

REGIONAL

BROADBAND INFRASTRUCTURE INVENTORY AND PUBLIC AWARENESS IN THE CARIBBEAN (RG-T2212)

TERMS OF REFERENCE

I. BACKGROUND

- 1.1 Justification.** There is ample literature, experiences and studies that provide evidence of the critical role that broadband Internet plays in economic and social development. It is estimated that a 10% rise in market penetration of broadband services in the LAC region is correlated to average increases in GDP of 3.2% and a boost in productivity of 2.6%.¹ Moreover, in addition to widespread access to broadband, an effective use of services, information and applications by the population is fundamental to harness the potential benefits of broadband, thus digital literacy and awareness of the importance of ICTs are also key requirements to ensure a country's full participation in the new digital world.
- 1.2** Broadband Internet penetration can be measured as the sum of fixed and mobile broadband subscriptions in a country.² According to statistics published by the International Telecommunication Union (ITU)—ICT World Indicators, 2011—the penetration rate of fixed broadband services in the Caribbean Region ranges from less than 2% in Guyana and 11% in Trinidad and Tobago to 21% in Barbados. In terms of mobile broadband, although penetration is still low in the Caribbean and in most developing countries—with a penetration of 8% in developing countries versus 51.3% in developed countries—the fact that the cellular mobile penetration rate is above 60% in all participating countries provides great potential to accelerate the penetration rate and usage of mobile broadband services in the Caribbean Region.
- 1.3** Among the main barriers to broadband penetration in the Caribbean are: (i) lack of awareness and understanding among some public officials, business people and the public at large about how ICTs can contribute to generate economic growth and stimulate innovation in sectors such as health, education and trade; (ii) insufficient institutional capacity to design, implement and monitor specific policies that may foster the use and adoption of ICT at all levels of society; (iii) inadequate regulatory frameworks that have not kept pace with major trends in the industry, particularly the convergence of services, network platforms and applications that have come to characterize the consumption pattern of consumers

¹ Garcia-Zaballos, A / Lopez-Rivas, R: Governmental control on socio-economic impact of broadband in LAC countries, working paper.

² Total fixed (wired) broadband Internet subscriptions include technologies such as cable modem, DSL, fibre-to-the-home/building and other fixed (wired) broadband subscriptions. Total wireless broadband subscriptions include the sum of satellite, terrestrial fixed wireless and terrestrial mobile wireless subscriptions. Definitions of World Telecommunication/ICT Indicators, International Telecommunications Union (ITU), March 2010.

- regionally and worldwide³; (iv) lack of understanding of the implications that variances in socio-demographic and economic conditions between urban and rural areas have in broadband availability and usage, as well as an under-appreciation of how current gaps suppress economic and social development in under-served areas; (v) scarcity of data to allow governments to track and measure the economic and social impact of ICTs in each country, and (vi) absence of geographic information on broadband penetration and services in the region.
- 1.4 In light of the many barriers observed in the region, and as a result of the exchange of information and discussions held at the Caribbean Broadband Forum organized jointly by Caribbean Association of National Telecommunications Organizations (CANTO) and the IDB on November 7, 2011, participating Ministers from the Region expressed their interest in addressing these challenges in a coordinated manner. To this end, the Ministers requested the preparation of a study to identify an inventory of the existing broadband infrastructure in the participating countries, and practical guidelines for the ubiquitous implementation of broadband access technologies in an efficient manner that is consistent with globally adopted standards and international best practices.
- 1.5 In response, the Bank designed a Technical Cooperation (TC) of regional public good to support the Caribbean Region as it evolves towards universality in broadband access and service, regardless of the location (ubiquity) or the social strata (equity). The products and tools to be elaborated in the framework of this project will inform policy makers and regulators in the Caribbean in the design of national broadband strategies, which will be designed taking into account regional considerations to facilitate coordination to further promote the sector.
- 1.6 Specifically, the TC is composed of four components: (i) broadband diagnosis and infrastructure maps; (ii) review of regulatory and institutional frameworks and current sector trends; (iii) ICT awareness and capacity building in the Caribbean; and (iv) regional public policy recommendations for the design of national broadband strategies.
- 1.7 These terms of reference define the required background and expertise, as well as the objectives, activities and the products to be carried out and delivered by a Consulting Firm or Institution hired in the framework of the TC.

COMPONENT 1

II.

CONSULTANCY OBJECTIVES

- 1.1 The main objective of this consultancy is to develop a broadband diagnosis per country and a series of broadband infrastructure maps for all Caribbean countries

³ Examples of convergence in the telecommunications sector include mobile phones with video, radio and Internet connection, and radio over TV platforms.

(component I of the TC RG-T2212). The objective of this component is to improve data availability and understanding of the current state of broadband infrastructure in the region, which will inform the design of public policy recommendations, which seek to support governments in identifying the level of intervention necessary to achieve universality in access and broadband services, and when and where public-private partnerships are needed.

III.

CHARACTERISTICS OF THIS CONSULTANCY

1. **Type of consultancy:** Firm
- 1.2 **Start date and duration:** from X, to X, 2012.
- 1.3 **Place of work /travel:** Place of residence. Travel required. During this period, the firm is expected to participate in a total of two (2) coordination meetings with IDB Specialists in Headquarters (Washington DC) and (2) presentation meetings with government representatives and CANTO.
- 1.4 **Qualifications:** The firm will have extensive experience in the telecommunications sector, with Senior team members involved in projects in LAC and other developing regions. Specific domain of domestic and international broadband infrastructure and tools to represent them is required. The firm must have a proven capability to deliver detailed and accurate diagnosis reports, particularly as the results of Component 1 will serve as critical inputs for the development of other components in the framework of this TC.
- 1.5 **Source of funding:** RG-T2212 / ATN/OC-13544-RG

IV.

ACTIVITIES AND PRODUCTS

1. The activities to be undertaken by the consulting firm contracted refer to one of four components to be developed in the framework of this project, which define the strategic approach of this technical cooperation. The activities to be undertaken and the products to be delivered under component 1 of this project are as follows:
2. **Component 1 - Broadband diagnostic and infrastructure maps.** The objective of this component is to improve data availability and understanding of the current state of broadband infrastructure in the region. The following activities will be undertaken:
 - a. Detailed broadband diagnosis and infrastructure maps. The mapped infrastructure should not be limited to broadband, and should also include

- current infrastructure from other utilities (i.e. telecom, gas, electricity, and water), in order to identify opportunities to facilitate further broadband deployment.
- b. Identification of country-specific socio-demographic variables, such as population distribution by age and income levels, as well as market variables such as the number of operators and prices, which have an effect on broadband deployment.
 - c. Classification of geographic areas based on their penetration rates, specifically identifying those that are subject to broadband deployment through a mix of public-private investments, and where available infrastructure from other utilities may facilitate deployment.
 - d. The conclusions and observations derived from the above will be included in a document containing public policy recommendations for each Government on how to accelerate the penetration rate and usage of broadband services in the country, and how they may bridge the gap between areas with high penetration rates and those with low penetration rates.
 - e. A workshop to present the results of this component will be held in one of the beneficiary countries.
3. The knowledge and tools developed under this component - specifically the diagnosis, the broadband maps and the final recommendation documents for each country - will facilitate the design of public policies, and allow governments to identify the level of intervention necessary to achieve universality in access and broadband services, and when and where public-private partnerships are needed. This component is a critical input for the design of broadband strategies contemplated under component 4 of this TC.
4. **Products:**
- a. Broadband diagnosis of available infrastructure and related maps for all participating Caribbean countries in the Regional Public Good, including broadband infrastructures and that of other utilities.
 - b. An analysis of country-specific socio-demographic variables, and a classification of geographic areas based on their penetration rates.
 - c. Development of a document for each country, explaining the conclusions and observations derived from the above activities. The document shall contain public policy recommendations for each Government on how to accelerate the penetration rate and usage of broadband services in the country.
 - d. Production of appropriate communications materials to be presented by the firm in a workshop to be held at the end of the project, where the results of the research will be discussed and disseminated.

Please note that the Method of Payment and Coordination paragraphs shown below also hold for Components 2 through 4 on pages 6 to 13.

V.

METHOD OF PAYMENT

- 1.1 Payment will be made as per the following schedule, upon approval by the Team Leader responsible for this TC (See item VI below).
- 1.2 **Schedule of payments:**
 - a. 30% upon contract signature;
 - b. 30% upon approval of draft report, and
 - c. 40% upon approval of final report

VI.

COORDINATION

- 1.4 Supervision and coordination of the consultant's work will be the responsibility of CANTO as Executing Agency and will be approved by Antonio García Zaballos (IFD/CTI), Telecommunications Lead Specialist, antoniogar@iadb.org, telf. (202) 623-2980.

COMPONENT 2

I.

CONSULTANCY OBJECTIVES

- 1.1 The main objective of this consultancy is to identify major obstacles in the regulatory and institutional frameworks and provide legal, operational and organizational recommendations to address them. The proposed amendments (regulatory and institutional) will support the drafting of new legislation in Region and assist the countries as they move towards a harmonized regulatory framework in key aspects related to access, interconnection, spectrum and affordability in prices. Additionally, an up-to-date regulation that responds to the changes observed in the sector will support governments' efforts to leverage private sector investment to accelerate broadband infrastructure deployment in the Caribbean.

II.

CHARACTERISTICS OF THIS CONSULTANCY

- 1.1 **Type of consultancy:** Firm

- 1.2 **Start date and duration:** from X, to X, 2012.

Place of work /travel: Place of residence. Travel required. During this period, the firm is expected to participate in a total of two (2) coordination meetings with IDB Specialists in Headquarters (Washington DC) and (2) presentation meetings with government representatives and CANTO.

- 1.3 **Qualifications:** The firm will have extensive experience in the telecommunications sector, with Senior team members involved in projects in LAC and other developing regions. Specific domain of domestic and international ICT regulation, especially concerning broadband, is required. The firm must have a proven capability to deliver detailed and accurate recommendations and of understanding sector trends, as the results of this component will serve as critical inputs for the development of other components in the framework of this project.

- 1.4 **Source of funding:** RG-T2212 / ATN/OC-13544-RG

III.

ACTIVITIES AND PRODUCTS

- 1.1 The activities to be undertaken by the consulting firm contracted refer to one of four components to be developed in the framework of this project, which define the strategic approach of this technical cooperation. These terms of reference

define the activities to be undertaken and the products to be delivered under component 2 of the project.

1.2 **Component 2 - Review of legal and regulatory frameworks and current sector trends.** The objective of this component is to review the existing regulatory and institutional frameworks of the telecommunications sector in each country. The following activities will be undertaken:

- a. Review the current regulatory framework for the telecom sector in each country, particularly the Telecommunications Law and the associated decrees on access, pricing, interconnection, tariffs, spectrum and universal service, in close consideration of current sector trends.
- a. Proposed revisions to the regulation should be made considering the major challenges faced by the Region in light of current trends in the telecommunications sector, such as: (i) convergence of services, applications and devices; and (ii) the need to deploy new infrastructure to address the growing demand for speed (quality) of broadband services and applications. In addition, recommendations will seek to increase the level playing field for sector competition in the Region.
- b. Review the institutional framework in each country, highlighting the way in which the different institutions involved in the sector may work together to support the future implementation of a broadband strategy. The role of the regulator(s), appropriate Ministries and other pertinent Government Offices will be analyzed in each country, identifying possible gaps and overlaps and providing a proposed organizational structure to serve as a guideline to Governments in an effort to strengthen their institutional framework and capacity to accomplish broadband connectivity goals.
- c. A workshop to present the results of this component will be held in one of the beneficiary countries.

1.3 Overall, a stronger regulatory and institutional framework will reinforce the development of the sector and will be critical for the future effective implementation of the broadband strategy to be designed in each country.

1.4 **Products:**

- a. Review of current regulatory framework in each participating country.
- b. Review of current legal framework with regard to Telecommunications in each participating country
- c. Proposal to amend or draft specific new legislation on: (i) Interconnection, (ii) Access, (iii) Tariffs, (iv) Number portability, (v) Cost accounting, (vi) Quality standards, (vii) Universal service/access, (viii) Spectrum management, and other recommendations and amendments that may be deemed appropriate for each country. All recommendations should be made in light of current sector trends.

- d. Review of the existing institutional framework of the Telecommunications sector in each participating country;
- e. Proposed organizational structure for each country to serve as a guideline to Governments in an effort to strengthen their institutional framework.
- f. Production of appropriate communications materials to be presented by the firm in a workshop to be held at the end of the project, where the results of the research will be discussed and disseminated.

COMPONENT 3

I. CONSULTANCY OBJECTIVES

- 1.1 The main objective of this Technical Cooperation (TC) of this consultancy is to support the promotion of ICT awareness and capacity building in each participating country, through the design of programs that address the needs of different target audiences (public officers, business persons and citizens).

II.

CHARACTERISTICS OF THIS CONSULTANCY

- 1.1 **Type of consultancy:** Firm

- 1.2 **Start date and duration:** from X, to X, 2012.

Place of work /travel: Place of residence. Travel required. During this period, the firm is expected to participate in a total of two (2) coordination meetings with IDB Specialists in Headquarters (Washington DC) and (2) presentation meetings with government representatives and CANTO.

- 1.3 **Qualifications:** The firm will have extensive experience in the telecommunications sector, with Senior team members involved in projects in LAC and other developing regions. Specific domain of regional and national ICT promotion, especially concerning awareness initiatives and capacity building programs is required.

- 1.4 **Source of funding:** RG-T2212 / ATN/OC-13544-RG

III.

ACTIVITIES AND PRODUCTS

- 1.1 The activities to be undertaken by the consulting firm contracted refer to one of four components to be developed in the framework of this project, which define the strategic approach of this technical cooperation. These terms of reference define the activities to be undertaken and the products to be delivered under component 3 of the project.

- 1.2 **Component 3 - ICT awareness and capacity building programs.** The objective of this component is to create awareness and build capacity of a diverse group of audiences, including individuals, business persons and public officials, on how ICTs in general, and broadband services and applications in particular, may contribute to economic growth and social inclusion in the Region. The following activities will be undertaken:

- a. Seminar and Community of Practice: a Seminar for regulators and policy makers will be organized during the regional workshop for component 2 of this TC. Training materials developed under the framework of IDB's Broadband Platform on the impact of ICTs in different strategic sectors will be used and leveraged in the training. In addition, practitioners will be invited to present international best practices, in an effort to create a Community of Practice in the Caribbean.
 - b. Design a capacity building program for different actors in each country: Specific sectorial capacity building programs will be designed, targeted to individuals, business persons and public officials. The objective of these programs is to highlight the benefits of using ICTs in strategic sectors such as health, education, trade/SMEs, government and finance. Particularities of each country should be considered in the design of the program, such as the availability of shared access points such as tele-centers, libraries, business associations and schools. In addition, possible partners or service providers such as universities and training centers should also be identified, along with suggestions for the improvement of broadband delivery within same.
- 1.3 The following sector specific recommendations are provided as a guideline for the development of the program. Other sectors of particular interest or relevance in a country may also be explored:
- **Health:** the development of services and applications on health is part of the digital agendas of most Governments considering ICTs as the basis for development. Aspects such as telemedicine, tele-assistance, monitoring and control of patients are examples of such applications. Medical professionals and assistants, as well as government officials will be the target audience of this capacity building program.
 - **Education:** This is another sector where the use of ICTs is key for amplifying the impact of local interventions. In particular, aspects related to the development of connectivity solutions and technological platforms, together with innovative applications for e-Learning have proved to be relevant not only for the academic community but also for governments. Professors, teachers and teaching assistants, as well as government officials will be the target audience of this capacity building program.
 - **SMEs:** This is an area where ICTs have proven to have many different applications that may contribute to increasing the productivity, competitiveness and quality of life of citizens in a region. Specifically, applications for the business sector, particularly SMEs, will support innovative business models, expand markets and provide consumers with a wide range of goods and services. Moreover, several services and applications may expand access to financial services such as banking and micro payments.

Business persons and entrepreneurs, as well as government officials will be the target audience of this capacity building program.

- **Government:** In addition to the issues described above, specific analysis on the application of ICTs in the area of public administration (e-government) shall be provided, highlighting the importance of the digitalization of information as well as of a friendly and secure web interface for citizens, which facilitates electronic transactions, service delivery and citizen participation in policy making. Additionally, concrete analysis of ICT legislation and its key role in broadband adoption and use will be provided. Government officials and regulators will be the target audience of this capacity building program.
- **Finance:** Finally, specific training on the application of ICTs in financial transactions, including m-banking, should be provided. Government officials, municipalities and citizens living in rural areas will be the target audience of this capacity building program.

1.4 The Seminar, the Community of Practice and the designed program per country will ultimately contribute to increasing the use of and the demand for broadband services in the Caribbean and may therefore be considered an integral part of national broadband strategies.

1.5 Products:

- a. Delivery of a Seminar and creation of a Community of Practice.
- b. Design a capacity building program for different actors in each country, defining the requirements and resources needed for the delivery of each program

COMPONENT 4

I. CONSULTANCY OBJECTIVES

- 1.1 The main objective of this consultancy is to define a regional broadband plan that takes into consideration the existing broadband status of each Caribbean country.

II. CHARACTERISTICS OF THIS CONSULTANCY

- 1.1 **Type of consultancy:** Firm
- 1.2 **Start date and duration:** from X, to X, 2012.
- 1.3 **Place of work /travel:** Place of residence. Travel required. During this period, the firm is expected to participate in a total of two (2) coordination meetings with IDB Specialists in Headquarters (Washington DC) and (2) presentation meetings with government representatives and CANTO.
- 1.4 **Qualifications:** The firm will have extensive experience in the telecommunications sector, with Senior team members involved in projects in LAC and other developing regions. Specific domain of developing national and regional broadband plans and strategic recommendations is required.
- 1.5 **Source of funding:** RG-T2212 / ATN/OC-13544-RG

III. ACTIVITIES AND PRODUCTS

- 1.1 The activities to be undertaken by the consulting firm contracted refer to one of four components to be developed in the framework of this project, which define the strategic approach of this technical cooperation. These terms of reference define the activities to be undertaken and the products to be delivered under component 4 of the project.
- 1.2 **Component 4. Public Policy recommendations for the design of national broadband strategies.** The objective of this component is to provide public policy recommendations and practical guidelines for governments in the region to accelerate the penetration rate and usage of broadband services among the different stakeholders. The following activities will be undertaken:
 - a. Recommendations for the design of national broadband strategies: based on the results and findings of previous components, recommendations for the design of national broadband strategies will be provided for each government. Specific recommendations and actions from the supply side (regulatory framework and infrastructure requirements) and the demand side (services and

applications and capacity building (including knowledge sharing for the general populace) should be included. In the design of national broadband strategies, a regional perspective should be a guiding principle for all countries.

- b. Considerations to work towards a regional broadband strategy: as mentioned, national strategies will acknowledge potential synergies in terms of developing harmonized regulations, common infrastructures, and joint contents and capacity building programs that, while considering the needs and priorities of each particular country, share common elements to the region. These considerations will be highlighted in a document produced as a result of this consultancy.
- c. Governance model: In an effort to facilitate the future implementation of the national broadband strategies and foster regional cooperation and coordination, recommendations of a governance model will be provided for each country.

1.3 Products:

- a. A document containing public policy recommendations for the design of national broadband strategies for each participating country.
- b. Specific recommendations will be made to ensure regional considerations are taken into account in each national strategy, in order to work towards a regional broadband strategy.
- c. Recommendations of a governance model for each country to facilitate the future implementation of the national broadband strategies.