

**ROADMAP FOR THE DIGITAL SWITCHOVER IN THE ANDEAN GROUP  
(CAN)**

**RG-T2301**

**CERTIFICATION**

I hereby certify that this operation was approved for financing under the Special Broadband Program Fund (BBD) through a communication dated on July 10, 2013 signed by Sergio Zwi (ORP/GCM). Also, I certify that resources from the Special Broadband Program Fund (BBD) are available for up to US\$500,000 in order to finance the activities described and budgeted in this document. This certification reserves resources 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, for which the Fund is not at risk.



Sonia M. Rivera  
Chief

Grants and Co-Financing Management Unit  
ORP/GCM

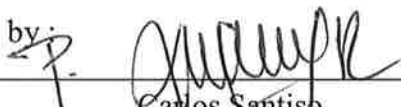
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Date

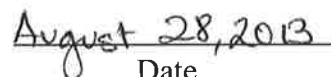
**APPROVAL**

Approved by:



Carlos Santiso  
Division Chief

Institutional Capacity of State Division  
IFD/ICS



Date

## TECHNICAL COOPERATION DOCUMENT (TC-DOCUMENT)

### REGIONAL

#### I. BASIC INFORMATION

<b>Country/Region:</b>	Regional
<b>TC Name:</b>	Roadmap for the Digital Switchover in the Andean Group (CAN)
<b>TC Number:</b>	RG-T2301
<b>Team Leader/Members:</b>	Antonio García Zaballos (IFD/ICS), Team Leader; Javier Bedoya (LEG/SGO) Nathalia Foditsch (IFD/ICS); Felix Gonzalez (IFD/ICS); Enrique Iglesias (IFD/ICS); and Blanca Torrico (IFD/ICS).
<b>TC Taxonomy:</b>	Research and Dissemination
<b>Date of TC Abstract authorization:</b>	July, 2013
<b>Donors providing funding:</b>	Fund for Broadband Services (BBD)
<b>Beneficiary</b>	Andean Group –CAN (Bolivia, Colombia, Ecuador, Peru and Venezuela
<b>Executing Agency and contact name:</b>	Inter-American Development Bank (IDB), Antonio García Zaballos ( <a href="mailto:antoniogar@iadb.org">antoniogar@iadb.org</a> ).
<b>IDB Funding Requested:</b>	IDB: US\$500,000
<b>Local Counterpart funding:</b>	Local: US\$ <u>0</u> Total: US\$500,000
<b>Disbursement period:</b>	18 months
<b>Execution period:</b>	12 months
<b>Required start date:</b>	August, 2013
<b>Types of consultants:</b>	Individual consultants
<b>Prepared by Unit:</b>	IFD/ICS
<b>Unit of Disbursement</b>	IFD/ICS
<b>Responsibility:</b>	
<b>TC Included in Country Strategy:</b>	N/A. Regional project
<b>TC included in CPD:</b>	N/A. Regional project
<b>GCI-9 Sector Priority:</b>	The current Sector Strategy: “Institutions for Growth and Social Welfare” highlights the need to work towards strengthening institutions, and has specifically recognized the need to improve policies and governmental action in the ICT sector (5.21 of the referred Sector Strategy). Consistent with the Strategy, the Bank has designed and is currently working in the implementation of a Broadband Platform to accelerate the penetration rate and usage of broadband services in the Region. It is also worth noting that the current Sector Strategy: “Support Competitive Global and Regional Integration”, also identifies bridging the digital divide as one of the Bank’s priorities to promote integration, placing specific emphasis on promoting

broadband infrastructure.

## II. OBJECTIVE AND JUSTIFICATION

- 2.1 **Objectives.** The project aims at deepening the harmonization of spectrum planning and management policies and practices across the Andean Countries (CAN), as well as at guiding CAN countries throughout the process of the “digital switchover”. The proposed Roadmap for the Digital Switchover attempts to capture the current situation, existing or future constraints and needs in regards to spectrum policies and regulations in the CAN Region. CAN countries have specific social and economic constraints, different institutional and legal frameworks and significantly different cultural patterns which would be taken into account in the analysis. The final deliverable will focus on policy instruments and recommendations whose implementation are feasible and realistic in the CAN Region.
- 2.2 **Justification.** The increasing demand for broadband services in the Andean Group (CAN) countries requires additional spectrum to be allocated to wireless/mobile broadband operators. Therefore, effective spectrum management and strategic regulation is needed if countries wish to succeed in providing universal access to broadband for their population. Efficient spectrum management<sup>1</sup> has proven to be challenging. In most CAN countries, the pace of policy development and legislative and regulatory reform have not kept pace with the rapid evolution in wireless technologies; as a result, the traditional methods for spectrum management have become impractical and inefficient and could become a barrier to entry for prospective investors.
- 2.3 Efficient spectrum management depends to a large extent on following international standards. The International Telecommunication Union (ITU), the organization responsible for establishing the International Radio Regulations, divides the world into three different regions for the purpose of managing the global radio spectrum. All CAN countries belong to region 2, covering all the Americas. Thus, all countries in the Americas, either from the south, central or north should follow the same harmonization guidelines.
- 2.4 Additional spectrum is in the process of being released in CAN countries. The “digital switchover” corresponds to the transition from analog television to digital broadcasting. This new technology frees up large areas of frequencies, which could be re-allocated to mobile broadband operators. This is caused by the fact that digital transmissions can be packed into adjacent channels, while analog ones cannot; as a result, the band can be “compressed” into fewer channels, while still allowing for more transmissions. While the United States completed the switchover in 2009 and Europe ordered all countries to do the switch off of analog broadcasts by 2012, the rate in Latin America is quite different. All CAN countries, albeit at different stages, are going through the planning process for this

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<sup>1</sup> Spectrum management is the combination of administrative and technical procedures necessary to ensure the efficient utilization of the radio-frequency spectrum by all radio communication services, without causing harmful interference. ITU-R Study Group booklet. Radiocommunication Bureau of the International Telecommunication Union (ITU). June 2010: [http://www.itu.int/dms\\_pub/itu-r/oth/0A/0E/ROA0E0000010001PDFE.pdf](http://www.itu.int/dms_pub/itu-r/oth/0A/0E/ROA0E0000010001PDFE.pdf)

transition. Bolivia, Peru and Venezuela plan to complete the transition in 2020, Colombia by the end of 2019 and Ecuador by the end of 2017.

- 2.5 The digital switchover poses both opportunities and challenges to governments in dealing with the transition from analog to digital broadcasting. The transition requires decisions to be made on a great number of political, economic, technological and regulatory issues. Therefore, it is necessary to develop a well-defined roadmap to guide countries throughout this important transition.
- 2.6 The Broadband Special Program, approved this past march, aims at supporting member countries in strengthening the broadband access, adoption and use. This goal will be reached through the development of activities in three main pillars: (i) policy development and governance models; (ii) development of strategic regulatory frameworks; and (iii) strengthening of the capacity of the institutions involved. The present TC clearly relates to the first pillars aforementioned, since it provides for a roadmap to facilitate the development and implementation of spectrum public policies and regulatory framework.
- 2.7 Moreover, the IDB is also channeling other efforts in the Region to improve broadband. In Peru, PE-L1146 (loan under preparation), and Technical Cooperation (CT) ATN/KK-13311-PE (PE-T1268) focuses on a backbone network to increase the connectivity in Peru. In Bolivia the CT ATN/KK-13786-BO (BO-T1192) and BO-L1091 (loan under preparation) focus on the increasing awareness among policy makers on the importance of broadband development in Bolivia, as well as on diagnosing the connectivity gap between supply and demand as well as on strengthening its broadband plan and regulatory framework. The expertise developed in such regional projects provides valuable inputs in terms of design and implementation for the present cooperation.

### III. DESCRIPTION OF ACTIVITIES AND OUTPUTS

- 3.1 The aforementioned objectives will be achieved through the following components:
  - (i) **Assessment of the spectrum *status quo* in CAN:**
    - a. An assessment of current spectrum use in CAN and in each beneficiary country.
    - b. An evaluation of the current spectrum use and the various radio technologies and frequency selection techniques currently in use.
    - c. An assessment of the market structure and an assessment of likely future demand for spectrum (TV; Radio; Satellite; etc).
  - (ii) **National and regional 700MHz frequency band analyses and plan.** Evaluation of current segmentation scheme for the 700MHz band and development of a proposal for a Regional band plan. This component will comprise:
    - a. Evaluation of the current technology choices.
    - b. An assessment of the spectrum efficiency relative to the technologies and techniques in use and those that could possibly be implemented.

- c. Evaluation of current DTTB networks.
  - d. Development of the National Frequency Allocation Table (NFAT) for each country.
  - e. Development of a Regional Frequency Allocation Table (RFAT) for the CAN Region.
- (iii) **Design and elaboration of a Digital Switchover Roadmap.** Development of a roadmap for the national regulators. This component will comprise:
- a. Main principles of the implementation of digital transition: universal access and equitable provision of services.
  - b. Regulatory matters: assessment of the current regulatory framework and the changes necessary to promote the analogue switch-off.
  - c. Institutional framework: assessment of the current institutional framework and recommendations for possible changes.
  - d. Licensing models: assessment of current licensing model and recommendation for possible changes.
  - e. Technical issues: Technology and standard application, design principles and network architecture, network planning, infrastructure and spectrum compatibility.
  - f. Digital dividend: recommendations for the allocation of frequencies.
- (iv) **Disseminating the deliverables in the Region.** This will entail 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 CAN countries.

**Table 2.1: Indicative results matrix**

Results Statement		Indicator	Base-line	Yr1	Yr2
<b>Intermediate outcome</b>	Nationally improved and regionally harmonized regulatory and procedural frameworks	Indicator 1: Number of countries which have transposed the recommendations of the agreed spectrum management plan into national regulations, procedures, or legislation.	0	0	5
		Indicator 2: Anticipated increase in Internet access due to the use of frequencies freed up after the digital switchover.	0	0	10%
<b>Immediate outcome</b>	Prioritized national-level actions dealing with the regulation of the electromagnetic spectrum	Indicator 1: Number of countries endorsing the strategic and implementation plan for spectrum management and committing to follow-up actions.	0	5	5
		Indicator 2: Anticipated cost reductions to be realized from planned interventions.	0	0	5%

Results Statement	Indicator	Base-line	Yr1	Yr2
<b>Output 1.</b> Study on current spectrum use in CAN	Number of studies developed	0	1	0
<b>Output 2</b> A National Frequency Allocation Table (NFAT) for each country and a Regional Frequency Allocation Table (RFAT) for CAN countries	Number of tables developed (national tables on the first year and regional table on the second year)	0	5	1
<b>Output 3.</b> Digital Switchover Roadmap developed	Number of the following frameworks developed:	0	0	1
<b>Component 1</b> Assessment of current spectrum use in CAN	See output 1	0	0	0
<b>Component 2</b> 700MHz Frequency Band Analysis	Number of frequency bands analyzed (one per country) in the first year, and a regional one in the second year	0	5	1
<b>Component 3</b> Design and elaboration of a Digital Switchover Roadmap	See output 3	0	-	0
<b>Component 4</b> Disseminating the deliverables in the region	i) Number of publications; (ii) number of disseminating events held	0	1	1

3.2 Outcomes will be assessed by the end of the TC execution period in a final evaluation<sup>2</sup>. The evaluation will have the purpose of checking if the consultancy carried out is in accordance to the objectives of the TC as well as the terms of reference. Moreover, it will measure the immediate outcomes described on Table 2.1 above. The TC's team will send a questionnaire to CAN countries in order to assess the intermediate outcomes, which will be evaluated by each country and will vary according to their particular development stage in regards to spectrum management. Lastly, since this is the first TC related to spectrum management, the final evaluation will assess how the activities undertaken throughout the TC can be replicated to other countries in Latin American and Caribbean countries.

**Table 2.2: Indicative Budget**

Activities	Cost US\$
<b>Human resources</b>	
Component I - Assessment of current spectrum use in CAN	70,000
Component II-700MHz Frequency Band Analysis and Plan	170,000
Component III- Design and elaboration of a Digital Switchover Roadmap	120,000
Component IV- Disseminating the deliverables in the region	80,000
Other costs: administrative support, final evaluation; edition and translation of the publication; and other unforeseen expenses	60,000
<b>Total</b>	<b>500,000</b>

<sup>2</sup> An internal evaluation is going to be undertaken by the IDB, but no additional budgetary provision is necessary for this purpose.

#### **IV. EXECUTING AGENCY AND EXECUTION STRUCTURE**

- 4.1 This Technical Cooperation will be executed by the Competitiveness and Innovation Division (IFD/CTI). The TC involves highly technical aspects and requires the coordination of many internal players within the different countries. For this reason, and considering the regional characteristic of the project, the Bank's participation as an EA is expected to facilitate the timely implementation of the TC.
- 4.2 The execution period of the TC is feasible since it involves the analysis information and data that might be available in the countries. It is important to highlight that the procurement of goods and services (consulting and non-consulting services) will be undertaken in accordance with the policies for the selection and contracting of consultants financed by the Bank (GN-2350-9).

#### **V. PROJECT RISKS AND ISSUES**

- 5.1 The main risk relates to the fact that achieving the expected results depends on the actual adoption of the information and recommendations provided by the IDB. Common difficulties in approving specific modifications to the existing law, the publication of amendments in the existing decrees are examples of the risks associated to actual future implementation of the recommendations. Another issue is that countries might adopt different models for frequency allocation. This risk is mitigated by the fact that whereas proposing the harmonization of frequencies, this TC will also make individual frequency allocation proposals for each country and will be aligned with each country's telecommunication and spectrum policies. Lastly, the risk of having overlaps with the other projects in the Region related to broadband is mitigated by the fact that they are all being coordinated by IFD/ICS.

#### **VI. EXCEPTIONS TO BANK POLICY**

- 6.1 No exceptions to Bank policy are foreseen.

#### **VII. ENVIRONMENTAL AND SOCIAL CLASSIFICATION**

- 7.1 No environmental or social risks associated to the implementation of this project are foreseen. Classification of this project is "C" according to the Classification Toolkit system of the Bank (please see link: [IDBDocs#37788805](#)). No environmental assessment studies or consultations are required for Category "C" operations.

#### **ANNEXES**

- **Annex I: Terms of Reference** [IDBDocs# 37912981](#)
- **Annex II: Procurement Plan** [IDBDocs# 37912982](#)

## TERMS OF REFERENCE

### IFD/CTI

#### RG-T2301: Roadmap for the Digital Switchover in the Andean Group (CAN)

#### I. BACKGROUND

- 1.1 **Justification:** The increasing demand for broadband services in the Andean Group (CAN) countries requires additional spectrum to be allocated to wireless/mobile broadband operators. Therefore, effective spectrum management and strategic regulation is needed if countries wish to succeed in providing universal access to broadband for their population. Efficient spectrum management<sup>1</sup> has proven to be challenging. In most CAN countries, the pace of policy development and legislative and regulatory reform have not kept pace with the rapid evolution in wireless technologies; as a result, the traditional methods for spectrum management have become impractical and inefficient and could become a barrier to entry for prospective investors.
- 1.2 Additional spectrum is in the process of being released in CAN countries. The “digital switchover” corresponds to the transition from analog television to digital broadcasting. This new technology frees up large areas of frequencies, which could be re-allocated to mobile broadband operators. This is caused by the fact that digital transmissions can be packed into adjacent channels, while analog ones cannot; as a result, the band can be “compressed” into fewer channels, while still allowing for more transmissions. While the United States completed the switchover in 2009 and Europe ordered all countries to do the switch off of analog broadcasts by 2012, the rate in Latin America is quite different. All CAN countries, albeit at different stages, are going through the planning process for this transition. Bolivia, Peru and Venezuela plan to complete the transition in 2020, Colombia by the end of 2019 and Ecuador by the end of 2017.
- 1.3 The digital switchover poses both opportunities and challenges to governments in dealing with the transition from analog to digital broadcasting. The transition requires decisions to be made on a great number of political, economic, technological and regulatory issues. Therefore, it is necessary to develop a well-defined roadmap to guide countries throughout this important transition.
- 1.4 The activities comprised in the TC in reference are the following: (i) an assessment of the spectrum *status quo* in CAN; (ii) National and Regional 700MHz Frequency Band Analyses and Plan; (iii) the design and elaboration of a Digital Switchover Roadmap; (iv) the disseminating the deliverables in the region. These terms of reference define the required background and expertise, as well as the objectives, activities and the products to be carried out and delivered by a Consulting Firm or Institution hired under the TC. This product corresponds to **Component I** of the Regional Technical Cooperation in reference.

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## II. CONSULTANCY OBJECTIVES

- 2.1 The main objective of this consultancy is to support the Executing Agency in the performance of the **Component I** of RG-T2301. The Consultant hired under these TOR is responsible for the assessment of the spectrum status quo in CAN.

## III. CHARACTERISTICS OF THIS CONSULTANCY

- 3.1 **Type of consultant:** Individual/Firm
- 3.2 **Start date and duration:** from ....., to ....., 2013.
- 3.3 **Place of work /travel:** Place of residence. During the contract period, the consultant might be requested to attend meetings with IFD/ICS and. Travel related expenses will be covered by the consultant, under the terms of this contract. No additional funding will be provided by the IDB.
- 3.4 **Qualifications:** The consultant will have at least 5 years of professional experience, hold an advanced degree in Engineering or related fields, as well as have extensive experience in telecommunications. Experience with CAN countries is a plus.
- 3.5 **Source of funding:**

## IV. ACTIVITIES AND PRODUCTS

- 4.1 The Consultant will be responsible for:
- a. An assessment of current spectrum use in CAN and in each beneficiary country;
  - b. An evaluation of the current spectrum use and the various radio technologies and frequency selection techniques currently in use;
  - c. An assessment of the market structure and an assessment of likely future demand for spectrum (TV; Radio; Satellite; etc) ; and

## V. PAYMENT

- 5.1 Payment will be made as per the following schedule, upon approval by the Team Leader responsible for this TC (See item VI below).
- 5.2 **Schedule of payments:**
- i. 20% upon contract signature;
  - ii. 80% upon the approval of the final product.

## **VI. COORDINATION**

Supervision and coordination of the consultant's work will be the responsibility of Antonio García Zaballos (IFD/ICS), Tem Leader, [antoniogar@iadb.org](mailto:antoniogar@iadb.org), tel. (202) 623-2980.

## TERMS OF REFERENCE

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- 1.4 The activities comprised in the TC in reference are the following: (i) an assessment of the spectrum *status quo* in CAN; (ii) National and Regional 700MHz Frequency Band Analyses and Plan; (iii) the design and elaboration of a Digital Switchover Roadmap; (iv) the disseminating the deliverables in the region. These terms of reference define the required background and expertise, as well as the objectives, activities and the products to be carried out and delivered by a Consulting Firm or Institution hired under the TC. This product corresponds to **Component II** of the Regional Technical Cooperation in reference.

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## II. CONSULTANCY OBJECTIVES

- 2.1 The main objective of this consultancy is to support the Executing Agency in the performance of the **Component II** of RG-T2301. The Consultant hired under these TOR is responsible for developing National and Regional 700MHz Frequency Band Analyses and Plan.

## III. CHARACTERISTICS OF THIS CONSULTANCY

- 3.6 **Type of consultant:** Individual/Firm
- 3.7 **Start date and duration:** from ....., to ....., 2013.
- 3.8 **Place of work /travel:** Place of residence. During the contract period, the consultant might be requested to attend meetings with IFD/ICS and. Travel related expenses will be covered by the consultant, under the terms of this contract. No additional funding will be provided by the IDB.
- 3.9 **Qualifications:** The consultant will have at least 5 years of professional experience, hold an advanced degree in Engineering or related fields, as well as an extensive experience in telecommunications and spectrum management. Experience with CAN countries is a plus.
- 3.10 **Source of funding:**

## IV. ACTIVITIES AND PRODUCTS

- 4.1 The Consultant will be responsible for evaluating of current segmentation scheme for the 700MHz band and developing of a proposal for a Regional band plan. This component will comprise:
- a. Evaluation of the current technology choices;
  - b. An assessment of the spectrum efficiency relative to the technologies and techniques in use and those that could possibly be implemented;
  - c. Evaluation of current DTTB networks;
  - d. Development of the National Frequency Allocation Table (NFAT) for each country; and
  - e. Development of a Regional Frequency Allocation Table (RFAT) for the CAN Region.

**V. PAYMENT**

- 5.3 Payment will be made as per the following schedule, upon approval by the Team Leader responsible for this TC (See item VI below).
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- 1.4 The activities comprised in the TC in reference are the following: (i) an assessment of the spectrum *status quo* in CAN; (ii) National and Regional 700MHz Frequency Band Analyses and Plan; (iii) the design and elaboration of a Digital Switchover Roadmap; (iv) the disseminating the deliverables in the region. These terms of reference define the required background and expertise, as well as the objectives, activities and the products to be carried out and delivered by a Consulting Firm or Institution hired under the TC. This product corresponds to **Component III** of the Regional Technical Cooperation in reference.

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<sup>3</sup> Spectrum management is the combination of administrative and technical procedures necessary to ensure the efficient utilization of the radio-frequency spectrum by all radio communication services, without causing harmful interference. ITU-R Study Group booklet. Radiocommunication Bureau of the International Telecommunication Union (ITU). June 2010: [http://www.itu.int/dms\\_pub/itu-r/oth/0A/0E/R0A0E0000010001PDFE.pdf](http://www.itu.int/dms_pub/itu-r/oth/0A/0E/R0A0E0000010001PDFE.pdf)

## II. CONSULTANCY OBJECTIVES

- 2.1 The main objective of this consultancy is to support the Executing Agency in the performance of the **Component III** of RG-2301. The Consultant hired under these TOR is responsible for designing and elaborating a Digital Switchover Roadmap.

## III. CHARACTERISTICS OF THIS CONSULTANCY

- 3.11 **Type of consultant:** Individual/Firm
- 3.12 **Start date and duration:** from ....., to ....., 2015.
- 3.13 **Place of work /travel:** Place of residence. During the contract period, the consultant might be requested to attend meetings with IFD/ICS and. Travel related expenses will be covered by the consultant, under the terms of this contract. No additional funding will be provided by the IDB.
- 3.14 **Qualifications:** The firm or consultant will have at least 5 years of experience, hold an advanced degree in Law and have demonstrated experience with telecommunications. Experience with spectrum regulation is required.
- 3.15 **Source of funding:**

## IV. ACTIVITIES AND PRODUCTS

- 4.1 The Consultant will be responsible for the design and elaboration of a Digital Switchover Roadmap. The Roadmap comprises:
- a. Main principles of the implementation of digital transition: universal access and equitable provision of services;
  - b. Regulatory matters: assessment of the current regulatory framework and the changes necessary to promote the analogue switch-off;
  - c. Institutional framework: assessment of the current institutional framework and recommendations for possible changes;
  - d. Licensing models: assessment of current licensing model and recommendation for possible changes;
  - e. Technical issues: Technology and standard application, design principles and network architecture; network planning, infrastructure and spectrum compatibility;
  - f. Digital dividend: recommendations for the allocation of frequencies.

**V. PAYMENT**

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#### RG-T2301: Roadmap for the Digital Switchover in the Andean Group (CAN)

#### I. BACKGROUND

- 1.1 **Justification:** The increasing demand for broadband services in the Andean Group (CAN) countries requires additional spectrum to be allocated to wireless/mobile broadband operators. Therefore, effective spectrum management and strategic regulation is needed if countries wish to succeed in providing universal access to broadband for their population. Efficient spectrum management<sup>4</sup> has proven to be challenging. In most CAN countries, the pace of policy development and legislative and regulatory reform have not kept pace with the rapid evolution in wireless technologies; as a result, the traditional methods for spectrum management have become impractical and inefficient and could become a barrier to entry for prospective investors.
- 1.2 Additional spectrum is in the process of being released in CAN countries. The “digital switchover” corresponds to the transition from analog television to digital broadcasting. This new technology frees up large areas of frequencies, which could be re-allocated to mobile broadband operators. This is caused by the fact that digital transmissions can be packed into adjacent channels, while analog ones cannot; as a result, the band can be “compressed” into fewer channels, while still allowing for more transmissions. While the United States completed the switchover in 2009 and Europe ordered all countries to do the switch off of analog broadcasts by 2012, the rate in Latin America is quite different. All CAN countries, albeit at different stages, are going through the planning process for this transition. Bolivia, Peru and Venezuela plan to complete the transition in 2020, Colombia by the end of 2019 and Ecuador by the end of 2017.
- 1.3 The digital switchover poses both opportunities and challenges to governments in dealing with the transition from analog to digital broadcasting. The transition requires decisions to be made on a great number of political, economic, technological and regulatory issues. Therefore, it is necessary to develop a well-defined roadmap to guide countries throughout this important transition.
- 1.4 The activities comprised in the TC in reference are the following: (i) an assessment of the spectrum *status quo* in CAN; (ii) National and Regional 700MHz Frequency Band Analyses and Plan; (iii) the design and elaboration of a Digital Switchover Roadmap; (iv) the disseminating the deliverables in the region. These terms of reference define the required background and expertise, as well as the objectives, activities and the products to be carried out and delivered by a Consulting Firm or Institution hired under the TC. This product corresponds to **Component IV** of the Regional Technical Cooperation in reference.

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<sup>4</sup> Spectrum management is the combination of administrative and technical procedures necessary to ensure the efficient utilization of the radio-frequency spectrum by all radio communication services, without causing harmful interference. ITU-R Study Group booklet. Radiocommunication Bureau of the International Telecommunication Union (ITU). June 2010: [http://www.itu.int/dms\\_pub/itu-r/oth/0A/0E/R0A0E0000010001PDFE.pdf](http://www.itu.int/dms_pub/itu-r/oth/0A/0E/R0A0E0000010001PDFE.pdf)

## II. CONSULTANCY OBJECTIVES

- 2.1 The main objective of this consultancy is to support the Executing Agency in the performance of the **Component IV** of RG-T2301. The Consultant or Company hired under these TOR is responsible for disseminating the deliverables of RG T2301 in the CAN Region.

## III. CHARACTERISTICS OF THIS CONSULTANCY

- 3.16 **Type of consultant:** Individual/Firm
- 3.17 **Start date and duration:** from ....., to ....., 2015.
- 3.18 **Place of work /travel:** Place of residence. During the contract period, the consultant might be requested to attend meetings with IFD/ICS and. Travel related expenses will be covered by the consultant, under the terms of this contract. No additional funding will be provided by the IDB.
- 3.19 **Qualifications:** The firm or consultant will have at least 5 years of experience, hold an advanced degree in Law, Public Policy or related fields and have demonstrated experience with telecommunications. Experience with spectrum regulation is required.
- 3.20 **Source of funding:**

## IV. ACTIVITIES AND PRODUCTS

- 4.1 The Consultant will be responsible for disseminating the deliverables of RG T2301 in the CAN Region, comprising:
- i. The organization of a workshop in order to present the result of the study to CAN countries;
  - ii. The development of further dissemination strategies as well as organizing the publication of the results of the TC. ``

## V. PAYMENT

- 5.7 Payment will be made as per the following schedule, upon approval by the Team Leader responsible for this TC (See item VI below).
- 5.8 **Schedule of payments:**
- i. 20% upon contract signature;
  - ii. 80% upon the approval of the final product.

## **VI. COORDINATION**

Supervision and coordination of the consultant's work will be the responsibility of Antonio García Zaballos (IFD/ICS), Tem Leader, [antoniogar@iadb.org](mailto:antoniogar@iadb.org), tel. (202) 623-2980.

