

TECHNICAL COOPERATION DOCUMENT

I. TC Basic Information

Country:	Regional: Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panamá and Dominican Republic
TC Name:	Support to the analogue switch off in Central-America
TC Number:	RG-T2737
Team leader/members:	Antonio Garcia Zaballos, Team Leader (IFD/CMF); Inkyung Jeun (IFD/CMF); Irasema Infante (CID/CID); Suk Nam (IFC/CMF); Enrique Iglesias (IFD/CMF); Ignacio Barragán (LEG/SGO); and Cecilia Bernedo (IFD/CMF).
Tc Taxonomy:	Client support (CS)
Authorization date for TC Abstract:	February 24, 2017
Beneficiaries:	Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panamá and Dominican Republic
Executing Agency:	Inter-American Development Bank (IDB)
Donor:	Knowledge Partnership Korea Fund for Technology and Innovation (KPK)
Funds requested:	US\$500,000
Local counterpart:	n/a
Disbursement period:	24 months (Execution: 18 months)
Required starting date:	April, 2017
Consultancy type:	Consulting firms
Unit:	Connectivity, Markets and Finance (IFD/CMF)
Unit responsible of disbursement:	IFD/CMF
TC Included in the country strategy:	No
TC included in the CPD:	No
Alignment to the Update to the Institutional Strategy 2010-2020:	The TC is aligned with the priorities identified in the IDB's Update to the Institutional Strategy 2010-2020. 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; (iv) provide adequate knowledge and innovation systems; (v) improve regional infrastructure; and (vi) leverage South-South and triangular cooperation to produce regional public goods, exchange knowledge and best practice and harmonize regulations.

II. Objectives and justification

- 2.1 The existing digital gap in terms of access, adoption and usage is a challenge for Latin-America and Caribbean (LAC) countries. The main obstacles to the

development of broadband services and a digital economy in the region are:¹ (i) affordability of services, hardware and software, (ii) low quality (speed) of broadband services which have a clear impact for the performance of the different services and applications; (iii) lack of understanding about the benefits that internet access could bring to improve the quality of life; and (iv) lack of relevant local content. While the main reason for the first two obstacles is the lack of telecom infrastructure and connectivity, the reason for the remaining obstacles is related to the lack of awareness and a governance model which facilitates public-private-partnership.

- 2.2 In developing countries, digital switchover can bring a development opportunity with economic benefits. It allows a large portion of frequency spectrum to be reallocated to mobile broadband operators, thereby allowing to open up and expand broadband. It is estimated that increases of 10% in broadband penetration in LAC countries, on average, have associated increases of 3.19% in GDP, 2.61% in productivity and a net generation of more than 67,000 jobs.² Also, by selling the freed frequency spectrum, a government can earn additional government revenues. In recognition of the economic gains from digital switchover, the presidents of Guatemala and El Salvador announced the rapid completion of digital switchover repeatedly, but the plan has remained in a stalemate.
- 2.3 There are several benefits that broadband could bring to different sectors of the economy such as education, social and digital inclusion in rural and isolated areas, health, productivity, etc. Therefore, governments from different countries have announced important policy reform to increase the levels of access, adoption and usage of broadband services. An example of these policies is the national Broadband Plans that governments³ from different countries in Latin-America have designed and implemented recently.
- 2.4 Despite all the efforts, the need of a governance model is a persistent challenge to accelerate the access, adoption and usage of broadband services in the region. Although many government officials are aware about the importance that broadband has for development, the diagnosis of the problems and the solutions to overcome them implies a coordination with different government agencies (regulator, ministries), the private sector and the civil society and the academia.
- 2.5 In this regard, all the stakeholders involved agrees that the analogue switch off is one of the key levers to improve the level of digitalization and universalization of broadband services. The transition from analogue to digital brings efficiency in the

¹ In the case of Central-American countries, the lack of telecom infrastructure is affecting the level playing field competition and the prices that eventually are being paid. Although, it is observed a reduction in the price, the prices paid by the bottom of the pyramid are still far from being affordable (see DigiLAC website (www.iadb.org/digilac) for more detail, in addition to that, the lack of infrastructure has an impact on the competition level and the quality of service that it is offered. Spectrum management and the transition from analogue to digital could be a catalyzer to widespread the internet services across rural and isolated areas and improve the quality of the services that are provided.

² Garcia-Zaballos, A. / López-Rivas, R.: Socio-economic impact of broadband in LAC countries. IDB, 2012.

³ The Governments from Colombia, Uruguay, Costa Rica and Chile have designed national Broadband plans whose main objective is to accelerate the adoption of Broadband services. For instance, in the case of Costa Rica, although the country just liberalized in 2010 nowadays has been able to reach levels of penetration of mobile telephony like developed countries as Spain, United Kingdom and Italy. The price level and the increasing competition across the different operators (state owned company ICE, Movistar and Claro) has boosted the demand making the country become one of the leading countries in the region in terms of usage of broadband services. Further information on the performance of Costa Rica vs other countries from Central-America can be found at www.iadb.org/digilac.

spectrum usage and spectrum management that facilitate the deployment of telecom infrastructure. Therefore, it is important to highlight that spectrum is a key variable of the national connectivity plans since it is a pillar of the country digital strategy.

- 2.6 Having a clear roadmap for the implementation of the analogue switch off as well as having a governance model and an update regulatory framework will be fundamental for the sustainability of the countries' digital strategies. On the other hand, in addition to the benefits that the analogue switch off could bring to rural and isolated areas, there is an also strong linkage between the analogue switch off and the Sustainable Development Goals (SDG) and the improve of the people' quality of life, first, thanks to have access, and second, through the usage that internet services brings to the different sectors of the economy such as: education, health, productivity, and the digital economy as a whole.
- 2.7 Although there are several countries from LAC who are involved on a digital transformation, the Central-American region is lagging behind specifically when we refer to the transition from analogue to digital. Due to the relationship that exists between the analogue switch off and the universalization of broadband services,⁴ this technical cooperation will provide an assessment on technical, regulatory and policy measures to accelerate the analogue switch off in the Central-American region and specifically, will provide a set of recommendations for Guatemala and El Salvador.
- 2.8 **Objectives of the technical cooperation.** The general objective of this project is to support the efficient and effective analogue-to-digital transition through the design and elaboration of tailored roadmaps and detailed action plans to move towards the digitalization based on the status quo of the Central-American region. In addition, the technical cooperation will provide specific actions for a national connectivity plan and the frequency allocation table for Guatemala and El Salvador. Thanks to the activities of this technical cooperation, it is expected to bring to the Central-American region best practices and lessons learnt on the topic of analogue switch off so that the region can accelerate the implementation of national broadband plans so that citizens, SMEs, and public institutions not only get connected but also make an efficient use of internet services to reduce the digital and the social divide. As part of this project it is expected to design a pilot project in Guatemala and El Salvador (specifically in the capital of these two countries) showcasing the steps to be taken to implement the analogue switch off.
- 2.9 **Alignment.** The TC is aligned with the priorities identified in the IDB's Update to the Institutional Strategy 2010-2020. 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; (iv) provide adequate knowledge and innovation systems; (v) improve regional infrastructure; and (vi) leverage South-South and triangular cooperation to produce regional public goods, exchange knowledge and best practice and harmonize regulations. This TC will contribute to institutional strengthening of the beneficiary countries through de

⁴ The universalization of internet services depends mainly on the connectivity level, and therefore on the availability of infrastructure across the country, regardless whether the area is rural or urban. The beneficiary countries from this technical cooperation have a common factor which is the existing level of mobile penetration. In this regard, the provision of mobile broadband services requires access to spectrum. The more spectrum is available the more is the coverage level that the telecom infrastructure could get. Because of the spectrum that is freed due to the transition from analogue to digital there is a strong linkage between the topics included in this technical cooperation and the level of universalization that eventually could be reached in the beneficiary countries where the project is intended to intervene.

development of an innovative product such as the analysis of public regulation and policy aspects. Additionally, this product will allow the acceleration in the deployment of telecommunications infrastructure. In addition to the previous aspects, the technical cooperation will contribute to facilitate the interoperability across the different countries through a better regional integration. Lastly, the results of the analysis of this TC will provide recommendations to accelerate not only the deployment but also to reach rural zones of difficult access and will offer recommendations of regulatory policies aimed to achieve digitalization.

III. Description of the activities/components and budget

3.1 Component 1: Assessment of the status quo of the region in terms of digital switchover. The objective of this component is to evaluate the current status of Central America and develop a roadmap to promote digital switchover. This component will comprise:

- a) Benchmarking to come up with best practices on technical, regulatory and economical aspects associated to the process and the linkage with the national connectivity plan.
- b) Evaluation of the current spectrum use and the various radio technologies.
- c) Evaluation of the current technology choices.
- d) Assessment of the market structure and future demand for spectrum.
- e) Review of the administrative, regulatory, and legal framework and propose the changes necessary to the analogue switch-off.
- f) Development of a roadmap for universal access and equitable provision of digital broadcasting services.

3.2 Component 2: Phase I. Strategy going forward for Guatemala and El Salvador. The objective of this component is to propose a specific action plan optimized for Guatemala and El Salvador⁵. This component will comprise

- a) Evaluation of current broadcasting networks and development of the national connectivity plan.
- b) Development of the National Frequency Allocation Table (NFAT).
- c) Recommend technology and standards, design principles and network architecture, transmission equipment availability, network planning, infrastructure and spectrum compatibility. Recommendations should account for requirements regarding picture and sound quality, coverage quality and transmission costs.
- d) Design a pilot project in a specifically chosen area. (i.e. the capital).

⁵ The reasons why these two countries were selected are based on: (i) both countries have been involved on an update of the regulatory framework and the launch of a national broadband plan in the last six months, (ii) both countries have been involve in a review of the spectrum management framework and are considering new allocations of frequency blocks; and (iii) in the case of Guatemala there is an ongoing project with the Government of Korea to bring them lessons learnt from the Korean case and in the case of El Salvador, the Regulatory Agency has announced the interest to accelerate the implementation of the analogue switch off. The sum of all these factors makes the selected countries very interesting case studies and the expected results could be extrapolated to other countries which are lagging in terms of spectrum management like for instance Honduras or Nicaragua.

- 3.3 **Component 3: Financial and social impact analysis for Guatemala and El Salvador.** This will conduct a financial and cost benefit analysis. This component will comprise:
- a) Investment Evaluation: Evaluate the investment and analyze the economic return estimating the deployment investments (CAPEX) and operating costs (OPEX).
 - b) Environmental and Social Impact Management Plans: Development of the Environmental and Social Impact Management Plans (EMP) for the project.
 - c) Multimedia Emergency Warning: The framework for multimedia emergency warning system and digital broadcasting contents co-producing would be considered together, to maximize the usage of digital broadcasting.
- 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 to the both Governments.
- 3.5 **Expected results.** The main expected result from this technical cooperation is that beneficiary countries are implementing some of the recommendations and action plan for the transition from analogue to digital switch off. However, in the medium run this technical cooperation will contribute to improve the connectivity in the Central-American Region thanks to the design of a roadmap for analogue switch off that will facilitate the connection to internet of rural and isolated areas at the same time as the quality of the internet services is improved in those areas which are already connected. But there is also some long term expected results since citizens, SMEs and public institutions will become aware of the benefits that internet services could bring to their lives and to improve the productivity of the economy. Specifically, the technical cooperation will provide support to:
- a) Review, revise and propose new strategic policies and regulatory reforms to facilitate digital switchover using international best practices.
 - b) Identify the technical considerations for facilitating digital switchover relevant to the transmission and receiver infrastructure, including the network configuration and the different technological alternatives and provide the tangible plan for a pilot project in a designated area.
 - c) Financial and economic analysis of proposed investment in upgrading broadcasting facilities, new equipment, expansion of terrestrial broadcasting networks, and cost benefit analysis.
 - d) Recommendations for actions, pilot project design, roadmap for implementation, and governance framework.
 - e) Environmental and social impact management plans and the framework for multimedia emergency warning system and digital contents co-producing.
 - f) Knowledge sharing and capacity building workshops.
- 3.6 The total estimated cost for this TC is US\$500,000 financed by the Knowledge Partnership Korea Fund for Technology and Innovation (KPK) and will have no local counterpart.

Table Indicative budget

Component	Funds
Component 1: Assessment of the status quo of the region in terms of digital switchover <ul style="list-style-type: none"> • Evaluation of the Spectrum usage and identification of the different technologies of radio • Evaluation of the different technological options • Evaluation of the market structure and forecast demand for spectrum • Revise of the regulatory framework and proposal of modification • Development of an action plan to go digital 	US\$150,000
Component 2: Phase I. Strategy going forward for Guatemala and El Salvador <ul style="list-style-type: none"> • Recommendations on technology and standards • Development of a national connectivity plan • Recommendations for Spectrum frequency allocation • Design of a pilot project showcasing the steps to be taking for the analogue switch off in the capital city of Guatemala and El Salvador 	US\$250,000
Component 3: Financial and social impact analysis for Guatemala and El Salvador <ul style="list-style-type: none"> • Evaluation of the investment requirement and economic assessment • Development of environmental and social impact plan • Design of a multimedia system for emergencies 	US\$70,000
Component 4: Disseminating the deliverables in the region: <ul style="list-style-type: none"> • Publications • Workshops to present the results from the study 	US\$30,000
Total	US\$500,000

IV. Executing agency and execution structure

4.1 The Connectivity, Markets and Finance Division (IFD/CMF) will be the executing agency which will coordinate all the work with the telecom regulators from the Central-American and the Dominican Republic countries.⁶ The reasons behind this decisions are based on: (i) the technical complexity of the products to develop and the need to coordinate different public institutions such as regulators and ministries and private companies, therefore the Bank will have a honest broker role that facilitate the dialogue around this topic; (ii) in the execution of the project there will be involved all the countries from Central America and the Dominican Republic, hence, to guarantee the coordination in the execution of the different activities the Bank will coordinate the execution taking into account the heterogeneity across the different beneficiary countries; and (iii) there is a specific request in the case of Guatemala and El Salvador. In these two countries the technical cooperation is expected to provide a detailed roadmap with actions for the implementation of the analogue switch off. The execution of the TC will be done in accordance with the Bank Policy (OP-1155-2).

⁶ The counterparts in the execution of the technical cooperation will be: Guatemala (SIT), Honduras (CONATEL), El Salvador (SIGET), Nicaragua (Telcor), Costa Rica (Sutel and MICYT), Panama (ARESEP), Dominican Republic (Indotel).

V. Project risk

- 5.1 This Project presents two risks that could affect the impact of the expected results: (i) lack of institutional capacity to design, implement and monitor policy and regulatory reforms, such as the ones to be recommended in the project; and (ii) that the results of the project are not taken into account 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 a monitoring process throughout the implementation of the project to allow for the different institutions to get involved from the beginning to the end of the project and a coordination with the training center CEABAD will be done to support the countries on the technical aspects related to 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 Guatemala and El Salvador to the Bank, as it seeks to further promote broadband infrastructure investments and service provision for its priority sectors. In addition, the results from the technical cooperation will contribute to mitigate this risk.

VI. Exceptions to the Bank policies

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

VII. Environmental 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 classification toolkit of the Bank (see the links: [Safeguard Policy Filter \(SPF\)](#) and [Safeguard Screening Form \(SSF\)](#)).

Required annexes:

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

SUPPORT TO THE ANALOGUE SWITCH OFF IN CENTRAL- AMERICA

RG-T2737

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 February 10, 2017 and signed by Byoung Kim (ORP/GCM). 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, represent a risk that will not be absorbed by the Fund.

B.K
3/24/2017


Sonia M. Rivera
Chief

Grants and Co-Financing Management Unit
ORP/GCM

03/27/2017
Date

Approved:

Storwick
3/27/2017


Juan Antonio Ketterer
Division Chief

Capital Markets and Financial Institutions Division
IFD/CMF

03/28/2017
Date