKGROUND

Country:	Bolivia
TC Name:	Development of a broadband plan and the regulatory environment to accelerate broadband penetration, adoption and use
TC Number:	BO-T1192
Team Leader/Members:	Antonio García Zaballos (Team Leader, IFD/CTI); Matteo Grazzi (CTI/CCO); Claudia Suaznabar (CTI/CPE); Claudia Stevenson (IFD/CTI); Emilio Laguillo (Consultant); Claudia Salazar (Consultant); and Cecilia Bernedo (IFD/CTI).
TC Taxonomy:	Client Support
Reference to request:	IDBDocs#37385166
Date of TC Abstract authorization:	7 December, 2012
Donors providing funding:	TBD
Beneficiary:	Bolivia - Ministry of Public Works, Services and Housing
Executing agency and contact name:	Inter-American Development Bank (IDB)
IDB Funding Requested:	IDB: US$750,000
Local counterpart funding:	Local: US$ 0
	Total: US$750,000
Execution period:	18 months **Disbursement period:** 21 months
Required start date:	7 February 2013
Types of consultants:	Firm and individual consultants
Prepared by Unit:	Division of Competitiveness, Technology and Innovation (IFD/CTI)
Unit of Disbursement Responsibility:	IFD/CTI
TC included in Country Strategy:	N/A **TC included in CPD:** Yes
GCI-9 sector priority:	Mentioned under current sector strategies: "Support Competitive Global and Regional Integration", and "Institutions for Growth and Social Welfare".

II. OBJECTIVES AND JUSTIFICATION OF THIS TC

2.1 There is evidence that the acceleration of broadband penetration, adoption and effective use brings clear social and economic benefits. In particular, it is estimated that increases of 10% in broadband penetration in Latin American and

Caribbean (LAC) countries, on average, have associated increases of 3.19% in GDP, 2.61% in productivity and a net generation of more than 67,000 jobs[1].

2.2 Bolivia is one of the countries in the LAC region that faces the greatest challenges to effectively harness the benefits brought about by broadband connectivity, as it is characterized by: (i) low levels of penetration, with only 3 lines per 100 inhabitants adding both fixed and mobile broadband penetration versus an average of 6,24 lines per 100 inhabitants in LAC and 30 lines per 100 inhabitants in OECD countries[2]; (ii) low broadband quality, in terms of speed, averaging 256 kbps for fixed broadband versus 3.7 Mbps in LAC and 19.9Mbps in OECD countries[3], and (iii) very high prices, where the average plan costs nearly US$300 PPP per Mbps, while the average cost for LAC and OECD countries is US$53.17 and US$7.26 PPP per Mbps[4] respectively. Not surprisingly given this context, the use of ICTs in Bolivia is also low compared to international standards[5].

2.3 In this line, the main barriers found in Bolivia to increase broadband penetration, adoption and use are: (i) limited awareness of the benefits that broadband and ICTs have particularly regarding their potential for innovation and competitiveness in sectors such as health, education, government, trade, finance and SMEs, as well as a general lack of skills for their adoption by public officials, policy makers, entrepreneurs and citizens,; (ii) insufficient institutional capacity and lack of a governance model to design, implement and monitor specific policies promoting the adoption and effective use of ICTs for all the population; (iii) outdated regulatory frameworks that fail to adequately attend the recent evolution of the telecommunications sector; (iv) inadequate deployment of infrastructure and technology with scarce participation by the private sector in the investment and provision of technology; and (v) lack of reliable, measurable and updatable data to monitor and evaluate ICT policies, the regulatory situation, the level of infrastructure deployment and the prevalence of ICT applications and services.

2.4 The Government of Bolivia has recognized the importance of addressing these challenges, and has embarked in a process of deploying satellite technology to provide additional mobile broadband connectivity in the country. However, the effective social and economic returns of this investment, and others that may come, depend on the Government's ability to overcome the barriers described above.

2.5 In light of the many challenges observed to promote broadband in Bolivia, particularly regarding the lack of understanding of the broadband status quo given the absence of appropriate data, the Government requested technical and financial support from the Inter-American Development Bank (IDB) to address these issues through this technical cooperation and a subsequent loan operation (BO-L1091) Broadband Improvement Program, currently in pipeline for 2014 for

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1 García-Zaballos, A. / López-Rivas, R.: Governmental control on socio-economic impact of broadband in LAC countries. IDB, 2012.

2 ICT World Indicators Database, International Telecommunications Union (June, 2012)

3 Galperín, H.: Broadband prices and quality in Latin America (2012).

4 Ibid.

5 According to the ICT utilization indicator by the World Economic Forum (2012) usage by government, businesses and individuals is well below the average levels found in LAC and OECD countries.

US$50 million. This technical cooperation will support technical work to be carried out for the design of broadband policy and regulatory frameworks as well as other activities for the preparation of the upcoming related loan proposal.

2.6 **Objectives of the project:** The goal of this Technical Cooperation (TC) is to provide support to the Bolivian government in the process of promoting broadband universalization in terms of access and services, taking into account the efforts that the government is already making in the deployment of other networks such as the new satellite. In addition, the results derived from this TC will inform the process of structuring and defining a related loan operation for Bolivia.

III. DESCRIPTION OF ACTIVITIES

3.1 The activities proposed in this project are divided into five main components, which define its strategic approach. Component 1 will kick-start the project in a regional workshop for Andean countries; component 2 will include a diagnostic and analysis of the supply and demand for broadband services in Bolivia and the infrastructure requirements to meet the existing access gap. Subsequently, and based on the information gathered in this analysis, component 3 will propose a national broadband plan and its corresponding governance model and component 4 will review and propose updates to the regulatory framework and legislation in order to promote the necessary investment and boost broadband development. Finally, these inputs will be considered in the implementation of component 5, where support will be provided in the preparation of a related loan operation.

3.2 **Component 1: Regional workshop to present the case of broadband in Bolivia and to identify how to promote regional integration among Andean countries**. The objective of this component is to increase awareness among policy makers and private sector actors of the importance of developing broadband in the region, bringing together private and public sector stakeholders to discuss the main challenges in terms of broadband. Specifically, the following aspects will be covered: (i) identification of public policies and its corresponding governance models to accelerate broadband penetration and effective use in the region; (ii) analysis of the status quo in the Region in terms of regulation and especially in terms of radio-electric spectrum and the effective use of Universal Access and Service Funds; (iii) identification of public-private partnerships for the sustainable deployment of telecommunications infrastructure; and (iv) identification of success stories in the use of ICT in strategic sectors.

3.3 **Component 2: Diagnostic and Analysis of alternative infrastructure for broadband deployment.** The objective of this component is to conduct a feasibility study to determine the required investments that will enable the government to move towards universal access and service of broadband in Bolivia. This activity includes:

(i) a diagnostic of the access gap in the country, specifically the gap between supply and demand and how this gap may be bridged through appropriate State policy.

(ii) design of a bottom-up model that, based on the geographic and socio-economic characterization of the country, estimates the costs associated with the networks' deployment per type of technology, and that takes into account the availability of satellite technology; and

(iii) analysis of the economic return associated with the different alternatives for deploying broadband networks (FTTx, HFC, WiMAX, 3G, among others), taking into account the different deployment scenarios (high-density urban areas, urban, and rural). An estimation of the Net Present Value (NPV) associated with the investment is required, which implies an estimation of the expected demand for services; the operative break-even point, defined as the minimum number of lines or the minimum service penetration that make the deployment economically viable; and of the price levels associated with the different types of services.

3.4 **Component 3: Development of a national broadband plan and its corresponding governance model.** The objective of this component is to support the design of the appropriate policies and strategy to foster broadband supply, enabling universalization in access and service provision, and promoting demand for connectivity, through a close collaboration between the public and private sectors. This component includes the following activities:

(i) revision of the existing policies in terms of connectivity and digital agenda;

(ii) design of supply-side actions, prioritizing the following areas: investments in backbone and last mile infrastructures, spectrum management and tariffs affordability;

(iii) design of demand-side actions, emphasizing the following areas: mass supply of terminals, public access to ICTs (through Tele-centres and other shared access venues), digital alphabetization, and development of applications and contents in strategic sectors such as health, SMEs and local governments, among others;

(iv) elaboration of an implementation chronogram with goals and an estimated budget; and.

(v) workshops to collect, validate and disseminate results with key stakeholders.

3.5 **Component 4: Revision of the regulatory framework.** The objective of this component is to revise and propose updates to the regulatory framework and legislation in order to boost broadband development. This component is particularly relevant as the decision of investing in the deployment of access infrastructures by the private sector requires a stable and predictable regulatory framework that creates the conditions to facilitate investments, thus promoting universality in access. This component includes the following activities:

(i) revision of the regulatory framework paying special attention to aspects associated with radio-electric spectrum and universal service;

(ii) definition of a national frequency allocation table and a methodology to price the different frequency bands through the undertaking of surveys and the collection and collation of frequency usage information;

(iii) design of an implementation plan for the digital switch over;

(iv) elaboration of a proposal to modify the existing legislation and to develop new and up to date legislation, defining the steps required for its implementation; and.

(v) workshops to validate and disseminate results with key stakeholders.

3.6 **Component 5: Support the preparation of a related loan operation.** The objective of this component is to support the preparation of additional environmental, institutional and administrative studies that will support the preparation of the loan proposal (BO-L1091) Broadband Improvement Program. This component includes the following activities:

(i) elaboration of environmental and social impact studies related to the proposed infrastructure investments;

(ii) carry out a study to design the execution and governance mechanism for the loan operation;

(iii) preparation of administrative, financial and technical inputs for the preparation of the loan operation; and

(iv) workshops to validate results from all studies with stakeholders, including, among others the results matrix and the risk matrix.

3.7 **Expected outputs:** In particular, the project will provide technical assistance to:

(i) International workshop to raise awareness regarding broadband issues and support coordination at a national and regional level;

(ii) diagnostic of the connectivity gap between supply and demand;

(iii) study to identify broadband infrastructure requirements in Bolivia and the economic return associated to its deployment, according to different technologies and geographic areas;

(iv) National Broadband Plan, including an action plan to foster supply and demand and an implementation chronogram with goals and an estimated budget;

(v) proposal to update specific legislation to improve the regulatory framework; and

(vi) studies Support the design of a related loan operation in Bolivia.

3.8 **Expected results:** As a result of this project, the Bolivian government will have a better understanding of the current status of broadband in the country, as a necessary initial step to design appropriate policies and regulations aimed at accelerating broadband penetration, adoption and use in the country. As follow-up this TC, a loan proposal will be elaborated in collaboration with the government to enable the implementation of the resulting recommendations of this TC. Ultimately, a greater penetration of broadband connectivity is expected to increase competitiveness and social inclusion, and facilitate greater economic interaction of Bolivia with external markets, thus, contributing to the consolidation of commercial regional and global integration.

Table 3.1: Indicative matrix of the results

Suggested indicator	Measurement Unit	Baseline	Target at the end of the TC
Output Indicators:			
Component 1: No. of relevant stakeholders with increased awareness and on trends, challenges and possible solutions related to broadband development.	No. of participants	0	15
Component 2: -- Diagnostic of the connectivity gap between supply and demand in Bolivia - Study to identify broadband infrastructure requirements in Bolivia and the economic return associated to its deployment	No. of Documents	0	2
Component 3: National Broadband Plan, action plan and governance model	No. of Documents	0	1
Component 4: Proposal to update specific legislation to improve the regulatory framework	No. of Documents	0	1
Outcome Indicators:			
Increased government awareness and understanding of the current status of broadband in the country and additional related action to accelerate the penetration, adoption and use of broadband services.	No. of citations of the TC products in national government strategic documents	0	3

Table 3.2: Budget of reference

Activities	Description	IDB	Total
Component 1: Discussion on broadband challenges and how to advance regional integration with other Andean countries.	Consultancy: Development of a workshop to identify challenges and actions at the national and regional levels to accelerate broadband penetration, adoption and use.	75,000	75,000
Component 2: Analysis of the alternatives for broadband deployment	Consultancy: estimation of the required investment in infrastructure to achieve universality in access and service light of the existing deployment	300,000	300,000
Component 3: Development of a national broadband plan and the corresponding governance model	Consultancy: identification of actions to promote supply and demand to accelerate the penetration, adoption and use of broadband services in Bolivia, and development of the governance model that allows its effective execution.	150,000	150,000
Component 4: Revision of the regulatory framework	Consultancy: Revision and improvement of the existing regulatory framework in Bolivia in terms of radio-electric spectrum and universal access, specifying the roadmap for the analog switch-off	150,000	150,000
Component 5: Support the preparation of a related loan operation	Consultancy: Undertake additional economic, financial, technical and environmental analysis, as required, for the definition of a related loan proposal.	50,000	50,000
Contingences		25,000	25,000
Total		**750,000**	**750,000**

IV. EXECUTING AGENCY AND EXECUTING STRUCTURE

4.1 In response to the petition from the Ministry of Public Works, Services and Housing, the executing agency will be the IFD/CTI Division, which will operate in coordination with the staff of the Ministry and of other involved institutions (telecommunications regulator and Bolivian Spatial Agency).

V. PROJECT RISKS

5.1 This project presents two risks that could affect the impact, quality or sustainability of the expected results: (i) lack of institutional capacity in the Ministry; and (ii) that the results of the project are not taken into account to increase broadband connectivity due to a lack of formal commitment to undertake regulatory and policy reform and deploy additional infrastructure once the project is finished.

5.2 The first risk will be mitigated by the fact that the project will be executed by the IFD/CTI Division, as per the government's request. In addition, the project will include a monitoring process throughout the implementation of the project to allow for the different Bolivian institutions to get involved from the beginning to the end of the project.

5.3 The second risk is mitigated by the fact that in response to the interest presented by the government to the Bank, a related loan operation has been registered for the pipeline for the year 2014. This technical cooperation will facilitate the identifications of the specific components to be included in the referred operation, according to the needs of the government in terms of software and hardware.

VI. EXCEPTIONS TO THE POLICY OF THE BANK

6.1 There are no exceptions to the policy of the Bank.

VII. ENVIRONMENTAL STRATEGY

7.1 Given that the current TC revolves around a study, there are no social or environmental risks associated with it. This operation is classified as a Category "C" according to the classification toolkit of the Bank (see the link: IDBDocs#37389422).

Annexes:

- **Annex I: Government Request Letter**
- **Annex II: Terms of Reference (ToR)**
- **Annex III: Procurement Plan**