

TECHNICAL COOPERATION DOCUMENT

I. BASIC INFORMATION

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| Country: | Regional |
| TC Name: | Supporting Development of Information Sharing & Analysis Center (ISAC) for Broadband Infrastructure Protection |
| TC Number: | RG-T3127 |
| Team Leader/Members: | Antonio Garcia Zaballos (Team Leader, IFD/CMF); Inkyung Jeun (IFD/CMF); Suk Nam (IFC/CMF); Enrique Iglesias (IFD/CMF); Juan Carlos Perez-Segnini (LEG/SGO); and Cecilia Bernedo (IFD/CMF). |
| TC Taxonomy: | Research and Dissemination (RD) |
| Date of TC Abstract authorization: | September, 2017 |
| Beneficiary: | Guatemala, Honduras, El Salvador, Nicaragua, Panama, Costa Rica and Dominican Republic |
| Executing agency and contact name: | Inter-American Development Bank (IDB) |
| Donors providing funding: | Knowledge Partnership Korea Fund for Technology and Innovation (KPK) |
| IDB Funding Requested: | US\$400,000 |
| Local counterpart funding: | None |
| Disbursement period: | 15 months (execution: 12 months) |
| Required start date: | January, 2018 |
| Types of consultants: | Consulting Firms |
| Prepared by Unit: | Capital Markets and Financial Institutions Division (IFD/CMF) |
| Unit of Disbursement Responsibility: | IFD/CMF |
| TC included in Country Strategy: | N/A |
| TC included in CPD: | N/A |
| Alignment with Update Institutional Strategy 2016-2019: | The current Sector Strategy: "Institutions for Growth and Social Welfare" identifies improving innovation and productivity as a major area where the Bank can help the region overcome the challenges that hinder growth and social welfare. To this end, the IDB will work towards strengthening institutions, and has specifically recognized the need to improve policies and governmental action in the Information and Communications Technology (ICT) sector (par.5.21 of the referred to Sector Strategy). Consistent with the Strategy, the Bank has been working in the design and implementation of a Broadband Platform to accelerate the penetration rate and usage of broadband services in the Region. |

II. OBJECTIVES AND JUSTIFICATION OF THE TC

- 2.1 In modern society, broadband is a fundamental infrastructure that supports digital economy as the acceleration of broadband access and effective use brings clear

social and economic benefits. Many countries around the world, including the Latin America and the Caribbean (LAC) region, have been working to expand their broadband infrastructure. As a result, the broadband infrastructure has linked various sectors from public service to the financial market. Globally, business to consumer e-commerce transactions amounted to US\$1.9 trillion in 2014. In medium and low connectivity countries, e-commerce makes up to 5.2% or 2.3% of Gross Domestic Product (GDP) respectively, and in developed countries it reaches up to 5.7% of GDP.¹

- 2.2 As broadband infrastructure has become the foundation of the life functioning of key areas, seamless and stable operation of the broadband network is an important pillar to support national economy. Disruption of broadband services affects a wide range of areas including economic growth, national security, public safety, and quality of life, etc. A recent report by Deloitte estimated that for a highly Internet connected country, the per day impact of a temporary shutdown of the Internet and all if its services would be on average US\$23.6 million per 10 million population. With lower levels of Internet access and speed, the average estimated GDP impacts amount to US\$6.6 million and to US\$0.6 million respectively.²
- 2.3 There are unpredictable and numerous causes on network disruption including system fault, human errors, and external attacks. Therefore, it is almost impossible to prevent it in advance, but the key is how quickly and how effectively they respond to. The stability, sustainability and resilience of broadband network will lead to the expansion of broadband coverage as services using network infrastructure expand.
- 2.4 Public-Private Partnership (PPP) is a vital tool to maintain a robust resilience of the broadband sector, which includes private and nonprofit stakeholders such as network administrators, system owners and operators. One of such initiative for PPP is Information Sharing and Analysis Center (ISAC). ISAC is a nonprofit organization that provides a central resource for gathering information on cyber threats to critical infrastructure and providing two-way sharing of information between the private and public sector. ISACs have been organized per sector (ex. Education ISAC, Public ISAC, Telecom ISAC, and Multi-State ISAC) by participation various stake holders including critical infrastructure owners and operators. In the USA, there are more than 20 sector-based ISACs under the National Council of ISACs.
- 2.5 ISACs facilitate voluntary collaboration and information sharing within the sector, with other sectors, and with government; to gather information on vulnerabilities, threats, intrusions, and anomalies from multiples sources; and to perform analysis with the goal of averting or mitigating impact on the telecommunications infrastructure. Participants can share information through various mechanisms, including a pre-define structured ticket, and a secure web-based system. The government should establish a standing and formal trusted information-sharing and analysis process with ISACs and sector coordinators as the trusted nodes. Government funding for purposes including creating the ISAC, supporting

¹ E-commerce Europe (2015a).

² The economic impact of disruptions to Internet connectivity, Deloitte 2016. <http://globalnetworkinitiative.org/sites/default/files/The-Economic-Impact-of-Disruptions-to-Internet-Connectivity-Deloitte.pdf>.

operations, increasing membership, and providing for additional capabilities is integral part.³

- 2.6 A study conducted by IDB and KISA through technical cooperation resources (RG-T2458) in 2015 shows that most countries in the Central America region have no clear activities related to protect broadband infrastructure even though 54% of LAC countries reportedly experienced large-scale disruption of critical infrastructure.⁴ Only five countries in the LAC region – Argentina, Brazil, Chile, Colombia and Mexico - have a methodological approach to identifying critical infrastructure assets and services, with specific steps and responsibility assigned to stakeholders. Especially, El Salvador, Honduras and Nicaragua in Central America have no systematic organization and clear legal basis to protect critical infrastructure.
- 2.7 El Salvador is the smallest country in Central America but its telecommunication sector is one of the most successful ones. According to the Internet World Statistics (IWS),⁵ more than 50% of the population has used the internet in El Salvador in 2017. Considering that El Salvador is the most densely populated country (318.7 persons/km²), it's no wonder the impact of the disruption of the broadband network can be extensive. Nevertheless, El Salvador does not have an official response policy and released national strategy to protect critical broadband infrastructure. They feel not prepared for a cyber incident such as network disruption even though government organization experienced attempts to manipulate organization's equipment through a control network/system.⁶
- 2.8 **Objectives of the project.** The general objective of this project is to support the region for the development of ISAC. To this end, a roadmap would be developed to propose a strategy for ISAC implementation based on the results of diagnosis of the broadband infrastructure. Furthermore, detailed action plans including pilot system for El Salvador would be proposed as a first step.

III. DESCRIPTION OF ACTIVITIES/COMPONENTS AND BUDGET

- 3.1 **Component 1: Diagnosis of the status quo of the region on broadband sector:** The objective of this component is to evaluate the current status of Central America in terms of overall safety for broadband infrastructure and draw future needs to provide a stable environment. This component will comprise:
 - a. Diagnosis of the current situation on the broadband network and international connectivity
 - b. Assessment of availability and reliability of broadband service
 - c. Identification of major risks that can cause network failures by internal, external, technical and administrative vulnerabilities.
 - d. Analysis on the national strategy to protect broadband infrastructure including implementation of ISAC

³ Critical infrastructure protection – Establishing Effective Information Sharing with Infrastructure Sectors, GAO-04-699T.

⁴ Best practice for Critical information infrastructure protection (CIIP), KISA/IDB 2016.

⁵ <http://www.internetworldstats.com/>.

⁶ Report on Cybersecurity and Critical Infrastructure in the Americas, Trend micro/OSA 2015.

- e. Identify public and private stakeholders for telecom sector ISAC and development of ISAC implementation roadmap to mitigate risks and provide reliable broadband services.
- 3.2 **Component 2: Phase I. Action plan going forward for El Salvador:** The objective of this component is to propose a specific action plan optimized for El Salvador to establish ISAC for seamless broadband services. This component will comprise:
- a. Identify public and private stakeholders and estimate the scope of the major systems and related organizations that need to be connected to ISAC.
 - b. Evaluate administrative, regulatory, and legal framework and propose the changes necessary to the implementation and operation of telecom ISAC.
 - c. Recommend system architecture, technology and standards, implementation schedule and organizational framework for ISAC.
 - d. Designing and implementing pilot ISAC system for specific network and services (i.e. financial network, national information network).
 - e. Training of identified ISAC members using pilot ISAC system to operate ISAC systems and respond to network failure.
- 3.3 **Component 3: Financial analysis and its corresponding sensitivity analysis:** Based on the findings of the previous section, the goal of this component is to evaluate the financial aspects and develop pilot system for evaluating the effectiveness of the proposed roadmap. This component will comprise:
- a. Evaluate the investment and analyze the economic return estimating the deployment investments (CAPEX) and operating costs (OPEX).
 - b. Development of the Environmental and Social Impact Management Plans (EMP) for the project.
- 3.4 **Component 4: Disseminating the deliverables in the region:** This will entail the creation of regional dialogues and the dissemination of the product developed through: (i) a publication and (ii) the organization of a workshop in order to present the result of the study.

Table 3.1: Budget of Reference

| Components | Funding |
|---|---------|
| Component 1: Diagnosis of status quo of the region on broadband sector <ul style="list-style-type: none"> • Diagnosis of the current network situation and international connectivity • Assessment of availability and reliability • Identification of network failures and stakeholders for ISAC • Development of ISAC roadmap | 130,000 |
| Component 2: Action plan going forward for El Salvador <ul style="list-style-type: none"> • Estimate the scope of the major systems and related organizations. • Review of administrative, regulatory, and legal framework and propose the changes • Propose a roadmap including technology and standards, implementation schedule • Designing and implementing pilot ISAC system • Training of identified ISAC members | 150,000 |

| Components | Funding |
|---|----------------|
| Component 3: Financial and Social Impact Analysis <ul style="list-style-type: none"> Evaluate the investment and analyze the economic return Development of the Environmental and Social impact management plans | 50,000 |
| Component 4: Disseminating the deliverables in the Region <ul style="list-style-type: none"> Dissemination through publication and workshops | 70,000 |
| Total | 400,000 |

IV. EXECUTING AGENCY AND EXECUTING STRUCTURE

- 4.1 The IFD/CMF Division is the executing agency, which will operate in coordination with the staff of the *Superintendencia General de Electricidad y Telecomunicaciones* (SIGET) of El Salvador.

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 data and information to diagnose current status quo of broadband infrastructure; and (ii) that the results of the project are not taken into account to due to a lack of formal commitment to legislate new policies or deploy 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/CMF Division. In addition, the project will include an elaborate, inclusive communication to encourage countries' understandings and involvement in the project.
- 5.3 The second risk is mitigated by the fact that this project is a direct response to the interest presented by the Government of El Salvador to the Bank, as it seeks to further promote broadband infrastructure investments and service provision for its priority sectors.

VI. EXCEPTIONS TO THE POLICY OF THE BANK

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

VII. ENVIRONMENTAL AND SOCIAL 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 Environment and Safeguards Compliance Policy (OP-703) (See: [Safeguard Policy Filter Report](#) and [Safeguard Screening Form](#)).

Required annexes:

- [Annex I – Results matrix](#)
- [Annex II – Terms of Reference](#)
- [Annex III – Procurement Plan](#)

SUPPORTING DEVELOPMENT OF INFORMATION SHARING & ANALYSIS CENTER (ISAC) FOR BROADBAND
INFRASTRUCTURE PROTECTION

RG-T3127

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 December 18, 2016 and signed by Chang You (ORP/GCM). Also, I certify that resources from said fund are available for up to **US\$400,000** 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, represent a risk that will not be absorbed by the Fund.

B.K
2/5/2019



Sonia M. Rivera
Chief

Grants and Co-Financing Management Unit
ORP/GCM

February 6, 2018
Date

Approved:



Juan Antonio Ketterer
Division Chief

Connectivity, Markets and Finance Division
IFD/CMF

Feb 6, 2018
Date