

TC DOCUMENT

I. Basic Information for TC

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| ▪ Country/Region: | REGIONAL/Regional |
| ▪ TC Name: | Improving the Central America-Korea connectivity |
| ▪ TC Number: | RG-T3250 |
| ▪ Team Leader/Members: | Antonio García Zaballos (IFD/CMF) Team Leader; Enrique Iglesias Rodríguez (IFD/CMF); Irasema Infante Barbosa (CID/CID); Suk Nam (IFD/CMF); Alvaro Sanmartín (LEG/SGO); and Cecilia Bernedo (IFD/CMF). |
| ▪ Taxonomy: | Client Support (CS) |
| ▪ Date of TC Abstract authorization: | August 3, 2018 |
| ▪ Beneficiary: | 6 Central American Countries (Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica and Panama) |
| ▪ Executing Agency: | INTER-AMERICAN DEVELOPMENT BANK |
| ▪ Donors providing funding: | Knowledge Partnership Korea Fund for Technology and Innovation (KPK) |
| ▪ IDB Funding requested: | US\$500,000 |
| ▪ Local counterpart funding: | None |
| ▪ Disbursement period: | 24 months (Execution period: 18 months) |
| ▪ Required start date: | October 15, 2018 |
| ▪ Types of consultants: | Firms |
| ▪ Prepared by Unit: | Connectivity, Markets and Finance Division (IFD/CMF) |
| ▪ Unit of Disbursement Responsibility: | Institutions for Development (IFD) |
| ▪ TC included in Country Strategy (y/n): | No |
| ▪ TC included in CPD (y/n): | No |
| ▪ Alignment to the Update to the Institutional Strategy 2010-2020: | Social inclusion and equality; and productivity and innovation |

II. Objective and Justification

- 2.1 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.
- 2.2 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.
- 2.3 However, so far, Central America has had difficulty in universalizing the broadband, considerably resulting from the lack of international internet connectivity. The problem makes even worse, due to the very limited bandwidth's concentration on North America. These features lead to the high prices and slow speed of the internet services, particularly, when the traffic goes to and comes from other area like Asia and Europe. In a Trans-Pacific era when the communication with Asia increases explosively, the improvement of international connectivity between Central America and Asia has become an urgent challenge facing the region. On the other hand, to address the internet-related issues collectively, six Central American countries (Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica and Panama) created the consortium

called “*Red Centroamericana de Telecomunicaciones*” (REDCA) as a broadband regional operator in 2013, aimed to co-share the established electrical regional network; the “*Sistema de Interconexión Eléctrica de los Países de América Central*” (SIEPAC).

- 2.4 In this regard, the deployment of a submarine cable between Central America and Korea and further connection to the whole Central American region by the optical fiber ring of the REDCA could bring great advantages for the beneficiary countries and their population, by way of contributing to the improved connectivity and reduced cost. Firstly, the traffic to Asia from cities near the Pacific coast could be sent through the network directly and vice versa, which may increase competition making the region having lower prices and more quality services. Secondly, it will also allow all the main cities to access each other through the extended regional network of REDCA. In doing so, building the submarine cable is expected to improve the integration of the region with Asia and reduce the prices of connectivity thanks to increased competition. In sum, the deployment of an alternative submarine cable between central America and Korea (and potentially, other Asiatic countries) will have benefits in terms of integration since the region will be better connected, having a direct impact in terms of pricing and quality of services and second it will give more value to the existing efforts in the region undertaking by REDCA since it will improve the interoperability of the network across all the beneficiary countries.
- 2.5 And South Korea is one of the best partner for the connection with Asia. Currently, the country, as a digital hub in the region, is operating a massive undersea cable system called “Asia-Pacific Gateway” (APG), connecting nine Asian countries including Korea. Furthermore, it is a leading country in the field of ICT, with the biggest share of the global smartphone market and the fastest nationwide Internet services in the world, introducing 5G (Generation) network world-firstly. For all those reasons, the initiative of digital connection between Central America and Korea has been discussed during the 3rd Ministerial Forum for Broadband Development (Busan, Korea; September 2017) and subsequent bilateral meetings.
- 2.6 Under such background, the general objective of this Technical Cooperation (TC) is to conduct feasibility studies to support future investment in the deployment of a submarine cable to improve the interconnection among the Central American Region and Asia¹ (including the possibility to connect the region with Korea and other countries). Particularly, these feasibility studies aim to explore market (including demography), forecast demand, identify the best cable routes, design the network, prepare its specifications and develop the technical, financial, and managerial studies of the network. In addition, the studies will support an assessment of the best ways that international Internet connectivity charges can be reduced from the existing levels. As one possible solution, establishing a local Internet Exchange Point (IXP), which allows content aggregation and negotiation with their international counterparts for lowering the costs, is taken into account.
- 2.7 **Strategic alignment.** The TC is aligned with the priorities identified in the IDB’s Update to the Institutional Strategy 2010-2020(AB-3008). Specifically, it is aligned with the following strategic policy objectives: (i) strengthen the capacity of the state; (ii) provide inclusive infrastructure services; (iii) establish smart institutional frameworks; and (iv) improve regional infrastructure. Additionally, this TC is expected to contribute to the following Corporate Results Framework (CRF) indicators: (i) telecommunications Infrastructure, contributions directed to develop extension and quality of telecoms infrastructure, including infrastructure; and (ii) public policy in telecommunications;

¹ According to Telegeography, out of the 15 submarine cables between the pacific coast in Americas and Asia, there is not a single one landing in central or South America, this explains the increasing dependency of the region from the Northern hemisphere.

contributions directed to increase the level playing-field competition and the transparency of the regulatory policy and reforms within the telecom sector.

III. Description of Activities/Components and Budget

- 3.1 The activities that are proposed in this project are divided into three main components, which define the strategic approach of this technical cooperation: In a country by country basis, Component 1 will include a socio-demographic analysis dealing with the demand and supply particularities, as well as best practices related to governance and operation of submarine cables. Subsequently, and based on the information gathered in the analysis, Component 2 will develop a technical analysis of the existing infrastructures and the recommending technological alternatives. Finally, both inputs will be considered in the implementation of Component 3, which will entail an analysis of the economic and financial feasibility of the deployment and select a governance model.
- 3.2 **Component 1: Better understanding of market dynamics in Central American countries and Review of international best practices.** 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; a forecast of the demand and to explore international best practices to be benchmarked in the real business.
- 3.3 **Activity 1.1: Market study.** The scope to be implemented within this analysis will be: (i) study of the supply side: identify current supply of telecommunications services in each of the beneficiary countries; and (ii) study of the demand side: estimate the current demand for those services and forecast, considered political, economic, socio-demographic and cultural circumstances of the region.
- 3.4 **Activity 1.2: International best practices.** This activity aims to gather various cases across the globe and draw lessons learned related to the operation and governance in the deployment of a submarine cable. The results of this study will serve as reference models for the Technical and Economic study to be carried out in the following components.
- 3.5 **Component 2: Identification of the technical considerations for deploying the submarine cable.** In this component, the development of alternatives with different routes and technologies and the selection of the best solution among them will be conducted. As a consequence, the structure of the network could be presented.
- 3.6 **Activity 2.1: Developing and comparing alternatives.** This technical analysis includes, among others: (i) assessment of the existing available infrastructure; (ii) identifying potential routes and landing points related to the deployment of the submarine cable; (iii) estimation of the expected traffic according to the socio-demographic and economic conditions; and (iv) comparing strengths and weaknesses of each option.
- 3.7 **Activity 2.2: Selection of the most feasible and desirable option.** Following the steps of the activity 2.1, the structure and route of the would-be submarine cable will be decided. And based on the results, a deployment and execution plan is developed and the specific requirements in terms of capacity and quality are also determined.
- 3.8 **Component 3: Analyze the legal, socio-economic and financial feasibility study of the deployment and select a governance model.** The objective for this component is to conduct a legal, socio-economic and financial study on the deployment and sustainability of the network and the services to be eventually provided. Particularly, the specification of the consortium and the governance model to guarantee the success of

the deployment, not only during the deployment, but also during the operation will be of great importance.

- 3.9 **Activity 3.1: Legal, socio-economic and financial analysis.** This study includes: (i) legal implications associated to the deployment of the submarine cable, (ii) estimation of the required investment; (iii) valuation of the different scenarios; and (iv) development of a business model.
- 3.10 **Activity 3.2: Governance model.** Various models –i.e. consortium model, private model and the mixture of both models, reflecting international best practices– will be examined, with their own advantages and disadvantages. Taken all the conditions and willingness of related stakeholders into account, appropriate approach could be selected.
- 3.11 **Activity 3.3: Recommendation for regional Internet Exchange Points (IXP).** As is often the case with reducing the costs of international internet connectivity in the developing countries, establishing and connecting regional IXPs is suggested (ITU, 2013). This part purports to guide regional collaboration to establish such IXPs that enable local internet traffic to be routed locally, saving international bandwidth and thus allowing for the international Internet connectivity charges to decrease.
- 3.12 **Expected results.** This project will provide technical assistance and investment strategy for laying a submarine cable between Central America and Korea (including potentially other Asiatic countries). It will also support to regional effort to universalize broadband across the whole region. The business could be the first case which directly links LAC and Asia online and is of great importance in terms of helping the region prepare for challenges such as the “Digital Economy” and the “Industry 4.0”, through making possible larger flow of data and information than ever before.
- 3.13 The total cost of this TC will be US\$500,000 which will be financed by the Knowledge Partnership Korea Fund for Technology and Innovation (KPK).

Table 1: Indicative Budget (in US\$)

| Activity/Component | IDB/Fund Funding | Total Funding |
|---|------------------|---------------|
| Component 1: Better understanding of market dynamics in Central American countries and Review of international best practices. <ul style="list-style-type: none"> • Market study • International best practices | 100,000.00 | 100,000.00 |
| Component 2: Identificación of the technical considerations study for deploying the submarine cable <ul style="list-style-type: none"> • Developing and comparing alternatives • Choice of the most feasible and desirable solution | 300,000.00 | 300,000.00 |
| Component 3: Legal, socio-economic and financial feasibility of the deployment and select a governance model <ul style="list-style-type: none"> • Legal, socio-economic and financial analysis • Governance model • Recommendation for regional IXPs | 100,000.00 | 100,000.00 |

IV. Executing Agency and Execution Structure

- 4.1 The executing agency will be the Bank through Connectivity, Markets and Finance (IFD/CMF). The justification for this execution structure is: (i) the Bank has the technical experience to coordinate and executive the different activities included in the technical cooperation; (ii) the technical cooperation will need extensive partnership with international organizations, academic institutions and private firms; and (iii) the beneficiaries requested the Bank to be the executor given the technical difficulties related to the project. The executing agency will be the IFD/CMF Division, which will operate in coordination with the Korean government, Korea Telecom, REDCA and COMTELCA. Supervision and coordination of the consultant's work will be the responsibility of Antonio García Zaballos (IFD/CMF), Team Leader, antoniogar@iadb.org, telephone (202) 623-2980. The contract of a consultant will comply with the Policies for the Selection and Contracting of Consultants Financed by the IDB (GN-2350-9).
- 4.2 **Procurement.** The Bank will contract individual consultants, consulting firms and other services in accordance with current Bank procurement policies and procedures. Specifically, Section AM-650 of the Administrative Manual "Complementary Workforce" will be applied in the case of individual consultants, the Policy for the Selection and Contracting of Consulting Firms for Bank-executed Operational Work (GN-2765-1) and its Operational Guidelines (OP-1155-4) for hiring consulting services of intellectual nature and the Corporate Procurement Policy (GN-2303-20) for other services.

V. Major Issues

- 5.1 This project entails two risks that could potentially affect the project: (i) the lack of coordination necessary to make six Central American countries collaborate with one another; and (ii) the lack of expertise to deal with the large business like the laying of a submarine cable. The first risk will be mitigated by utilizing regional organizations like REDCA and COMTELCA as a channel to facilitate preliminary dialogue and further cooperation among the countries. The second risk will be reduced the cooperation between the Bank, who will be in charge of the project, and the Korean counterparts who possess vast knowledge and experience in the area.

VI. Environmental and Social Strategy

- 7.1 operation is classified as a Category "C" according to the Environment and Safeguards Compliance Policy (OP-703) (See: [Safeguard Policy Filter Report](#) and [Safeguard Screening Form](#)) since there is no investment or loan associated with this operation, however, if the TC leads to a loan operation financed by the bank, the environmental and social impact will need to be reassessed.

Required Annexes:

- Annex I: [Request Letter](#)
- Annex II: [Results Matrix](#)
- Annex III: [Terms of Reference](#)
- Annex IV: [Procurement Plan](#)

IMPROVING THE CENTRAL AMERICA-KOREA CONNECTIVITY

RG-T3250

CERTIFICATION

I hereby certify that this operation was approved for financing under the **Knowledge Partnership Korea Fund for Technology and Innovation (KPK)**, through a communication dated August 3, 2018 and signed by Byoung Kim. Also, I certify that resources from said fund are available for up to **US\$500,000** in order to finance the activities described and budgeted in this document. This certification reserves resource for the referenced project for a period of four (4) calendar months counted from the date of eligibility from the funding source. If the project is not approved by the IDB within that period, the reserve of resources will be cancelled, except in the case a new certification is granted. The commitment and disbursement of these resources shall be made only by the Bank in US dollars. The same currency shall be used to stipulate the remuneration and payments to consultants, except in the case of local consultants working in their own borrowing member country who shall have their remuneration defined and paid in the currency of such country. No resources of the Fund shall be made available to cover amounts greater than the amount certified herein above for the implementation of this operation. Amounts greater than the certified amount may arise from commitments on contracts denominated in a currency other than the Fund currency, resulting in currency exchange rate differences, representing a risk that will not be absorbed by the Fund.

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| Certified by: | Original Signed | 10/23/2018 |
| | Sonia M. Rivera | Date |
| | Chief | |
| | Grants and Co-Financing Management Unit | |
| | ORP/GCM | |

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| Approved by: | Original Signed | 10/27/2018 |
| | Juan Antonio Ketterer | Date |
| | Division Chief | |
| | Connectivity, Markets and Finance Division | |
| | IFD/CMF | |