

## **REQUEST FOR EXPRESSIONS OF INTEREST** **CONSULTING SERVICES**

Selection # as assigned by e-Tool: EC-T1447-P001

Selection Method: Full competition

Country: Ecuador

Sector: IFD/CMF

Funding – TC #: ATN/KK-18541-EC

Project #: EC-T1447

TC name: Digital infrastructure in Ecuador as a trigger to overcome the effects of COVID

Description of Services: The general objective of this Technical Cooperation (TC) is to conduct feasibility studies to improve the connectivity of public institutions and households in Ecuador. Particularly, these feasibility studies aim to support the current COVID-19 crisis by exploring market (including demography), forecasting demand, identifying the best cable routes, designing the network, preparing its specifications and developing the technical, financial, and managerial studies of the network and its utilization. The TC will suggest possible application areas, which will make the full use of developed infrastructure. Especially the best practice of Korean governments' use of ICT to fight COVID-19.

Link to TC document: <https://www.iadb.org/en/project/EC-T1447>

The Inter-American Development Bank (IDB) is executing the above-mentioned operation. For this operation, the IDB intends to contract consulting services described in this Request for Expressions of Interest. Expressions of interest must be delivered using the IDB Portal for Bank Executed Operations (<http://beo-procurement.iadb.org/home>) by: February 8<sup>th</sup>, 5:00 P.M. (Washington D.C. Time).

The consulting services ("the Services") include:

*Component 1: Demand forecast. The objective of this component is to conduct a demand study for Ecuador and identify international best practices on how to promote digital infrastructure for connectivity in this pandemic crisis.*

- Activity 1.1 Market study.
- Activity 1.2: International best practices.

*Component 2: Identification of the technical considerations for deploying digital infrastructure which improve connectivity of public institutions, specially hospitals, health centers, public schools, education centers, and households. This component will focus on the identification of alternatives with different routes and technologies and the selection of the most cost-efficient technical solution to improve the connectivity. As part of the component, it will be estimated the investment requirement on digital infrastructure.*

- Activity 2.1: Developing and comparing alternatives.
- Activity 2.2: Selection of the most feasible and desirable option.
- Activity 2.3: Suggestion of application model. This activity will suggest an ICT

*Component 3: Socio-economic and financial feasibility study of the deployment and select a governance model. The objective for this component is to conduct a socio-economic and financial study on the deployment and sustainability of the network and the services to be eventually provided.*

- *Activity 3.1: Socio-economic and financial analysis.*
- *Activity 3.2: Governance model.*

*Component 4: Development of Application item and capacity building: This component will finance the developing specific application item such as smart drone and the training program to educate personals for operation and management of the related system. The result of this component can be considered as one of use cases for future investment programs. The project will finance the following activities:*

- *Activity 4.1. Project roadmap and design: As part of this activity, it will provide the governance model, technical recommendation, financing model and regulatory*
- *Activity 4.2. Training program: As part of this this activity, it will be provided training*
- *Activity 4.3. Workshop: As part of the Regional Public Good (RG-T3096) and the*

Eligible consulting firms will be selected in accordance with the procedures set out in the Inter-American Development Bank: [Policy for the Selection and Contracting of Consulting firms for Bank-executed Operational Work](#) - GN-2765-1. All eligible consulting firms, as defined in the Policy may express an interest. If the Consulting Firm is presented in a Consortium, it will designate one of them as a representative, and the latter will be responsible for the communications, the registration in the portal and for submitting the corresponding documents.

The IDB now invites eligible consulting firms to indicate their interest in providing the services described below in the [draft summary](#) of the intended Terms of Reference for the assignment. Interested consulting firms must provide information establishing that they are qualified to perform the Services (brochures, description of similar assignments, experience in similar conditions, availability of appropriate skills among staff, etc.). Eligible consulting firms may associate in a form of a Joint Venture or a sub-consultancy agreement to enhance their qualifications. Such association or Joint Venture shall appoint one of the firms as the representative.

Interested eligible consulting firms may obtain further information during office hours, 09:00 AM to 05:00 PM, (Washington D.C. Time) by sending an email to Antonio Garcia Zaballos, [antoniogar@iadb.org](mailto:antoniogar@iadb.org)

Inter-American Development Bank  
Division: Connectivity, Markets and Finance (IFD/CMF)  
Attn: Antonio Garcia Zaballos ([antoniogar@iadb.org](mailto:antoniogar@iadb.org))

1300 New York Ave, NW, Washington DC 20577, USA  
Tel: +12026232980  
E-mail: [antoniogar@iadb.org](mailto:antoniogar@iadb.org)  
Web site: [www.iadb.org](http://www.iadb.org)

## **TERMS OF REFERENCE**

### **PRE-FEASIBILITY STUDIES RELATED TO THE DEPLOYMENT: MARKET STUDY**

[Ecuador]

ATN/KK-18541-EC

EC-T1447

<https://www.iadb.org/en/projects-search?country=&sector=&status=&query=EC-T1447>

***Digital infrastructure in Ecuador as a trigger to overcome the effects of COVID.***

#### **1. Background and Justification**

- 1.1.** The use of Information and Communication Technologies (ICTs) services and applications available over the Internet can reinforce sectors such as education, health, business, and government, with broad implications for economic development, competitiveness, and innovation. Yet, harnessing the benefits of this new digital economy increasingly relies on the availability of broadband Internet in a country as evolving services and applications require broadband speed and bandwidth.
- 1.2.** Broadband infrastructure is an enabler of development. According to several studies, a 10% growth of broadband penetration is associated with a 1.21% increase in the Gross Domestic Product (GDP) of high-income countries and a 1.38% increase in the GDP of low-income countries (World Bank, 2009). It is estimated that in the case of the LAC region, for a 10% growth in the penetration rate of broadband services, the GDP can be increased by 3.19%; the productivity by 2.61% and more than 67,000 jobs can be created.
- 1.3.** The Government of Ecuador has launched the agenda connected Ecuador which intends to increase coverage to 98% of the population, reduce the internet prices, install more than 100 Wi-Fi hotspots and evolve the 2G/3G customer base to new technologies in such a way that the country gets ready for the introduction of 5G across different sectors of the economy. most important challenge was adopting and finding usability of services. More specifically, by 2021 the main indicators of the agenda consist on: (i) increasing the 4G coverage to 80%, (ii) increasing the smartphone penetration up to 65%, (iii) increasing the penetration of fixed broadband services to 59% of the total households and (iv) increasing the penetration of computer up to 62%. The required investment to achieve these goals will benefit over 12,000 schools, more than 4,2 million households and almost 2,000 health centers.
- 1.4.** Moreover, due to current ongoing unexpected pandemic situation (COVID-19), the deployment of broadband network to connect the hospitals and health centers has become the highest priorities. To respond to this highly contagious virus, real-time information sharing system through the Internet is necessary for the related organizations. Also, by deploying the broadband infrastructures to the rural areas and increasing the accessibility of public institutions like schools and government offices, ICT tools to overcome the pandemic crisis may be available.
- 1.5.** ICT applications can play a vital role in fighting COVID-19. Korea was able to successfully flatten the curve on COVID-19 in only 20 days without enforcing extreme draconian measures that restrict freedom and movement of people.<sup>1</sup> Mobile devices and applications can be used to support early testing and contact tracing, government websites can share latest virus information and news, smart drones may be used to deliver medicine without face-to-face contact, and AI technology can be used to predict and prevent medical supplies and human resources.

#### **2. Objectives**

- 2.1.** The general objective of this Technical Cooperation (TC) is to conduct feasibility studies to improve the connectivity of public institutions and households in Ecuador. Particularly, these feasibility studies aim to support the current COVID-19 crisis by exploring market (including demography), forecasting demand, identifying the best cable routes, designing the network, preparing its specifications, and developing the

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<sup>1</sup> Flattening the curve on COVID-19, how Korea responded to a pandemic using ICT, The government of the Republic of Korea 2020

technical, financial, and managerial studies of the network and its utilization. The TC will suggest possible application areas, which will make the full use of developed infrastructure. Especially the best practice of Korean governments' use of ICT to fight COVID-19.

### **3. Key Activities**

#### **3.1 Component 1: Improve the understanding of market dynamics in Ecuador.**

The objective of this component is to conduct a market study for every country, including an analysis of the socio-demographic and economic conditions; an analysis of current supply and demand of telecommunication services; and a forecast of the demand. The scope of the activities to be implemented within the market analysis will be.

#### **3.2 Activity 1: Study of the supply**

Identify the type of services that are available for the final users (citizens, SMEs, and public administrations). Specific information should also be provided on how the market is distributed among the different players, providing an analysis in terms of HHI<sup>2</sup> and any other concentration index that the firm may consider necessary to come up with a detailed description of the level of competition in the different countries and the type of services that are available.

#### **3.3 Activity 2: Study of the demand**

Considering the analysis conducted in the previous activity, identify how the demand is behaving in terms of consumption and whether there is any unsatisfied demand. Provide an analysis of what is demanded today.

#### **3.4. Activity 3: Study on the distribution of the population**

Identify how the population is distributed in terms of socio-demographic and economic conditions and discern conclusions on the implications that the composition of the population density may have in terms of the infrastructure deployment of the optical fiber ring for each member country.

#### **3.5 Activity 4: Demand forecast**

Provide a forecast of the demand in each country, considering the demand behavior identified in activity 2 and the socio-demographic conditions from activity 3. To conduct this study, the consulting firm must take into consideration not only the existing services that are available in Ecuador, as per activity 1, but also the new services that may be launched after the deployment of the infrastructure. Specific attention should be given to market and sectorial trends to justify the forecast. The results of these studies will serve as the basis for the Technical Study to be carried out in the following component.

#### **3.6 Component 2: Identify the technical considerations for deploying the infrastructure including, the structure of the network and the expected social and environmental impacts.**

The objective of this component is to develop a technical study including: (i) orographic study and population distribution; (ii) assessment of the existing available infrastructure; (iii) design of the logic diagram node of the network; (iv) estimation of the expected traffic according to the socio-demographic and economic conditions; (v) identification of technological alternatives; (vi) determination of the requirements in terms of capacity and sizing of the network; (vii) selection of the best technology to attend the estimated traffic; and (viii) development of a deployment and execution plan. The activities included within the technical analysis are:

- a. Orographic Analysis
- b. Assessment of the current situation of Telecommunications Infrastructure
- c. Design of the Logic Diagram Node
- d. Estimation of the expected traffic
- e. Estimation of capacity and choice of interfaces
- f. Analysis of technological alternatives
- g. Physical layout diagram
- h. Deployment Plan and Implementation Schedule
- i. Environmental and social impact assessment

#### **3.7 Based on the market study conducted in component 1, an analysis of technical parameters to consider in the consider in the deployment project will be done in component 2. The selection of appropriate**

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<sup>2</sup> Herfindahl–Hirschman Index (HHI) is a measure of the size of firms in relation to the industry and an indicator of the amount of competition among them.

technologies and the stages of the deployment plan, including the structure of the network, and the implementation schedule will be the main results of this component.

**3.8** The Technical Study will be used as basis for the Economic study to be conducted in component 3 and will be revised, as needed, based on the results of the latter.

**3.9 Component 3: Analyze the economic and financial feasibility of the deployment and select a governance model.** The objective for this component is to develop an economic and financial study on the sustainability of the network and the services to be eventually provided.

**3.10** Particularly important will be the specification of the consortium and the governance model to guarantee the success of the optical fiber ring, not only during the deployment, but also during the exploitation. The activities to be included in the economic analysis:

- a. Estimation of the required investment to satisfy the demand.
- b. Valuation of the different scenarios, considering the different technological alternatives.
- c. Development of a business model
- d. Selection of the technology and financial figures of the project.

The result of this component will be an analysis of the economic feasibility of the deployment considering the data from the Market Research (component 1) and the Technical Study (component 2).

**3.11** Additionally, the conclusions drawn from this study will serve as feedback for the technical study and may introduce specific changes in the Deployment Plan (component 2).

**3.12** Considering the results and conclusions of the feasibility studies, specific recommendation. Will also be provided on the best way to aggregate traffic in Interconnection Exchange Points (IXPs), which will allow for the international Internet connectivity charges in the Region to be reduced.

#### **4. Expected Outcome and Deliverables**

**4.1** All the deliverables must be approved by the team leader, the firm will be required to prepare two important documents: Draft Report and Final Report.

#### **5. Acceptance Criteria**

**5.1** 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 is required, including both terrestrial and undersea cables.

The firm must have a proven capability to deliver detailed and accurate market studies, particularly as the results of Component 1 will serve as critical inputs for the development of the feasibility studies in components 2 and 3 of the projects.

#### **6. Other Requirements**

**6.1 Type of consultancy:** Firm, the duration of this consultancy is for 6 months, since the contract firm, 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 meeting with Ecuador's Governments.

#### **7. Supervision and Reporting**

**7.1** Supervision and coordination of the consultant's work will be the responsibility of Antonio Garcia Zaballos (IFD/CMF) Team Leader, antoniogar@iadb.org

## 8. Schedule of Payments

### 8.1 Payment terms will be based on project milestones or deliverables.

The Bank does not expect to make advance payments under consulting contracts unless a significant amount of travel is required.

The Bank wishes to receive the most competitive cost proposal for the services described herein.

### 8.2 The IDB Official Exchange Rate indicated in the RFP will be applied for necessary conversions of local currency payments.

Payment Schedule	
<i>Deliverable</i>	<i>%</i>
1. <i>Upon Work Plan Approved</i>	30%
2. <i>Describe deliverable</i>	30%
3. <i>Describe deliverable</i>	40%
<b>TOTAL</b>	<b>100%</b>