

TECHNICAL COOPERATION DOCUMENT

I. BASIC INFORMATION

Country:	REGIONAL / CID - Isthmus and DR		
TC Name:	Support to the operations of REDCA and the need of additional Infrastructure		
TC Number:	RG-T2736		
Team Leader/Members:	Antonio García Zaballos (Team Leader, IFD/CMF); Suk Nam (IFD/CMF); Enrique Iglesias Rodríguez (IFD/CMF); Inkyung Jeun (IFD/CMF); Ignacio Barragán (LEG/SGO); and Cecilia Bernedo (IFD/CMF)		
TC Taxonomy:	Client Support (CS)		
Reference to Requests:	IDBDocs#40652765		
Authorization TC date:	September, 2016		
Donors providing funding:	Knowledge Partnership Korea Fund for Technology and Innovation (KPK)		
Beneficiary:	Regional CID		
Executing agency and contact name:	Inter-American Development Bank, Capital Markets and Financial Institutions Division (IFD/CMF) Antonio García (antoniogar@iadb.org)		
IDB Funding Requested:	US\$550,000		
Local counterpart funding:	N/A		
Execution period:	24 months	Disbursement period:	36 months
Required start date:	November, 2016		
Types of consultants:	Firm and individual consultants		
Prepared by Unit:	IFD/CMF		
Unit of disbursement responsibility:	IFD/CMF		
TC included in country strategy:	N/A	TC included in CPD:	N/A
GCI-9 sector priority:	Institutions for Growth and Social Welfare.		

II. OBJECTIVES AND JUSTIFICATION OF THE TC

A. Background

- 2.1 There is evidence that the acceleration of broadband access and the effective use of broadband services bring 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 Gross Domestic Product (GDP), 2.61% in productivity and a net generation of more than 67,000 jobs.¹
- 2.2 However, the Central American Region faces great challenges to effectively harness the benefits brought about by broadband connectivity, as it is characterized by²: (i) low levels of penetration, the combined (fixed + mobile)

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

² The Bank has been supporting the region with several Technical Cooperations (TC): TC ATN/KK-13701-RG to identify the infrastructure requirements to complement the *Red Centroamericana de Telecomunicaciones* (REDCA) network and reach out last mile municipalities; and TC ATN/OC-15130-RG the second phase of operation of the training center for broadband. Additionally, there were specific countries like Honduras or Nicaragua who benefited from specific TC funds to update their regulatory framework and define the national broadband plan. Notice that the Bank is actively involved in the Mesoamerican project where REDCA, through the *Empresa Proprietaria de la Red* (EPR), is the executing agency. Through the execution of these technical cooperations the Bank has been supporting the Region in the development of feasibility studies showing the infrastructure requirements to reduce the digital and social divide. But also has been supporting the region in

broadband penetration is just 20.04% in Central America, versus 40.19% in the rest of IDB countries and 100.47% in the OECD countries³; (ii) low broadband quality (in terms of speed), fixed broadband speed is 4.19 Mbps in Central America higher than the average of the IDB countries (2.26 Mbps), but much lower than the average of the OECD countries (8.63 Mbps)⁴; and (iii) high prices, the PPP price of a fixed broadband connection is US\$36.91 in Central America, versus US\$28.91 in the IDB countries and US\$33.15 in the OECD countries⁵. Not surprisingly, given this context, the use of Information and Communications Technologies (ICT) in Central America is also low compared to international standards; the percentage of internet users is 40.39% in Central America, versus 50.34% in the IDB countries and 78.07% in the OECD countries.⁶

- 2.3 One of the main factors causing this delay is the lack of availability of adequate backbone infrastructure and regional connectivity. To address this issue much cost-effectively as well as within a shorter term, six Central American countries (Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica and Panama) created the consortium called REDCA⁷ (*Red Centroamericana de Telecomunicaciones*) as a broadband regional operator in 2013, with the aim to co-share the established electrical regional network; SIEPAC (the *Sistema de Interconexión Eléctrica de los Países de América Central*) for the Internet access together, since that moment, REDCA has been supported by the stated owned electricity companies from the beneficiary countries and has provided wholesale services related to transport in the Region.

B. Objective and justification

- 2.4 The goal of this TC is to support the Central American region in their efforts to develop a sustainable environment for the efficient and effective use of broadband services, by supporting REDCA. Specifically, the TC will contribute to: (i) review REDCA's strategic plan to make sure the infrastructure that is available using the electricity line improves the connectivity throughout the Central-American region; and (ii) develop technical, financial, environmental and social studies to assess the feasibility of new deployments of fiber to complete and upgrade the regional network so that it is achieved an alternative route for the traffic telecommunications data and the interoperability among the beneficiary countries is improved.

the review and update of regulatory frameworks as well as national broadband plan to increase the levels of adoption and use. The strategy followed by the Bank has been consistent with the Broadband Special program approved by the IDB Board and has focused on: (i) development of national ICT plans and governance models, (ii) update of regulatory frameworks, (iii) Institutional strengthening and finally identification of infrastructure requirements. In this regard, this new technical cooperation is coherent and will contribute and reinforce the efforts done by the Bank through the training center (CEABAD) located in Nicaragua and the support given to the association of telecom regulators from the Region (COMTELCA).

³ IDBA 2015, digilac. www.iadb.org/digilAC.

⁴ IDBA 2015, digilac. www.iadb.org/digilAC.

⁵ IDBA 2015, digilac. www.iadb.org/digilAC.

⁶ IDBA 2015, digilac. www.iadb.org/digilAC.

⁷ REDCA is a neutral operator conformed by the state owned electricity companies from the Central-American countries which provides transport services over the electricity cable. The governance model of REDCA is based on a general manager that is appointed by a meeting of the board of all the participating countries

- 2.5 REDCA has successfully initiated operations, however it is currently facing several challenges: (i) need to review its strategic plan in an environment of continuous technological changing and an increasing competition; (ii) lack of specific wholesale sales capabilities to make a value proposition for the existing infrastructure in such a way that the public services provided by the beneficiary countries can take advantage to make social services such as health, education, etc. universal; (iii) lack of specific technical capabilities (Dense Wavelength Division Multiplexing (DWDM) and Intellectual Property/Multiprotocol Label Switching (IP/MPLS)); and (iv) need for new deployments of fiber to offer a comprehensive and secure regional solution which improve the interoperability among the beneficiary countries. In light of the many challenges REDCA requested technical and financial support from the Bank to address these issues through this technical cooperation.
- 2.6 **Strategic Alignment.** This TC with the priorities identified in the IDB's 9th General Capital Increase (GCI-9), specifically the 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 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. The IDB Country Strategy 2012-2017 with Nicaragua identifies the institutional strengthening as a strategic objective (par 3.1). The IDB Country Strategies with the other beneficiaries also establish similar objectives: Panama 2015-2019 (par.3.1), Costa Rica 2015-2018 (par.3.2), El Salvador 2015-2019 (par. 3.12), Guatemala 2012-2016 (par.3.12), Honduras 2015-2018 (par. 6.5) and Dominican Republic 2013-2016 (par. 3.22).

III. DESCRIPTION OF ACTIVITIES/COMPONENTS AND BUDGET

- 3.1 The activities proposed in this project are divided as follows:
- 3.2 **Component 1: Review of REDCA's strategic plan.** The objective of this component is to review current REDCA's strategic plan to ensure it is comprehensive and aligned with the needs of the Central American countries. Specifically, the activities of this component will be: (i) perform an international benchmark to determine best practices in the design of operations for wholesale telecom providers—assessment of business process frameworks (such as eTOM) to determine the optimal design of REDCA's operations; (ii) assess REDCA's strategic plan—review the current strategic plan and compare the current picture with the ideal framework identified in the previous activity; and (iii) propose modifications to REDCA's strategic plan as a result of the analysis.
- 3.3 **Component 2: Support the technical and sales teams.** The objective of this component is to support the development of the technical and sales teams of REDCA. The activities to carry out in this component will be: (i) specialized technical advisory for the development of DWDM and IP/MPLS services enabling

high-capacity access and traffic—certifications with international organizations, and guidelines for the deployment of regional and national Internet Exchange Points (IXP); and (ii) definition of REDCA sales strategy—development of new services and new business models, design of after-sale support service, and support to the execution of the sales strategy.

- 3.4 **Component 3: Studies for the deployment of new infrastructure.** The objective of this component is to evaluate the technical feasibility of the deployment of new infrastructure to improve the capabilities of the regional network. Specifically the component will address the deployment of new infrastructure to improve connectivity and redundancy, the interconnection with Mexico and Panama and the interconnection of regional data centers. As part of this component is expected to carry out the following activities: (i) technical studies for the deployment of complementary infrastructure for the north optical ring: *Subestación Aguacaliente - Tegucigalpa - Subestación San Buenaventura* (Honduras), *y cierre entre Subestación La Vega y Subestación Guate Norte* (Guatemala); (ii) technical studies to improve redundancy through submarine capacity between Guatemala and Panama as well as with the interconnection point in Miami; (iii) technical studies for the interconnection with Mexico—the analysis will have to take into account the legal, administrative, financial and technical implications of the proposed solutions; (iv) technical studies for the interconnection with Panama—the analysis will have to take into account the legal, administrative, financial and technical implications of the proposed solutions; and (v) technical studies for the creation of a network of distributed IXPs that allows the interconnection of the main regional data centers.
- 3.5 **Component 4: Financial analysis and roadmap for deployment.** The objective of this component is to develop the financial analysis of the proposed deployments and propose a roadmap for their execution. The activities to carry out in this component will be: (i) quantify all the investments described in the previous three items, for the first five years of the operation of the cloud-computing platform that will be used to provide broadband services and manage the infrastructure; (ii) calculate the revenues and operational expenditures for the first five-year period—formulate a five-year operating management strategy; and (iii) evaluate the investment and analyze of the economic return associated with the different alternatives, taking into account the different deployment scenarios.
- 3.6 **Component 5: Environmental and social impact analysis.** The objective of this component is to ensure the proposed infrastructure is compliant with legal, regulatory and administrative processes for the protection of the environment, natural habitats, and cultural resources in accordance to the policies of the countries where there will only be deployments and the IDB norms and regulations. This component includes the following activities: (i) development of the Environmental and Social Impact Management Plans (EMPs) for the project, consistent with the Central American countries and IDB Environmental and Social Safeguards and Regulations; and (ii) support the coordination of a workshop to validate results from all studies with stakeholders.

Table 1: Indicative matrix of the results

	Suggested indicator	Measurement Unit	Base-line	EOP	Mean of verification
Outcome Indicators:					
	No. of new services provided by REDCA	No. of services	0	5	New clients with contract
Output Indicators:					
Component 1: Review of REDCA's strategic plan	• Modified and updated REDCA's strategic plan	No. of Updated strategic plan	0	1	Document presenting the Strategic Plan
Component 2: Support to the technical and sales team	• Advisory services for the development of DWDM and IP/MPLS services and definition of REDCA sales strategy.	No. of Documents to improve the sales strategy	0	1	Document providing the Sales Strategy
Component 3: Studies for the deployment of new	• Feasibility studies for improving the interoperability among the beneficiary countries	No. of feasibility studies	0	2	Document presenting the Feasibility Study
Component 4: Financial analysis and roadmap for deployment	• Financial model and cost benefit analysis associated to the investment	No. of documents	0	2	Financial model and Cost Benefit Analysis
Component 5: Environmental and social impact analysis	• Study on the environmental and social impact assessment	No. of documents	0	1	Environmental and social impact study

Table 2: Indicative Budget

Activities	Description	Total
Component 1: Review of REDCA's strategic plan	Review current REDCA's strategic plan to ensure it is comprehensive and aligned with the needs of the Central American countries.	75,000
Component 2: Support to the technical and sales team	Support the development of the technical and sales teams within REDCA.	75,000
Component 3: Studies for the deployment of new infrastructure	Evaluate the technical feasibility of the deployment of new infrastructure to improve the capabilities of the regional network. Specifically the component will address the deployment of new infrastructure to improve connectivity and redundancy, the interconnection with Mexico and Panama and the interconnection of regional data centers	275,000
Component 4: Financial analysis and roadmap for deployment	Financial analysis	75,000
Component 5: Environmental and social impact analysis	Environmental and social impact	50,000
Total		550,000

IV. EXECUTING AGENCY AND EXECUTION STRUCTURE

- 4.1 Based on the complexity and the need of coordination among the different countries included in REDCA and taking into account the implications of public and private institutions and the coordination required, the IFD/CMF Division will be executing the technical cooperation as an honest broker in close coordination with the staff of REDCA and CID.
- 4.2 The Bank will contract individual consultants, consulting firms and non-consulting services in accordance with current Bank procurement policies and procedures.

V. MAJOR ISSUES

- 5.1 This project presents four risks that could affect the impact, quality or sustainability of the expected results: (i) possible delays in the execution due to the coordination among all stake holders—to mitigate this risk the Bank will be executing this TC; (ii) lack of ownership of the project—to mitigate this risk IFD/CMF will closely coordinate with CID who has been leading regional efforts on this area, (iii) the international benchmarking considered in Component 1 could be a difficult task due to the differences in the strategies of telecom operators and the availability of the information – to mitigate this risk it will be encouraged the use of international sources of information coming from the International Telecommunications Union, The World Economic Forum (WEF) and the association of mobile operators (GSMA); and (iv) financial risks due to changes and exogenous variations in the demand provoked by the macroeconomic situation of the countries affecting the infrastructure needs and the capex considered in component 3 – to mitigate this risk the demand will conduct a sensitivity analysis so that it is estimated different scenarios and as a consequence different impact in the infrastructure requirements.

VI. EXCEPTIONS TO THE BANK POLICY

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

VII. ENVIRONMENTAL AND SOCIAL STRATEGY

- 7.1 Given the nature of this TC there are no social or environmental risks associated with it. This operation is classified as a Category “C” according to the Environmental and Safeguards Compliance Policy (OP-703) of the Bank (see: [Safeguard Policy Filter Report](#)) and [Safeguard Screening Form](#)).

REQUIRED ANNEXES:

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

SUPPORT TO THE OPERATIONS OF REDCA AND THE NEED OF ADDITIONAL INFRASTRUCTURE

RG-T2736

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 31, 2016 and signed by Changyeon You (ORP/GCM). Also, I certify that resources from said fund are available for up to US\$550,000 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.

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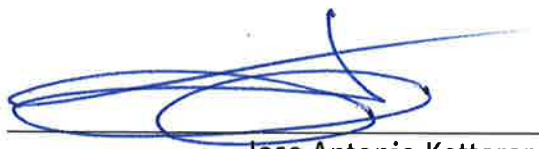
Sonia M. Rivera
Chief

Grants and Co-Financing Management Unit
ORP/GCM

10/7/16

Date

Approved:



Jose Antonio Ketterer
Division Chief

Capital Markets and Financial Institutions
IFD/CMF

10/11/16

Date