DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

NICARAGUA

BROADBAND PROGRAM

(NI-L1090)

LOAN PROPOSAL

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4. Project Logical Structure
5. Analysis of Compliance with the Bank's Public Utilities Policy (GN-2716-6)
6. Project's Operating Regulations (OR) - Draft

ABBREVIATIONS	
AOP	Annual Operating Plan
BBS	Broadband Services
CA	Central America
CBA	Cost Benefit Analysis
DCF	Discounted Cash Flow
CEABAD	*Centro de Estudios Avanzados en Banda Ancha para el Desarrollo*
CID	Country Department Central America, Mexico, Panama and the Dominican Republic
DSL	Digital Subscriber Lines
EA	Executing Agency
EHAS	*Enlace Hispano Americano de la Salud*
ESMR	Environmental and Social Management Report
ENATREL	*Empresa Nacional de Transmisión Eléctrica* [National Electric Transmission Company]
FBB	Fixed Broadband
FITEL	*Fondo Especial de Inversión de Telecomunicaciones y Servicios Postales*
FSO	Fund for Special Operations
GB	Gigabyte
GbE	Gigabit Ethernet
GCI-9	IDB's Ninth General Capital Increase
GDP	Gross Domestic Product
IDBA	*Indice de Desarrollo de la Banda Ancha*
IDB	Inter-American Development Bank
ICT	Information and Communication Technologies
IEEE	Institute of Electrical and Electronic Engineers
IRU	Irrevocable Rights of Use
ISP	Internet Service Provider
ITU	International Telecommunications Union
KIF	Korea Infrastructure Development Co-financing Facility for Latin America and the Caribbean
LAC	Latin American and the Caribbean
LAN	Local Area Network
MBB	Mobile Broadband
Mbps	Megabits per Second
MHCP	*Ministerio de Hacienda y Crédito Público* [Finance and Public Credit Ministry]
MAG	*Ministerio Agropecuario*[Ministry of Agriculture]
MINSA	*Ministerio de Salud* [Ministry of Health]
NBP	National Broadband Plan
OC	Ordinary Capital
OECD	Organisation for Economic Co-operation and Development
OR	Operating Regulations
PEP	Pluriannual Execution Plan
PMR	Progress Monitoring Report
POD	Proposal for Operation Development
PP	Procurement Plan
PPP	Purchasing Power Parity
REDCA	*Red Centroamericana de Telecomunicaciones*

RIO	Reference Interconnection Offer
RM	Results Matrix
SCF	Single Currency Facility
S-IRR	Social Internal Return Rate
S-NPV	Social Net Present Value
SECI	*Sistema de Evaluación de la Capacidad Institucional*
SIEPAC	*Sistema de Interconexión Eléctrica de los Países de América Central* [Central American Electrical Interconnection System]
SPF	Safeguard Policy Filter
SSF	Safeguard Screening Form
TC	Technical Cooperation
TELCOR	*Instituto Nicaragüense de Telecomunicaciones y Correos*
VPN	Virtual Private Networks
WAL	Weighted Average Life
WTP	Willingness to Pay

PROJECT SUMMARY
NICARAGUA
BROADBAND PROGRAM
(NI-L1090)

Financial Terms and Conditions

Borrower: Republic of Nicaragua				**OC**	**FOE**	**KIF**
Executing Agencies: *Instituto Nicaragüense de Telecomunicaciones y Correos* (TELCOR) and *Empresa Nacional de Transmisión Eléctrica* (ENATREL)			**Amortization Period:**	30 years	40 years	25 years
			Disbursement Period:	5 years	5 years	5 years
Source	**Amount (US$)**	**%**	**Grace Period:**	6 years	40 years	7 years
			Supervision and Inspection Fee:	(a)	N/A	N/A
			Facility Loan Charges:	N/A	N/A	0.1%
IDB: Ordinary Capital (OC)	15,000,000	30	**Interest rate:**	SCF-FIXED[b]	0.25	1.5%
IDB: Fund for Special Operations (FSO)	10,000,000	20	**Credit Fee:**	(a)	N/A	N/A
Other/Co-financing:[c] Korea Infrastructure Development Co-financing Facility for Latin America and the Caribbean (KIF)	25,000,000	50	**Currency of Approval:**	US$ Dollars chargeable to the OC	US$ Dollars chargeable to the FSO	US$ Dollars chargeable to the KIF
Total:	50,000,000	100				

Project at a Glance

Project Objective/Description: The general objective of this project is to increase broadband penetration in Nicaragua with the ultimate goal of contributing to the economic and social development of the country. The specific objectives are to: (i) expand the infrastructure (backbone and last-mile networks); (ii) update the regulatory framework to ensure that networks can be used in fair price and quality conditions; and (iii) increase Information and Communication Technologies (ICT) capacities for citizens and public institutions.

Special Contractual Clauses to be fulfilled to the Bank's satisfaction:

Prior to the first disbursement of the loan: (i) present the project's OR including separate chapters for each Executing Agency (EA), in effect and approved by each of them, in accordance with the terms and conditions previously agreed upon with the Bank; (ii) present an interinstitutional agreement signed and in effect between *Ministerio de Hacienda y Crédito Público* (MHCP) and TELCOR and another agreement between the MHCP and ENATREL, by which the MHCP undertakes to transfer loan resources and execution obligations to each EA for the proper implementation of the project; (iii) present an interinstitutional agreement signed and in effect between TELCOR and ENATREL that establishes the obligations of both parties in the execution of the project; and (iv) for each EA, show evidence of the selection of a procurement specialist and a financial management specialist assigned to each EA for the execution of the project (see ¶3.4).

Prior to the first disbursement under Component I: (i) the restrictions described in Section VI, paragraphs 6.3-6.10 of the Environmental and Social Management Report (ESMR) for new infrastructure must be included in the Terms of Reference as conditions for the bidding process; and (ii) TELCOR must have developed a draft interconnection offer that allows for equal and open access by third parties (other backbone operators or internet service providers) to the financed infrastructure (see ¶3.5).

Prior to beginning construction work of Component I: ENATREL, as EA, shall incorporate into all contractors' contracts detailed regulations and penalties for non-compliance by such contractors with policies, plans and programs (including mitigation measures) applicable to the project. This will include detailed procedures and timeframes for reporting environmental, health and safety related incidents/accidents and a specific monitoring program to assess causes of incidents/accidents and track performance of the corrective measures (see ¶3.6).

Prior to the execution of Subcomponent I.2 and Component III: the Borrower itself or through the corresponding EA, shall present, to the Bank's satisfaction, interinstitutional partnership agreements: (i) among ENATREL, the Ministry of Health (MINSA) and the Ministry of Agriculture (MAG); and (ii) among TELCOR, MINSA and MAG (see ¶3.7).

Environmental and social clauses: the borrower shall ensure compliance with all other environmental, social and health and safety requirements set forth in Sections VI of the ESMR (see ¶3.8).

Exceptions to Bank Policies: None.

The project qualifies for[d]: SV ☑ PE ☑ CC ☐ CI ☑

(a) The credit fee and inspection and supervision fee will be established periodically by the Board of Executive Directors during its review of the Bank's lending charges, in accordance with the relevant policies.

(b) The borrower will pay interest on the outstanding balance of the Ordinary Capital portion of the loan at a LIBOR-based rate. Whenever the outstanding balance reaches 25% of the approved net amount or US$3 million, whichever is greater, the base rate will be set based on that balance.

(c) The project will receive co-financing (50% of the total amount) from the Government of Korea (Korea Infrastructure Development Co-financing Facility for Latin America and the Caribbean - KIF) (See link: Government of Korea's co-financing approval). These resources will comply with the fund's financial priorities, financing among others key soft infrastructure.

(d) SV (Small and Vulnerable Countries), PE (Poverty Reduction and Equity Enhancement), CC (Climate Change, Sustainable Energy and Environmental Sustainability), CI (Regional Cooperation and Integration).

I. DESCRIPTION AND RESULTS MONITORING

A. BACKGROUND, PROBLEM ADDRESSED, JUSTIFICATION

1.1 Broadband is a lever for socio-economic growth. According to a study published by the Bank,[1] it has been observed a 3.2% increase in the Gross Domestic Product (GDP) and a 2.6% increase in productivity where broadband penetration has increased 10% in the Latin American and the Caribbean (LAC) region. Beyond this correlation, broadband offers opportunities to increase life standards. For example: (i) broadband fosters the development of innovative education and health models[2] and brings public administration closer to the citizen;[3] and (ii) it has an important impact on the productive sector.[4]

1.2 Consequently, the Government of Nicaragua (the government) has identified broadband as a key element to foster socio-economic development. The government has recently developed a draft of their National Broadband Plan (NBP) around three main areas: (i) deployment of broadband infrastructure; (ii) strengthening of the broadband regulatory framework; and (iii) fostering of Information and Communication Technologies (ICT) services use. The government has begun implementing the NBP with an aggressive strategy to bridge the digital divide, starting with infrastructure. First, the government is planning to expand the existing network of the national electric company, *Empresa Nacional de Transmisión Eléctrica (ENATREL),*[5] to provide nationwide wholesale backbone services under the principle of open and equal access. Secondly, the government plans to increase last-mile coverage connecting public facilities and installing access nodes so that other Internet Service Providers (ISP) can also provide broadband services.

1.3 To implement the initiatives identified in the NBP, the government has requested the support of the Bank for its experience and value-added contribution in dealing with the complexity of specific geographical areas covered under this project (e.g. low financial profitability and technical difficulties).

1.4 **The challenge.** Nicaragua experiences low levels of broadband penetration:[6] (i) Fixed Broadband (FBB) penetration is 2.17%, below the averages in Central America (3.67%) and LAC (9.26%), and far below the Organisation for Economic Co-operation and Development (OECD) countries (26.15%);[7] (ii) Mobile Broadband (MBB) penetration is 10% in the country, below

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[1] Socioeconomic Impact of Broadband in Latin American and Caribbean Countries. A. García Zaballos and R. López-Rivas. Technical Note. Inter-American Development Bank (IDB), 2011.

[2] Global Industry Analysts, Inc. 2010.

[3] European Parliamentary Research Service: Digital Agenda.

[4] *"Internet matters: The Net's sweeping impact on growth, jobs and prosperity"*. Briefing Note, McKinsey Global Institute, McKinsey & Company, May 2011.

[5] ENATREL started developing this state-owned fiber-optic network alongside the electric grid and was not initially intended to provide broadband services. Nevertheless, this backbone network provides very high speed capabilities and the opportunity to bring broadband services to many uncovered areas of the country.

[6] Broadband penetration refers to the number of users using cable (fixed) or Wireless (mobile) technologies divided by the total population.

[7] Source: *Indice de Desarrollo de la Banda Ancha* (IDBA), IDB (2013), International Telecommunications Union (ITU).

the averages in Central America (17.44%) and LAC (24.32%) and far below the OECD countries (64.58%); and (iii) 83% of the municipalities in Nicaragua have an aggregated (fixed plus mobile) penetration below 5%. This issue is due to three main factors: (i) lack of backbone and last-mile infrastructure,[8] yielding to low affordability and quality[9] of Broadband Services (BBS); (ii) regulatory weakness causing a competition problem because the ISPs are not able to use the networks in fair price and quality conditions–impacting also BBS affordability; and (iii) low capacity levels among citizens and public officers that hamper their ability to effectively use ICT.

1.5 **Infrastructure.** Nicaragua lacks adequate coverage of backbone and last-mile networks (see: Current Status of the Infrastructure). The majority of the backbone networks are concentrated in the west zone of the country connecting the main cities (Managua, Masaya, Leon, and Granada). The level of last-mile development is equally low outside of the most populated areas.

1.6 This lack of infrastructure is due to the fact that underserved areas of the country are not financially profitable for private investment: they have low per capita income, low population density and are isolated from the main city centers. As a reference: (i) only 2.6% of households in Nicaragua have Digital Subscriber Lines (DSL)[10] connections[11] versus 12.11% in El Salvador, 13.80% in Panama and 18.30% in Costa Rica; (ii) less than 8.6% of the health units are covered with DSL; and (iii) the coverage of MBB is scarce outside the west part of the country (see: Current Status of the Infrastructure).

1.7 This lack of infrastructure leads, in turn, to a problem of BBS affordability and quality. The price of a 2 Megabits per Second (Mbps) FBB connection is US$83.93, much higher than the average in Central America (CA) (US$51.05), LAC (US$43.61), and the OECD countries (US$35.19). Likewise, the price of 1 Gigabyte (GB) MBB connection is US$43.20, slightly below LAC (US$49.03), but still higher than the averages in CA (US$41.47) and the OECD countries (US$22.86)[12]. These prices are far from the Willingness to Pay (WTP): according to a survey developed under the NBP, more than 60% of the Nicaraguans' WTP for FBB is less than US$19 and 70% indicate that their WTP for MBB is less than US$8. Regarding quality, the average speed of a FBB connection in Nicaragua is

[8] National backbone networks are the principal data routes between large, interconnected networks and are important because they limit the total amount of information that can be exchanged. Last-mile networks connect the network with the final users and are crucial because they determine the speed of the broadband service.

[9] These causal factors should be analyzed jointly as US$/Mbps. Otherwise, the problem may not be clear. An absolute price of US$10 might not seem high, but it is if the speed is only 256Kbps. This situation is explained in more detail in ¶1.7.

[10] DSL stands for Digital subscriber lines, the technologies used to provide fixed broadband through copper lines. This is the basic technology to provide fixed broadband.

[11] It is important to note that there is a difference between coverage and penetration: the term coverage refers to the territory that can be served; while penetration refers to households that are connected and make use of the connectivity.

[12] Source: All data from IDBA (2013), prices are adjusted by the Purchasing Power Parity (PPP–a technique used to determine the relative value of different currencies).

0.26 Mbps versus 0.91 Mbps in CA and LAC, and 5.87 Mbps in the OECD countries.[13]

1.8 **Regulation and competition.**[14] The country faces a competition problem as a consequence of the weak regulatory framework in terms of open and equal access. The telecommunications law dates from 1995 and all the secondary legislation related to tariff regulation, interconnection and access, quality of service and universal service needs to be updated according to the new reality of the telecom sector in Nicaragua. Having an outdated regulatory framework has a direct impact on the playing level field competition and the investment decisions, since an unstable and unpredictable regulatory framework increases uncertainty and hampers investment. In fact, 132 municipalities already have backbone coverage from one private operator, but it only routes traffic from its own customers, not opening its network to other ISPs. This means that ISPs are not able to access the networks in fair price and quality conditions, and therefore, have difficulties in routing a possible last-mile traffic, which clearly impacts the final price and quality of BBS. Additionally, the government does not have a map of the critical broadband infrastructure, which may endanger the security of public data and services.

1.9 **ICT capacities.** Citizens and public officers in Nicaragua lack of capacities that allow them to effectively use ICT. This is caused by: (i) lack of interest in ICT–the NBP's survey shows that 42% of the Internet non-user population does not know how to use the computer or the Internet and 30% is not interested in doing so; (ii) low levels of adoption among public officers[15]–the United Nations e-government index[16] is just 0.36 in Nicaragua, below CA (0.43), LAC (0.46) and the OECD (0.68); (iii) limited access to devices–the NBP's survey shows that more than 30% of the population does not use Internet because they do not have a computer at home and nearly 50% indicate they use it at an Internet Cafe; and (iv) lack of skills among citizens and public officers to develop innovative applications–especially to provide public inclusive services. As a reference, the ICT Capacities pillar of the IDBA,[17] an index developed by the Inter-American Development Bank (IDB) that measures the status of broadband, ranks Nicaragua at the 25th position among the 26 LAC countries and below all other Central American countries; and (v) lack of applications and software that make use of broadband. As a reference, the Business Usage of ICT[18] is just 3.1 in Nicaragua, below CA (3.6), LAC (3.5) and the OECD (5.0).

1.10 **Sectorial framework.** The government has decided to prioritize the use of ICT to develop two specific sectors: health and agriculture. These sectors have been prioritized due to the following reasons: (i) the NBP identified in them great opportunities for social and economic development through ICT (by means of

[13] Ookla Net Index 2014. As a reference, Internet connections are considered broadband connection for speed above 1Mbps.

[14] For a justification of the empirical evidence of how the weak regulatory framework contributes to the problem of lack of investment, see sections 3 and 4 (pages 19-26) of: *Nota Política*.

[15] The capacity of social agents to adopt broadband in their daily lives depends strongly on the availability of software applications that provide added value to such access.

[16] United Nations e-Government Index (the index is a number between 0 and 1). See: http://www.unpan.org.

[17] See: IDB Discussion Paper: Methodology for Broadband Development Index for Latin America and the Caribbean.

[18] World Economic Forum. The index measures the degree of business usage of ICT.

access to better health services and achieving a higher productivity in the agriculture sector); (ii) the impact that these sectors may have on rural development, employment and poverty reduction; and (iii) the IDB's country strategy with Nicaragua (GN-2683) prioritizes the provision of better health services as a critical issue, and rural development as a dialogue area. The health sector in Nicaragua faces several problems: (i) neonatal deaths account for approximately 73% of the child deaths;[19] (ii) maternal mortality remains above the LAC average; and (iii) there is less than one doctor per 1,000 inhabitants.[20] According to the IDB;[21] about 30% of the causes for maternal and infant mortality are for nutritional deficiencies. These indicators get worse in rural and less dense populated areas. In the specific case of mother child mortality, a *Fundación Enlace Hispano Americano de la Salud (EHAS)* project that used ICT to improve medical services in rural areas in Ecuador (through the deployment of microcells to connect health units, see link for more explanation) showed that the number of medical consultations on diagnosis and treatment grew by 750% and the number of urgent hospitalizations was decreased in 45% (out of which 97% were satisfactorily resolved thanks to the use of ICT). The agriculture sector plays a key role in the Nicaraguan economy representing 18% of the GDP. Nevertheless, Nicaragua still shows low levels of productivity compared to other Central American Countries, and broadband presents a key opportunity to improve it. A report from the Broadband Commission states that agriculture firms using technology have up to a 30% higher productivity.[22] This higher productivity can be achieved by means of[23]: (i) technologies to improve yield, like Geographical Information Systems (GIS), wireless sensor networks and data mediation software; and (ii) technologies to improve management, information about markets, accounting software, access to finance and others. In Nicaragua, it is estimated that among the 200,000 producing families, barely the 20% has access to technology and ICT applications.[24] Finally, the use of ICT in the Nicaraguan companies is low. As a reference, the firm-level ICT absorption[25] is just 4.04 in Nicaragua, below CA (4.73), LAC (4.61) and the OECD (5.55).

1.11 **Gender and ICT.[26]** The gender gap in ICT is currently more pronounced in developing countries, where 16% fewer women than men use the Internet, compared with only 2% fewer women than men in the developed world (International Telecommunications Union (ITU), 2013). According to Intel, of a total Internet user population in developing countries of 1.4 billion, 800 million were men and 600 million were women. In terms of Internet user penetration, there are 21% of women and girls online and 27% of men and boys online. This gives a gender gap for all 144 developing countries of 23% (i.e. 23% fewer women than men were online in the developing world), and a total global Internet gender gap of 200 million. Without further action, Intel forecasts that the Internet gender gap could grow to a total gender gap of

[19] IDB's Country Strategy with Nicaragua 2012-2017 (GN-2683).
[20] IDB's Country Strategy with Nicaragua 2012-2017 (GN-2683).
[21] See: Technical Note: Health Sector in Nicaragua (SCL/SPH).
[22] The Broadband Bridge: Linking ICT with Climate Action for a Low-Carbon Economy.
[23] World Bank. http://www.ictinagriculture.org.
[24] Technical Cooperation (TC) Document "*Apoyo para el programa de fomento a la Productividad Agropecuaria*" (ATN/OC-13165-NI).
[25] World Economic Forum. The index measures the degree of ICT absorption by companies.
[26] For more information, see: Report by the Broadband Commission Group on Broadband and Gender.

350 million in three years. Taking these estimations into consideration, the gender gap just in Nicaragua would be more than 925,000. Among others, the factors preventing women's access to ICT are: (i) lack of awareness, familiarity, and ability to use the Internet; (ii) most broadband policies omit gender; (iii) there is little consideration in digital literacy programs to the particular characteristics of of households with female heads (lower income); and (iv) lack of digital literacy programs specifically targeted to train women on ICT.

1.12 **Institutional Framework.** In 1982, the *Instituto Nicaragüense de Telecomunicaciones y Correos* (TELCOR) was created as the Regulatory Agency for Telecommunications and Postal Services, establishing the legal faculties to fulfill its objectives, guidelines for its organizational structure, and founding the general action framework by which to operate. However, it was not until the publication of Law No. 200 (July 21, 1995) that the General Law of Telecommunications and Postal Services was developed. That Law, as well as representing the institutional and legal framework under which the telecommunications sector would be developed, was fundamental for the sector development in the medium and long term. Additionally, TELCOR in exercise of its directives and regulatory powers granted by Article 1 of the General Law of Telecommunications and Postal Services, and Rule 165 of the same Law, has issued a number of essential regulatory aspects and complementary rules needed to further develop the Law.[27] The ENATREL was created under Law No. 583, Law Establishing the National Electricity Transmission Company, ENATREL, in November 15, 2006 (and published in the Official Gazette No. 4, January 5, 2007). One of its key activities consists of commercially exploit the surplus of installed systems and communication transmissions capacity through fiber optics, which is applicable under Act No. 200 (General Law of Telecommunications and Postal Services) and Decree No. 19/1996 (Regulations of the General Law of Telecommunications and Postal Services).

1.13 **Proposed intervention.** The Bank will support the government in the execution of its NBP. To ensure a comprehensive project that impacts the whole ecosystem, the proposed intervention will have three pillars: (i) backbone infrastructure to reach unconnected and underdeveloped regions along with last-mile networks, systems and equipment that will enable access to broadband in health units and telecentres (defined as a public place where people can access computers, broadband services and receive ICT training); (ii) development of regulatory framework, key to ensure that the deployed networks can be accessed in fair price and quality conditions; and (iii) effective use of broadband in two sectors that are of great importance to the country: health and agriculture.

1.14 **Specific characteristics in the area of project intervention.** The infrastructure deployed in the project will cover[28] 328,305 households and 38,866[29] companies

[27] See: *Acuerdos y Resoluciones Administrativas de TELCOR*.

[28] Note that these households will be covered, see footnote 11 for an explanation of the difference between coverage and connection. The baseline shows that currently there are 1,674 connected households and 198 connected companies.

[29] The companies are distributed as follows: 0.67% are large companies, 11.88% are medium and 87.45% are small. In terms of activities the characterization of the companies in the three main activities are: retailing (48.2%), manufacturing and agriculture (19.5%) and services (16.8%). For more information, see http://www.bcn.gob.ni.

in 72 municipalities (36% of the households, 32% of the companies and 47% of the municipalities in the country). The municipalities are distributed in the following departments (see Infrastructure Map): Atlántico Norte (6), Atlántico Sur (4), Boaco (6), Carazo (1), Chinandega (12), Chontales (4), Estelí (1), Granada (2), Jinotega (2), León (9), Madriz (4), Managua (5), Masaya (7) and Matagalpa (9). Regarding public institutions, the project will benefit: (i) 276 health units, which represent 22% of the total in Nicaragua; and (ii) 100 telecentres that will be deployed in rural municipalities that have economic conditions that difficult the adoption of broadband services.

1.15 These municipalities have been selected according to the following criteria: (i) broadband penetration[30] (0.51%) is below the national average (2.17%) (the departments to be connected include some of the more developed regions because it is necessary that the fiber optic rings go through them in order to reach the less developed regions); (ii) fiber optic rings to be deployed maximize the connection of municipalities that are currently not reached by any backbone network hence maximizing the project's impact; (iii) backbone network will have nodes in two locations where the regional operator *Red Centroamericana de Telecomunicaciones* (REDCA) has servers (Sandino and Ticuantepe) so that Nicaragua has better access to the regional backbone and improves its international connectivity; (iv) overlap with other backbone networks (either public or private) will be minimum; and (v) average income per capita[31] (US$2,227) in the selected municipalities is below the national average (US$4,570), which implies that the intervention of the private sector will continue to be highly unlikely which justifies the project's intervention.

1.16 **Support of the Bank in the country.** The Bank is supporting the region through the Broadband Special Program with more than 40 TCs with a budget over US$17 million. The Bank supports Nicaragua with the following TCs: (i) ATN/KK-13802-NI, which financed the development of the NBP in Nicaragua and developed the technical, financial, regulatory and environmental studies needed for the design of the present project; (ii) ATN/KK-13701-RG, which analyzed the needs in terms of CA broadband infrastructure and also at a country level which has been taken into account for the design of this project; and (iii) ATN/OC-14055-RG and ATN/KK-14056-RG, which have contributed to the creation of an ICT Training Center (*Centro de Estudios Avanzados en Banda Ancha para el Desarrollo* - CEABAD)[32] for the Central American officials (regional project), located in Managua. Additionally, the Bank has supported telecom integration in the Central American region, through its Country Department CID (Central America, Mexico, Panama and Dominican Republic). Specifically, the Bank participated directly in the funding of the *Sistema de Interconexión Eléctrica de los Países de América Central* (SIEPAC) network (which connects all Central American countries) and provided strategic support for the creation and growth of the regional backbone operator REDCA. REDCA (*Red Centroamericana de Telecomunicaciones)* is a wholesale telecommunications operator (carrier of carriers) that was established for the operation of the optical fiber deployed along the SIEPAC network. REDCA operates more than 2,000 kilometers of fiber along

[30] DigiLAC platform (infrastructure maps).
[31] DigiLAC platform (infrastructure maps) and World Bank (PPP adjusted).
[32] Center for Advanced Studies in Broadband for Development.

all Central America and is owned by a consortium of regional public electric operators (including ENATREL). The lessons learned from these TCs include: (i) the importance of coordination at a regional level to develop better broadband networks; (ii) the importance of coordination among the institutions in the country to execute broadband initiatives; and (iii) the importance of an updated and comprehensive regulatory framework to enable the broadband ecosystem.

1.17 **Best Practices, Lessons Learned and Value Added.** There are several examples of successful broadband operations that have been developed in the LAC region: (i) the government of Peru has reckoned the importance of a national fiber optic backbone network to contribute to regional integration within the country and with other countries. It has initiated a project to deploy a national fiber backbone network to connect all province capitals (i.e. municipalities) where, additionally, a last-mile access will be built to connect dependencies to the backbone networks, primarily schools, health units and government facilities. As a consequence of the deployment of the backbone in Peru, the country benefited from connecting 180 province capitals and 22 regional capitals so that the objective of universality of broadband services is achieved. The development of a holistic model taking into consideration access, adoption and use to BBS, both at the backbone and last-mile levels, has been identified as a best practice for the Region and specifically for this project; and (ii) in the specific case of Nicaragua, the World Bank financed a comparable rural broadband infrastructure project "Nicaragua Rural Telecom" that had the following objective: to increase access to and reduce costs of telecommunications services in rural areas of Nicaragua. The components of the mentioned project were: rural access, regulatory capacity strengthening and technical assistance to communities, and project management and audit. This project benefited 102,000 people increasing the access to internet services from 2.81% (in 2006) to 15.50% (in June 2015). Similarly, the retail price of internet services (measured in US$/Mbps per month) reduced from US$18 (2012) to US$11.99 (June 2015). The increased demand for broadband services thanks to training initiatives and the selected performance metrics (including women connected to broadband networks) have been identified as best practices from this project.

1.18 **Strategic alignment.** The project will contribute to the lending program priorities of the Ninth General Increase in the Resources of the Inter-American Development Bank (AB-2764) (GCI-9): (i) lending to small and vulnerable countries; (ii) reducing poverty and inequality by providing access to broadband services to Nicaraguan citizens that are currently excluded which will also contribute to improve their socio-economic conditions (see ¶1.15); and (iii) supporting regional cooperation and integration through the deployment of infrastructure and the promotion of institutional strengthening, since it will also help improving the interconnection of broadband networks in CA.[33] The IDB Country Strategy with Nicaragua (2012-2017, GN-2683), identifies the need for actions to raise the population's income and improve access to social services in rural areas. This project aims to foster social inclusion and the provision for better public services (such as health services). Additionally, the Country Strategy prioritizes gender as one of the key topics. The project is also aligned with the strategy Sustainable Infrastructure for Competitiveness and Inclusive

[33] See ¶1.15 for an explanation of the relationship with the regional network operator REDCA.

Growth (GN-2710-5), which identifies financing of national and regional infrastructure projects that strengthen and accelerate regional and global integration, in the areas of transportation, energy, and telecommunications. Additionally, the project is aligned with the Sector Strategy Institutions for Growth and Social Welfare (GN-2587-2), which identifies the need to Improve policies and governmental action in the ICT sector and with the strategy of Innovation, Science and Technology Sector Framework (GN-2791-3), which identifies the lack of ICT adoption as one of the main factors hampering productivity. The project is aligned with the first criterion Cross-country focus described in the Guidelines for the Classification and Validation of Operations Eligible for the GCI-9 Regional Cooperation and Integration Lending Priority (GN-2733), since the deployed networks will improve the interconnection of Nicaragua with Central America and the rest of the world contributing to the internationalization of the private sector (see ¶1.15 and ¶1.16).

1.19 **Consistency with Bank's policies (see** Analysis of Compliance with the Bank's Public Utilities Policy (GN-2716-6)**).** The project is aligned with the IDB Public Utilities Policy (GN-2716-6, OP-708), which aims to "guide the Bank's actions to promote universal access to and increase the efficiency and quality of public utilities service delivery under conditions that are affordable and environmentally and socially sustainable, so they contribute to the process of socially inclusive economic development." Specifically, "the public utilities covered by this Policy include water and sanitation, electricity, natural gas, solid waste, and telecommunications services." And the first objective of the policy is to "promote access to the service by the entire population." This project is in compliance with the financial sustainability conditions and the economic evaluation of the policy GN-2716-6, OP-708 and aligned with its principles. The basic infrastructure works are social and economically viable (see ¶1.36). The purpose of this investment is to improve coverage of backbone and last-mile networks in 72 municipalities. In order to expand public services in these municipalities the project will finance required civil works and equipment to enhance the scope of the existing ENATREL's backbone network and provide last-mile access. Once the works have been completed, ENATREL will commit to operate and maintain the backbone network according to the regulatory framework in effect in the corresponding municipality and in consistence with the Bank's policies detailed in the project's OR. For the last-mile network, there will be a bidding process and the network will be operated and maintained by the awarded operator in consistence with the Bank's policies detailed in the OR. Last-mile network operation and maintenance is expected to be profitable after the end of the project. In any case the maintenance of this network will be guaranteed by the *Fondo Especial de Inversión de Telecomunicaciones y Servicios Postales (*FITEL), the universal service fund managed by TELCOR.

B. Objective, Components and Cost

1.20 The general objective of this project is to increase broadband penetration in Nicaragua with the ultimate goal of contributing to the economic and social development of the country. The specific objectives are to: (i) expand the infrastructure (backbone and last-mile networks); (ii) update the regulatory framework to ensure that networks can be used in fair price and quality

conditions; and (iii) increase ICT capacities and use of broadband for citizens and public institutions.

1.21 **Component I. Infrastructure (US$39.7 million).** This component will support the government in improving the coverage of backbone and last-mile networks in the 72 municipalities. To that end, it will finance the necessary civil works and equipment to expand the reach of ENATREL's existing backbone network that will be used to deploy the broadband network in the country and provide last-mile access, maximizing the connection of municipalities currently not reached. During the deployment specific consideration will be given to bridge the existing gender gap by means of providing additional equipment to those municipalities where the gender gap is wider, together with specific training of women in ICT to increase digital literacy. This training will be coordinated by TELCOR (through FITEL) so that the use of broadband services by women is promoted. Based on the technical study developed in the NBP, the technical solution selected for the backbone networks will be Gigabit Ethernet,[34] deploying national and regional fiber optic rings with speeds that will range between 1Gbps and 40Gbps. In order to enable the operation of the backbone network, the component will also finance the acquisition of submarine cable capacity. Accordingly, the technical study determined that the optimal technical solution for the last-mile networks will be a wireless solution. This solution will be based in microwaves with a Local Area Network (LAN) that will be deployed in each benefited municipality. The access network will be deployed using preferentially wireless technology and will have to provide adequate coverage and capacity for all the health units, telecentres and households in the municipality.

1.22 **Subcomponent I.1. Expansion of ENATREL backbone network (US$33.1 million).** The backbone deployment will be based on Gigabit Ethernet technology. To that goal, this subcomponent will finance: (i) optical fiber; (ii) acquisition of 10Gbps irrevocable Rights of Use (IRUs) (i.e. submarine cable capacity); (iii) main nodes (40Gbps); (iv) medium nodes (10Gbps); (v) small nodes (1Gbps); (vi) amplifier nodes; and (vii) containers and civil works for the installation of the equipment previously described. Thanks to this support ENATREL's backbone network will be expanded to 72 municipalities,[35], and will be more integrated with other Central American networks thanks to nodes in the locations of REDCA in Nicaragua (see ¶1.15).

1.23 **Subcomponent I.2. Last-mile networks and equipment (US$6.6 million).** Last-mile networks deployment will be based on microwave technology. To that

[34] Gigabit Ethernet (GbE or 1 GigE) is a technology for transmitting Ethernet frames at a rate of a gigabit per second (1,000,000,000 bits per second), as defined by the Institute of Electrical and Electronic Engineers (IEEE) 802.3-2008 standard.

[35] Of the 72 municipalities that will be connected, ten lack backbone coverage at all. The remaining 62 municipalities already have backbone coverage from a private operator but the ENATREL's network needs to go through these municipalities (not using this private infrastructure, but only for the last-mile network, for which there is a regulated price for access and interconnection) in order to reach the ten unconnected areas. Additionally, these 62 municipalities require improved backbone coverage because they face a penetration problem: their average broadband penetration is 0.52% versus the national average 2.17% (due to the situation described in ¶1.8). In total, the country has 14 municipalities not connected to any backbone network (the four that remain out of the project are not suitable to be connected to the ENATREL's backbone because are very remote and have extremely low population density.

goal, this subcomponent will finance: (i) base stations (antennas); (ii) towers that will be deployed to enhance coverage; (iii) fiber optic links that will be deployed over existing poles and that will connect the backbone with the base stations; (iv) equipment kits[36] for each health unit and telecentre; and (v) systems to operate the platforms that will serve the telecentres, as well as the health units.

1.24 The centers in the municipalities impacted by the project have been assessed in order to determine the traffic requirements and select which centers were more suitable to be included into this component following the criteria explained above in ¶1.5. As for the health units the criteria included the type of care, its size and its location (urban, rural). In total there will be 100 telecentres. One telecentre will be deployed in each municipality (72 in total) and the remaining 28 telecentres will be deployed in the 28 covered municipalities that have the lowest income per capita. The maintenance of these telecentres will be the responsibility of TELCOR (see: Analysis of Compliance with the Bank's Public Utilities Policy (GN-2716-6).

1.25 The selected health units to be connected are distributed as follows:

Table 1: Health Units connected by the Project

Department	Health Units
Boaco	10
Carazo	9
Chinandega	25
Chontales	25
Esteli	14
Granada	9
Jinotega	18
Leon	27
Madriz	10
Managua	35
Masaya	10
Matagalpa	29
RAAN	21
RAAS	34
TOTAL	**276**

1.26 Thanks to this support last-mile networks will be developed in 72 municipalities covering 328,305 households and 38,866 companies in Nicaragua, 276 health units and 100 telecentres. At the end of the project, the expected number of connected households and companies (according to the NBP survey) is estimated to be 76,848 (which represents a population of 429.580) and 16,225 respectively.

1.27 **Component II. Strategic regulation (US$2.5 million).** This component will support the government in the development of the regulatory framework that establish the open and equal access conditions and define the operational, quality and network availability indicators for both, backbone and last-mile networks, so that ISPs can use the infrastructure in fair price and quality conditions. At the end of the project, it is expected that the regulatory framework is updated and in effect.

[36] Each kit consists of five computers, one router, one printer, one modem, five tables and five chairs. The program foresees the provision of additional equipment to communities depending on the existing gender gap (this gap will be monitored through the program execution).

The training foreseen in this component will contribute to have specialized personnel which will be a key factor for reinforcing the supervision and implementation of the regulatory policies.

1.28 In particular, this component will finance: (i) development of a market analysis[37] to identify major competition problems and the ex ante regulatory framework to overcome these problems (costing models, reference interconnection offers, etc.); (ii) definition and development of the framework for a cost accounting model to set up wholesale prices; (iii) review of the regulatory framework and the secondary legislation, including infrastructure maps for the critical infrastructure in Nicaragua; (iv) review and development of the framework on quality of services and supervision of the wholesale services provided; (v) consultancies to assist in the review and drafting of proposed legislations and decrees to guarantee open and equal access; and (vi) provision of specific training seminars (including cost models, tariffs regulation, quality of service and universal service) for at least 20 officials in charge of each of the activities indicated above.

1.29 **Component III. Development of pilot programs (US$5 million).** This component will support the government in developing the use of broadband in health and agriculture through the execution of pilot programs.[38] The health pilot program will also have a strong gender component having the objective of reducing mother-child mortality. The agriculture program, on its end, will train agricultural workers in the use of ICT to improve the efficiency and productivity of their businesses.

1.30 The agriculture pilot program will have the objective of improving productivity through ICT. To that end, the component will finance: (i) training at the connected telecentres that will focus on productivity (workshops on hardware and software that will consider specific actions to close the gender gap); (ii) development of applications that make use of broadband to improve productivity and efficiency of medium size producers (because evidence[39] shows that they are more benefited than smallholders) through technologies to improve yield and technologies to improve management (see ¶1.10 for a more detailed description of applications that can help agricultural productivity through ICT); (iii) acquisition of equipment[40] needed to provide the selected application or service (e.g. hosting servers, platform, GIS systems, wireless sensor networks, data mediation software, tele-conference equipment, additional computers and Virtual Private Networks (VPN) service); and (iv) development of an assessment of the pilot program results and, when applicable, development of a scale-up plan.

1.31 The agriculture program will be developed in a network of 20 telecentres. The selection will take place in coordination with the MAG and taking into account the communities in which broadband can make the deepest impact.

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[37] Market analysis refers to the identification of Significant Market Power telecom operators, the potential competition problems and the regulatory obligations that should be imposed to foster competition.

[38] See ¶1.10 for more detail on the problems that this component is trying to solve.

[39] World Bank's ICT in Agriculture Toolkit. According to the findings in this toolkit, ICT faces important challenges to improve their effectiveness for smallholders (see: http://www.ictinagriculture.org/).

[40] The maintenance of the described equipment will be the responsibility of TELCOR through the *Fondo Especial de Inversión de Telecomunicaciones y Servicios Postales* (FITEL).

1.32 As for the health sector, the project will leverage the use of ICT to develop innovative applications that may help reduce mother-child mortality. Specifically, it will focus on ICT applications for pregnant women and mothers with children from 0 to 5 years old with the objective to reduce maternal and child mortality and improve nutrition in early childhood. To that end, it will finance: (i) training of users, doctors and health employees at the connected units that will focus on ICT (workshops on hardware and software that will consider specific actions to close the gender gap); (ii) development of innovative applications or services related to diagnosis, treatment and electronic health record that make use of broadband to reduce mother-child mortality; (iii) acquisition of equipment[41] needed to provide the selected application or service (e.g. hosting servers, sensors, tele-conference equipment, additional computers and VPN service); and (iv) development of an assessment of the pilot program results and, when applicable, development of a scale-up plan.

1.33 The health program will be developed in a network of 20 selected health units[42] among the 276 connected units in Component I. The project team has gathered the characteristics of the health units in the area of project intervention. The final list with the 20 selected units will be done in coordination with the Ministry of Health (MINSA) taking into account the ongoing IDB operations and priorities in the country.

1.34 **Management and Administration of the Project (US$2 million).** In addition to these components, the project will support the Executing Agencies (EA) in the project's execution, monitoring and evaluation.

C. Key Results Indicators

Table 2: Key Results/Indicators

Impacts	Baseline 2015	Target 2019
Penetration of broadband services in the area of project intervention	0.51%	46.00%
Results	**Baseline 2015**	**Target 2019**
Percentage of households connected by broadband networks in the area of project intervention	0.51%	20.90%
Percentage of companies connected by broadband networks in the area of project intervention	-	27.00%
Average broadband price per Mbps in the area of project intervention	41.90	7.34
Average Number of ISPs providing telecommunications services in the area of project intervention	1.00	2

1.35 See more details in Results Matrix (Annex II).

1.36 **Economic viability.** In order to determine the economic viability of the project, the Bank's project team conducted a Cost Benefit Analysis (CBA) to establish the financial benefits the project will generate. The methodology applied is based in the Discounted Cash Flow (DCF) analysis, which is widely used in the telecom industry to assess investment opportunities. First, the analysis considers the revenues and costs expected from the network operation. This analysis is the

[41] The maintenance of the described equipment will be the responsibility of TELCOR through the Universal Service Fund FITEL. See: http://www.telcor.gob.ni/.

[42] The maintenance of the unit equipment will be the responsibility of FITEL

same that a private operator would perform from a private sector perspective in order to decide whether to make the investment or not. Subsequently, additional costs foreseen in this project are added (regulatory strengthening, development of applications and support to the EAs) and several quantifiable benefits are calculated in order to estimate the social present value and return on investment.

1.37 As a result of this analysis, it is expected that the project generates a Social Net Present Value (S-NPV) of US$24.34 million and a Social Internal Return Rate (S-IRR) of 21%, using the IDB standard discount rate of 12%. Therefore, the execution of the present project is recommended. The overall economic viability of the project is robust to the sensitivity analysis, as stated in the Analysis of Project Cost and Economic Viability, justifying the present investment.

II. FINANCING STRUCTURE AND MAIN RISKS

A. Financing Instruments

2.1 The project will be structured as an investment loan and will be disbursed in five years. The total cost of the project is estimated at US$50 million distributed as follows: (i) US$15 million from Ordinary Capital (OC); (ii) US$10 million from the Fund for Special Operations (FSO); and (iii) US$25 million from the Korea Infrastructure Development Co-financing Facility for Latin America and the Caribbean.

Table 3: Project Total Budget (in US$ million)

Components	IDB	Co-financing (KIF)	Total	%
Component I - Infrastructure	19.45	20.25	39.70	79.4
Component II - Strategic regulation	1.25	1.25	2.50	5.0
Component III – Development of pilot programs	2.50	2.50	5.00	10.0
Monitoring, evaluation and contingencies	1.00	1.00	2.00	4.0
Financial expenses * (see Annex III, paragraph 6.2)	0.80	0.00	0.80	1.6
TOTAL	**25.00**	**25.00**	**50.00**	**100.0**

* The interests from the Bank's financing (OC and FSO) may be financed with Bank's resources (OC and FSO)

2.2 **Technical viability.** The technical viability of the infrastructure that will be deployed in this project is supported on the feasibility studies conducted in the NBP. These studies included: (i) a detailed analysis of the current and future demand for broadband services in Nicaragua; (ii) a study of the socio-demographic conditions of the population in Nicaragua; and (iii) a thorough technical study that considered all the technical alternatives to deploy the backbone and last-mile networks.

B. Environmental and Social Safeguard Risks

2.3 The proposed project has been classified as Category "B" (see Environmental and Social Management Report - ESMR), in accordance with the guidelines of the Environment and Safeguards Compliance Policy (OP-703). It is anticipated that the planned interventions in this project will not have environmental and social impacts of high risk; as long as the works are implemented on the existing infrastructure and compliance with restrictions for new infrastructure are met. The expected environmental and social impacts are short term and they are related to small scale civil construction, for which effective mitigation measures will be arranged.

C. Fiduciary Risk

2.4 Based on TELCOR's and ENATREL's Institutional Capacity Assessment (*Sistema de Evaluación de la Capacidad Institucional* - SECI), it was concluded that both institutions do have the human resources and systems in the areas of planning, organization, execution and control. Additionally, ENATREL has already been involved in the execution of a loan operation with the IDB. Therefore, a low risk related to potential delays in the implementation of Component I is observed in the case of ENATREL and medium risk in the implementation of Components II and III is observed in the case of TELCOR. In addition, a medium risk is observed related to potential delays in project implementation, due to lack of capacity of each EA in project financial management according to Bank procedures. In any case and to achieve an effective execution of the project, it is suggested to dedicate specific resources to hire procurement and financial specialists for both institutions. To mitigate these risks the Bank will ensure that the Executing Unit is properly staffed and additionally will provide training in Bank procurement policies and project financial management to all stakeholders involved in project execution.

D. Other Key Issues and Risks

2.5 **Operation and maintenance.** ENATREL will be responsible of the operation and maintenance of the assets related to the infrastructure and the telecentres financed under the project and the recurrent expenses generated by the telecentres and health units connected.

2.6 The following risks have been identified as significant (medium or high classification): (i) no ISPs willing to use the new deployed infrastructure—to mitigate this risk the team will support the EA in the design and definition of the bidding process as well as the roadshow to promote the project among national and international ISPs; (ii) delays in the implementation of the regulatory recommendations, which may suppose that there is no open and equal access to the deployed networks—to mitigate this risk the regulatory component will be executed right from the beginning and the Bank will support TELCOR in the definition of a roadmap for the implementation of the recommendations, prioritizing those that are more critical. Additionally, the Bank is working on the approval of a TC (NI-T1212) with a specific component to support the regulatory recommendations; and (iii) low levels of coordination among government entities participating in the operation can cause delays in the

execution of the project—to mitigate this risk the project's OR will be approved and entered into effect prior to the first disbursement.

III. IMPLEMENTATION AND MANAGEMENT PLAN

A. Summary of Implementation Arrangements

3.1 The borrower will be the Republic of Nicaragua. The project implementation will have the following elements:

a. ENATREL will execute Component I to deploy the planned infrastructure. Prior to the execution of Component I.
b. TELCOR will execute Components II and III.
c. MHCP will transfer loan resources received from the Bank pursuant to interinstitutional agreements signed with each of TELCOR and ENATREL, as Executing Agencies (EA). TELCOR and ENATREL will then each manage separately the financial resources received for the project execution of their respective components. Likewise, each EA will manage the procurement aspects and the financial accounting of the resources corresponding to the components they are responsible for.

3.2 The detailed functions for each one of the players and for the entire project will be described in the project's Operating Regulations (OR) of the project.

3.3 **Special Contractual Clauses to be fulfilled to the Bank's satisfaction:**

3.4 **Prior to the first disbursement of the loan: (i) present the project's OR[43] including separate chapters for each EA, in effect and approved by each of them, in accordance with the terms and conditions previously agreed upon with the Bank; (ii) present an interinstitutional agreement signed and in effect between *Ministerio de Hacienda y Crédito Público* (MHCP) and TELCOR and another agreement between the MHCP and ENATREL, by which the MHCP undertakes to transfer loan resources and execution obligations to each EA for the proper implementation of the project; (iii) present an interinstitutional agreement signed and in effect between TELCOR and ENATREL that establishes the obligations of both parties in the execution of the project; and (iv) for each EA, show evidence of the selection of a procurement specialist and a financial management specialist assigned to each EA for the execution of the project.**

3.5 **Prior to the first disbursement under Component I: (i) the restrictions described in Section VI, paragraphs 6.3-6.10 of the ESMR for new infrastructure must be included in the Terms of Reference as conditions for the bidding process; and (ii) TELCOR must have developed a draft interconnection offer that allows for equal and open access by third parties (other backbone operators or ISPs) to the financed infrastructure.**

3.6 **Prior to beginning construction work of Component I: ENATREL, as EA, shall incorporate into all contractors' contracts detailed regulations and penalties**

[43] The OR will include among others the responsibilities of each institution involved in the implementation of the program and coordination arrangements.

for non-compliance by such contractors with policies, plans and programs (including mitigation measures) applicable to the project. This will include detailed procedures and timeframes for reporting environmental, health and safety related incidents/accidents and a specific monitoring program to assess causes of incidents/accidents and track performance of the corrective measures.

3.7 Prior to the execution of Subcomponent I.2 and Component III: the Borrower itself or through the corresponding EA, shall present, to the Bank's satisfaction, interinstitutional partnership agreements: (i) among ENATREL, the Ministry of Health (MINSA) and the Ministry of Agriculture (MAG); and (ii) among TELCOR, MINSA and MAG.

3.8 Environmental and social clauses: the Borrower shall ensure compliance with all other environmental, social and health and safety requirements set forth in Sections VI of the ESMR.

3.9 The acquisition of goods and services along with civil work as well as consulting services that are financed with the project will follow the Bank's policies: Policies for the procurement of works and goods financed by the IDB (GN-2349-9) and Policies for the selection and contracting of consultants financed by the IDB (GN-2350-9). In addition to that, the review of the acquisition will be done following the methodology established in Annex III and the acquisition plan approved by the Bank.

3.10 It will be responsibility of each EA: (i) to comply with each OR; (ii) to prepare terms of reference for works and goods, consultancies, bidding documents, assessment reports and any other procurement documents; (ii) to supervise the services contracted; (iii) to prepare update project reports, as well as those reports related to each works, goods, and consultancies contracted/acquired; (iv) to do the monitoring and evaluation of the project; (v) to keep the archive and confidentiality of the relevant documents to the project; (vi) to comply and ensure compliance with national law relevant to the project, as well as the Bank's policies and rules; and (vii) to do the financial supervision and auditing of the project to duly fulfill with the obligation of presenting audited financial statements related to each EA within a period of 120 days after the closing of the activities of the year and in any case within the original period of disbursement or any extension considered.

B. Summary of Arrangements for Monitoring Results

3.11 The Monitoring and Evaluation Plan of this project will use the following monitoring tools and mechanisms to report project monitoring results: (i) Results Matrix (RM); (ii) Annual Operating Plan (AOP); (iii) Procurement Plan (PP); (iv) Pluriannual Execution Plan (PEP); (v) administration missions or inspection visits; (vi) semi-annual project report; and (vii) Progress Monitoring Report (PMR). The monitoring exercises of these instruments and mechanisms are described in more detail in the Monitoring and Evaluation Arrangements.

3.12 The Results Matrix comprises the project's indicators. Project indicators have been selected to represent the essential activities within the project scope and

are in line with the principles of SMART[44] indicators. In order to evaluate effective operations of the project, the Monitoring and Evaluation Plan will include indicators related to achievement of performance targets, outputs and outcomes. The approach for the monitoring was agreed between the Bank and the Government of Nicaragua.

3.13 The ex post evaluation will use the same methodology applied to estimate the project return benefits comparing and justifying the deviations. The ex post evaluation will update the current controls/tables with information related to the year of the evaluation.

[44] SMART Indicators are specific, measurable, achievable, relevant, and time bound.

Development Effectiveness Matrix			
Summary			
I. Strategic Alignment			
1. IDB Strategic Development Objectives	**Aligned**		
Lending Program	**-Lending to small and vulnerable countries -Lending for poverty reduction and equity enhancement -Lending to support regional cooperation and integration**		
Regional Development Goals			
Bank Output Contribution (as defined in Results Framework of IDB-9)			
2. Country Strategy Development Objectives	**Aligned**		
Country Strategy Results Matrix			
Country Program Results Matrix	**GN-2805**	**The intervention is included in the 2015 Operational Program.**	
Relevance of this project to country development challenges (If not aligned to country strategy or country program)			
II. Development Outcomes - Evaluability	Evaluable	Weight	Maximum Score
	8.0		10
3. Evidence-based Assessment & Solution	**8.6**	**33.33%**	**10**
3.1 Program Diagnosis	**3.0**		
3.2 Proposed Interventions or Solutions	**4.0**		
3.3 Results Matrix Quality	**1.6**		
4. Ex ante Economic Analysis	**8.5**	**33.33%**	**10**
4.1 The program has an ERR/NPV, a Cost-Effectiveness Analysis or a General Economic Analysis	**4.0**		
4.2 Identified and Quantified Benefits	**1.5**		
4.3 Identified and Quantified Costs	**1.5**		
4.4 Reasonable Assumptions	**0.0**		
4.5 Sensitivity Analysis	**1.5**		
5. Monitoring and Evaluation	**7.1**	**33.33%**	**10**
5.1 Monitoring Mechanisms	**2.5**		
5.2 Evaluation Plan	**4.6**		
III. Risks & Mitigation Monitoring Matrix			
Overall risks rate = magnitude of risks*likelihood	**Medium**		
Identified risks have been rated for magnitude and likelihood	**Yes**		
Mitigation measures have been identified for major risks	**Yes**		
Mitigation measures have indicators for tracking their implementation	**Yes**		
Environmental & social risk classification	**B**		
IV. IDB´s Role - Additionality			
The project relies on the use of country systems			
Fiduciary (VPC/FMP Criteria)	**Yes**	**Financial Management: Budget, Treasury, Accounting and Reporting, Internal Audit. Procurement: National Public Bidding.**	
Non-Fiduciary			
The IDB's involvement promotes additional improvements of the intended beneficiaries and/or public sector entity in the following dimensions:			
Gender Equality			
Labor			
Environment			
Additional (to project preparation) technical assistance was provided to the public sector entity prior to approval to increase the likelihood of success of the project	**Yes**	**This project was supported by the technical cooperation ATN/KK-13802-NI (NI-T1172): Development of a Broadband Plan and Review of Regulatory Framework.**	
The ex-post impact evaluation of the project will produce evidence to close knowledge gaps in the sector that were identified in the project document and/or in the evaluation plan			

The main objective of the project is to increase broadband penetration in Nicaragua with the ultimate goal of contributing to the economic and social development of the country. The specific objectives are to: (i) expand the infrastructure (backbone and last-mile networks); (ii) update the regulatory framework to ensure that networks can be used in fair price and quality conditions; and (iii) increase Information and Communication Technologies (ICT) capacities among citizens and public officers.

The project presents a complete diagnosis and includes a brief description of a similar project implemented in rural areas of Nicaragua, whose lessons learned could be taken into consideration for the implementation of the present project. However, it is worth noting that the vertical logic of component three is still not clear. Although the document states that one of the goals is to increase ICT capacities and use of broadband among citizens and public officers, the problems mentioned for the specific sectors (health and agriculture) would need to be discussed in greater detail, as well as the main factors contributing to problems, empirical evidence of determinants of problems, and magnitudes of deficiencies. In terms of the results matrix, outcome indicators reported are SMART and have means of verification.

The cost-benefit analysis is consistent with the program's logic. However, it could have provided more details on some of the assumptions made; in addition to a more precise estimation of the benefits for firms. The CBA also includes a complete sensitivity analysis that shows positive NPV even in the most extreme scenarios.

Finally, the project includes a monitoring and evaluation plan. The effectiveness of the proposed intervention will be measured following an ex post cost-benefit analysis approach.

The risks identified in the risk matrix are rated for magnitude; include mitigation measures and related metrics to track their implementation.

RESULTS MATRIX

Project Objective:	The general objective of this project is to increase broadband penetration in Nicaragua with the ultimate goal of contributing to the economic and social development of the country. The specific objectives are to: (i) expand the infrastructure (backbone and last-mile networks); (ii) update the regulatory framework to ensure that networks can be used in fair price and quality conditions; and (iii) increase Information and Communication Technologies (ICT) capacities and use of broadband for citizens and public institutions.

EXPECTED IMPACT

Indicators	Unit	Baseline		Goals		Means of verification	Observations
		Value	Year	Value	Year		
EXPECTED IMPACT							
Penetration of broadband services in the area of project intervention	%	0.51%	2015	46%	2019	Source: Telecommunications Sector Statistics Responsible: TELCOR	

EXPECTED RESULTS

Expected Results	Unit	Baseline		Intermediate		Goals		Means of verification	Observations
		Value	Year	Value	Year	Value	Year		
EXPECTED RESULTS									
Percentage of households connected by broadband networks in the area of project intervention	%	0.51%	2015	6.74%	2017	20.90%	2019	Source: Telecommunications Sector Statistics Responsible: TELCOR	This indicator will consider specific aspects related to the gender gap.
Percentage of companies connected by broadband networks in the area of project intervention	%	Not available	2015	3.81%	2017	27%	2019	Source: Telecommunications Sector Statistics Responsible: TELCOR	The baseline for penetration of companies connected to broadband will be obtained

Expected Results	Unit	Baseline		Intermediate		Goals		Means of verification	Observations
		Value	Year	Value	Year	Value	Year		
									from the monitoring report at year 1. The goal at the end of the project has been calculated taking into account the potential market calculated from the NBP survey.
Average broadband price per Mbps in the area of project intervention	US$/MB	41.9	2015	17.28	2017	7.34	2019	Source: Telecommunications Sector Statistics Responsible: TELCOR	This outcome indicator will be measured in the areas where there were broadband services before intervention.
Average number of ISPs providing telecommunications services in the area of project intervention	#	1	2015	1.5	2017	2	2019	Source: Telecommunications Sector Statistics Responsible: TELCOR	

PRODUCTS

Products	Estimated Cost (US$)	Unit	Baseline	Year 1	Year 2	Year 3	Year 4	Final Goal	Means of verification
Component I: Infrastructure									
Optical Fiber acquired and deployed[1]	16.5 million	Kms. of fiber	0	352	351	351	351	1,405	Source: Project Execution Report Responsible: Survey to ENATREL
Number of irrevocable Rights of Use (IRUs) acquired. Submarine Cable Capacity (10Gbps links)	10 million	Absolute number	0	1	1	0	0	2	Source: Project Execution Report Responsible: Survey to ENATREL
Main nodes installed (40 GE)	2 million	Absolute number	0	4	3	3	3	13	Source: Project Execution Report Responsible: Survey to ENATREL
Medium nodes installed (10 GE)	2 million	Absolute number	0	10	9	9	9	37	Source: Project Execution Report Responsible: Survey to ENATREL
Small nodes installed (1GE)	1 million	Absolute number	0	7	7	7	6	27	Source: Project Execution Report Responsible: Survey to ENATREL
Amplifier Nodes installed	0.5 million	Absolute number	0	2	1	1	1	5	Source: Project Execution Report Responsible: Survey to ENATREL
Towers installed	1.2 million	Absolute number	0	27	27	27	25	106	Source: Project Execution Report Responsible: Survey to ENATREL

[1] The fiber optic includes both the cable needed for the backbone network and the last mile connection part.

Products	Estimated Cost (US$)	Unit	Baseline	Year 1	Year 2	Year 3	Year 4	Final Goal	Means of verification
Base Stations installed	1 million	Absolute number	0	19	19	18	18	74	Source: Project Execution Report Responsible: Survey to ENATREL
Software for the network operation acquired	2 million	Absolute number	0	1	0	0	0	1	Source: Project Execution Report Responsible: Survey to ENATREL
Equipment kits[2] for the health units acquired	1.75 million	Absolute number	0	69	69	69	69	276	Source: Project Execution Report Responsible: Survey to ENATREL
Equipment kits for the telecentres acquired	1.25 million	Absolute number	0	25	25	25	25	100	Source: Project Execution Report Responsible: Survey to ENATREL
System to support the provision of health services installed	0.5 million	Absolute number	0	1	0	0	0	1	Source: Project Execution Report Responsible: Survey to ENATREL
Component II: Strategic regulation									
Methodology for Market Analysis defined	0.5 million	Absolute number	0	1	0	0	0	1	Source: Project Execution Report Responsible: Survey to TELCOR
Tariffs set up according to defined cost models	0.5 million	Absolute number	0	1	1	1	0	3	Source: Project Execution Report Responsible: Survey to TELCOR
Regulatory framework and the secondary legislation reviewed	0.5 million	Absolute number	0	0	1	0	0	1	Source: Project Execution Report

[2] Each kit consists of five computers, one router, one printer, one modem, five tables and five chairs. The estimated price includes also the installation.

Products	Estimated Cost (US$)	Unit	Baseline	Year 1	Year 2	Year 3	Year 4	Final Goal	Means of verification
									Responsible: Survey to TELCOR
Applications to measure quality of service implemented	0.5 million	Absolute number	0	1	0	0	0	1	Source: Project Execution Report Responsible: Survey to TELCOR
Specific legislations and decrees to guarantee open and equal access reviewed and drafted	0.375 million	Absolute number	0	0	1	0	0	1	Source: Project Execution Report Responsible: Survey to TELCOR
Number of training workshops in terms of interconnection and access held	0.125 million	Absolute number	0	1	1	1	1	4	Source: Training Attendance Certificates Responsible: TELCOR
Component III: Development of pilot programs									
Applications that make use of broadband to improve mother-child mortality developed	0.5 million	Absolute number	0	1	1	0	0	2	Source: Project Execution Report Responsible: Survey to TELCOR
Equipment kit[3] for the provision of the selected applications acquired	0.5 million	Absolute number	0	0	1	0	0	1	Source: Project Execution Report Responsible: Survey to TELCOR
Training workshops: ICT for the provision of innovative health services held[4]	1 million	Absolute number	0	10	10	0	0	20	Source: Training Attendance Certificates Responsible: TELCOR
Health pilot results evaluated and scale-up plan developed	0.5 million	Absolute number	0	0	1	0	0	1	Source: Project Execution Report Responsible: Survey to TELCOR

[3] The kit will be defined once the applications or services are selected. The amount will not exceed US$0.5 million.
[4] This training will consider specific aspects related to the gender gap.

Products	Estimated Cost (US$)	Unit	Baseline	Year 1	Year 2	Year 3	Year 4	Final Goal	Means of verification
Applications to improve productivity using broadband developed	0.5 million	Absolute number	0	1	1	0	0	2	Source: Project Execution Report Responsible: Survey to TELCOR
Equipment kit[5] for the provision of the selected applications acquired	0.5 million	Absolute number	0	0	1	0	0	1	Source: Project Execution Report Responsible: Survey to TELCOR
Training[6] in Hardware and Software: ICT to improve the agriculture productivity held	1 million	Absolute number	0	10	10	0	0	20	Source: Training Attendance Certificates Responsible: TELCOR
Agriculture pilot results evaluated and scale-up plan developed	0.5 million	Absolute number	0	0	1	0	0	1	Source: Project Execution Report Responsible: Survey to TELCOR

[5] The kit will be defined once the applications or services are selected. The amount will not exceed US$0.5 million.
[6] This training will consider specific aspects related to the gender gap.

FIDUCIARY AGREEMENTS AND REQUIREMENTS

Country:	Nicaragua
Project number:	NI-L1090
Name:	Broad Band Connectivity Program
Executing agency:	*Instituto Nicaragüense de Telecomunicaciones y Correos* (TELCOR) and the *Empresa Nacional de Transmisión Eléctrica* (ENATREL).
Fiduciary team:	Santiago Castillo and Osmín Mondragón; (FMP/CNI)

I. EXECUTIVE SUMMARY

1.1 TELCOR and ENATREL, the executing agencies for this operation, will be responsible for the project's execution and technical and financial supervision, with the participation of the Ministry of Health and the Ministry of Agriculture.

1.2 The country's financial management system, known as Sistema Integrado de Gestión Financiera y Auditoría [Integrated Financial Management and Audit System] (SIGFA), composed of budgeting and treasury subsystems, and *Sistema Integrado de Gestión Financiera y Auditoría de Proyectos* [Integrated Project Financial Management and Audit System] (SIGFAPRO), for accounting, which have been validated by the Bank. The system is undergoing improvements in procurement, and therefore it is important to make a sustained effort to promote measures that bring its procurement processes in line with international best practices and Bank policies. ENATREL has experience executing Bank-financed projects, such as loans 2342/BL-NI, 1787/BL-NI, and 1933/BL-NI. TELCOR has executed projects with external financing from the World Bank, the Embassy of Finland, and the European Union, although it does not have recent experience executing Bank projects.

1.3 TELCOR has a track record in financial management of external funds. The institutional capacity assessment found a medium risk level. Inasmuch as TELCOR is a wholly autonomous entity, it does not use the country financial systems; however, for managing proceeds it should use both SIGFA and SIGFAPRO to record and oversee the loan operations. For its part, ENATREL has a proven track record of acceptable performance in executing several Bank-financed operations using country systems. The results of the Institutional Capacity Assessment System (ICAS) analysis reveal a low risk level. To mitigate risk, TELCOR needs to hire personnel with expertise in the Bank's operations, and ENATREL should likewise hire additional personnel. Additionally, to strengthen both institutions' performance, targeted training in the Bank's tools should be provided, thus ensuring that the operation's procurement and disbursement can be reviewed on an ex post basis (see ¶3.2).

1.4 This operation totals US$50 million (US$25 million from the Bank and US$25 million from the Korea Infrastructure Development Co-financing Facility for Latin America and the Caribbean - KIF).

II. THE EXECUTING AGENCIES' FIDUCIARY CONTEXT

2.1 TELCOR is a government institution in the communications sector. Its basic law, issued pursuant to Decree 1,053 of 5 June 1982, created TELCOR as a decentralized agency that enjoys technical and administrative autonomy, with legal personality, with its own capital and the ability to contract obligations. ENATREL is a state-owned power company. It was established under Law 583 of 16 November 2006 also as a decentralized agency with technical and administrative autonomy, legal personality, its own capital, and the ability to contract obligations.

2.2 TELCOR staff has experience managing projects financed by external cooperation, but not IDB projects. TELCOR does not use country systems for financial management, although this will be recommended. It has a procurement structure with experience in World Bank projects that are similar to those of the IDB. ENATREL employees are experienced in IDB-financed projects. Procurement is done institution-wide and staff utilize the Procurement Plan Execution System (SEPA). Training in procurement processes in keeping with Bank procedures is planned for both institutions.

2.3 TELCOR uses its own accounting system known as "exactus" for financial management; however, SIGFAPRO will be used as the country system. ENATREL utilizes SIGFA, which consists of the following subsystems: budget, treasury, accounting, and reporting, supported by the exclusive projects system (SIGFAPRO). The Bank is currently supporting the Nicaraguan government in upgrading the financial management system (SIGFA), which will include: (i) specific applications for the Ministry of Finance to record and account for public funds in the Financial Management System; (ii) necessary functionalities for management in keeping with its own administrative characteristics and autonomies; (iii) results-based budgeting; (iv) administrative management of institutions based on complete transactional cycles; and (v) international accounting standards and automatic generation of statistics on public finances.

III. FIDUCIARY RISK EVALUATION AND MITIGATION ACTIONS

3.1 Both executing agencies' technical and fiduciary capacities will be bolstered by contracting: (i) a procurement specialist; and (ii) a financial specialist. The personnel to be contracted are to first have the Bank's no objection in order to ensure they meet the appropriate profile for executing the project.

3.2 TELCOR has a medium risk level for procurement and financial management, thus the recommendation to: (i) contract a procurement and a financial specialist with experience; (ii) prepare project Operating Regulations describing project execution criteria and procedures; (iii) have the Bank's fiduciary sector provide training in financial and procurement management to personnel in charge of project execution; and (iv) update the computer tool to facilitate monitoring of procurement and contract management processes, allowing for project reports to be obtained.

IV. CONSIDERATIONS FOR THE SPECIAL PROVISIONS OF CONTRACTS

4.1 The following agreements and requirements should be envisioned in the special conditions:

4.2 Prior to the first disbursement of the loan: (i) present the project's OR including separate chapters for each EA, in effect and approved by each of them, in accordance with the terms and conditions previously agreed upon with the Bank; (ii) present an interinstitutional agreement signed and in effect between *Ministerio de Hacienda y Crédito Público* (MHCP) and TELCOR and another agreement between the MHCP and ENATREL, by which the MHCP undertakes to transfer loan resources and execution obligations to each EA for the proper implementation of the project; (iii) present an interinstitutional agreement signed and in effect between TELCOR and ENATREL that establishes the obligations of both parties in the execution of the project; and (iv) for each EA, show evidence of the selection of a procurement specialist and a financial management specialist assigned to each EA for the execution of the project.

4.3 Prior to the first disbursement under Component I: (i) the restrictions described in Section VI, paragraphs 6.3-6.10 of the ESMR for new infrastructure must be included in the Terms of Reference as conditions for the bidding process; and (ii) TELCOR must have developed a draft interconnection offer that allows for equal and open access by third parties (other backbone operators or internet service providers) to the financed infrastructure.

4.4 Prior to beginning construction work of Component I: ENATREL, as EA, shall incorporate into all contractors' contracts detailed regulations and penalties for non-compliance by such contractors with policies, plans and programs (including mitigation measures) applicable to the project. This will include detailed procedures and timeframes for reporting environmental, health and safety related incidents/accidents and a specific monitoring program to assess causes of incidents/accidents and track performance of the corrective measures.

4.5 Prior to the execution of Subcomponent I.2 and Component III: the Borrower itself or through the corresponding EA, shall present, to the Bank's satisfaction, interinstitutional partnership agreements: (i) among ENATREL, the Ministry of Health (MINSA) and the Ministry of Agriculture (MAG) and (ii) among TELCOR, MINSA and MAG.

4.6 Environmental and social clauses: the Borrower shall ensure compliance with all other environmental, social and health and safety requirements set forth in Sections VI of the ESMR.

4.7 **Special general conditions:** (i) exchange rate: to avoid exchange losses, it is recommended to use section b(i) of article 4.10 of the general conditions of the loan contract, regarding the use of exchange rate effective at the date of exchange between the disbursement currency and the country local currency; and (ii) presentation by each executing agency of the project's audited financial statements within 120 days following the end of each calendar year and during the original disbursement period or any extensions; and (iii) preparation by both institutions (TELCOR and ENATREL) of performance manuals as a result of the SECI analysis, functional organizational charts, flow charts, plans with indicators and means of verification to improve personnel, planning, and organizational management systems.

V. AGREEMENT AND REQUIREMENTS FOR PROCUREMENT EXECUTION

5.1 The fiduciary agreements and requirements for procurement set forth the provisions that apply to execution for all procurements envisaged under the project.

A. Procurement execution

5.2 **Procurement of works, goods, and nonconsulting services**: Contracts for works, goods, and nonconsulting services generated under the project and subject to international competitive bidding (ICB) will be executed using the standard bidding documents (SBDs) issued by the Bank. Bidding processes subject to national competitive bidding (NCB) will be executed using national bidding documents agreed upon with the Bank. The project's sector specialist will be responsible for reviewing the technical specifications for procurement during the preparation of selection processes.

5.3 **Procurement of information technology systems:** Procurement of equipment and technology required for project execution will be executed using SBDs issued by the Bank. Bidding processes subject to NCB will be executed using the national bidding documents agreed upon with the Bank.

5.4 **Turnkey procurement (supply and installation):** Not applicable.

5.5 **Community participation procurement:** Not applicable.

B. Consultant selection and contracting

5.6 Contracts for consulting services generated under the project will be executed using the standard request for proposals issued or agreed upon with the Bank. The project's sector specialist will be responsible for reviewing the terms of reference for contracting consulting services.

5.7 **Selection of individual consultants:** In some cases the contracting of individual consultants may be publicized in local or international notices in order to draw up a shortlist of qualified candidates.

5.8 **Training:** Procurement of training services required to implement the project will be executed using the SBDs issued by the Bank, and bidding processes subject to NCB will be executed using the national bidding documents agreed upon with the Bank.

C. Use of country procurement system

5.9 The country procurement (sub)system approved by the Bank, the Sistema de Contrataciones Administrativas del Estado [State Administrative Contracting System] (SISCAE), will be used to publish notices of requests for expressions of interest and/or calls for tenders for all procurement and contracting processes. Any system or subsystem that is subsequently approved will be applicable to the operation. The operation's procurement plan and its updated versions will indicate which contracting processes will be executed through approved country systems.

a. Strengthening measures: Procurement training will be provided to ENATREL and TELCOR. A procurement specialist will be contracted with project funds to strengthen ENATREL, and another will be hired to support TELCOR.
b. Recurrent expenditures: Not applicable.

c. Business practices: Not applicable.

5.10 **Advance procurement/retroactive financing:** Not applicable.

5.11 **Domestic preference:** Not applicable.

5.12 **Other arrangements for project execution:** ENATREL is expected to execute Subcomponent I.1. ENATREL, for execution of Subcomponents I.1 and I.2, and TELCOR, for execution of Component 3, may sign agreements with local telephony and data service providers, according to the needs in each municipality benefitting from the project. ENATREL may also enter into or broaden with the current service provider the Irrevocable Rights of Use (IRUs) agreement (i.e. underwater cable capacity) required in Subcomponent I.1.

D. Threshold amounts for international bidding and the international shortlist (US$ thousands)

Method	ICB Works	ICB Goods and nonconsulting services	International shortlist of consulting services
Threshold	>1,500	>150	>200

E. Major procurement items

Activity	Selection method	Estimated date of announcement/invitation	Estimated amount US$
Works			
Optical Fiber Deployment	ICB	December 2016	36,000,000
Goods			
Backbone Network with Municipalities/Health Units	ICB	December 2016	6,500,000
Nonconsulting services			
Pilot Programs and Training	ICB	January 2017	4,500,000
Firms			
To establish regulatory conditions for the project	QCBS	November 2016	2,000,000
Individuals			

* For detailed information see link: Procurement Plan (PA) for 18 months.

5.13 **Supervision of procurement processes.** The procurement supervision method will be defined in the procurement plan and will be determined for each selection process. The ex post reviews will take place every six months, in keeping with the project supervision plan. The ex post review reports will include at least one physical inspection visit, to be chosen from the procurement processes subject to ex post review. At least 10% of the contracts reviewed are to be physically inspected.

ENATREL ex post review thresholds		
Works	**Goods and nonconsulting services**	**Consulting**
Up to US$150,000.00	Up to US$25,000.00	US$00,000.00

Note: The thresholds set for ex post review are based on the executing agency's fiduciary capacity for execution and may be modified by the Bank as that capacity varies. In the case of TELCOR, ex post review does not apply.

F. Special provisions

5.14 **Measures to reduce the likelihood of prohibited practices:** Implement an employee code of ethics and conduct institution-wide that includes the procurement division, principally to address conflicts of interest.

5.15 **Other special procedures:** Not applicable.

G. Records and files

5.16 The documents required for fiduciary management (procurement and finance) will be kept in an orderly fashion in the project records and files under secure conditions in the offices of each of the executing agencies. Reports stipulated for the project's fiduciary management will use the established forms for the project in keeping with the procedures described and agreed upon in the project Operating Regulations.

VI. FINANCIAL MANAGEMENT AGREEMENTS AND REQUIREMENTS

A. Programming and budget The public sector uses the regulations of the Financial Management and Budget System Act and the provisions set forth under the National Public Investment System (SNIP) as a country system, following the approval cycle for the General Budget of the Republic. Both executing agencies will manage the necessary budget allocation so that the appropriations cover each year's execution commitments, using SIGFAPRO as the financial/accounting system acceptable to the Bank. If improvements are made to the project management module of SIGFA/SIGFAPRO of the Integrated Administrative and Financial Management System (SIGAF) currently being upgraded, they would immediately migrate to using the improved system.

5.18 **Disbursements and cash flow.** The Bank will make disbursements from the Korea Infrastructure Development Co-financing Facility for Latina America and the Caribbean (KIF), on the one hand, and of the ordinary capital of the Bank and of the Fund for Special Operations, on the other, separately in the unique account of the Treasury of the MHCP managed at the Central Bank of Nicaragua (BCN). The MHCP upon request of each EA, will open a financing control subaccount for each one of them and for each one of the financing sources coming from the KIF, on the one hand, and from the ordinary capital and the Fund for Special Operations, on the other. Disbursements will be made in accordance with the project's actual cash flow needs and in accordance with the OR. Disbursement requests will be justified by each EA in view of requesting a new disbursement, which shall be aligned with the Project Execution Plan (PEP), the AOP, and the Procurement Plan.

5.19 **Accounting and financial reporting.** The project's financial statements are to be issued in keeping with international accounting standards and the Bank's Financial Management Guidelines (document OP-273-6) and audited annually by a Bank-eligible independent firm. The SIGFA/SIGFAPRO system, which offers transparency and targeted oversight of budget execution, will be used for financial accounting records.

5.20 **Internal control and internal audit.** The control environment and/or activities, communication and information, and monitoring of TELCOR and ENATREL activities are governed by Nicaraguan domestic standards (Technical Standards for Internal Control). Both executing agencies have: (i) an acceptable internal control system; (ii) manuals and defined procedures; and (iii) and an internal

auditing unit. To the extent possible, this unit is expected to include a review of project components executed in its annual planning.

5.21 **External control and reporting.** The executing agencies are to hire a Bank-eligible independent auditing firm, in keeping with Bank procedures. The project's external auditing report and ex post review of procurement processes and disbursement requests will be presented 120 calendar days after each fiscal year during the disbursement stage, as well as after the original disbursement period or any extensions, taking into account International Standards on Auditing (ISA). The annual audited financial statements will be prepared in accordance with Guidelines for financial reports and external auditing for Bank-financed operations.

B. Financial supervision plan

5.22 For the project's financial monitoring, the executing agencies will use audited and non-audited financial reports. The Bank, for its part, will take the following measures: (i) organize, prior to the first disbursement of loan proceeds, an initial training workshop for personnel in charge of project execution that delves into standard financial management instruments; (ii) make financial accounting visits to verify progress in project execution and compliance with internal control measures, with an emphasis on studying financial execution processes, quality and timeliness of accounting records, and suitability of supporting documents; and (iii) ex post review of disbursement requests, to be verified by the Bank's auditor and staff.

5.23 **Execution mechanism.** Each coexecuting agency will manage funds advanced through their respective institutional financial unit, as well as payment processes and commitments charged to the operation will take place from that unit. Separate financial statements, under the responsibility of the same auditing firm, will be presented for each executing agency.

BROADBAND PROGRAM

NI-L1090

FINAL CERTIFICATION

The Grants and Co-Financing Management Unit (ORP/GCM) certifies receipt of the non-objection from Director of Ministry of Strategy and Finance from Republic of Korea, Mr. Sungsik Jeon, dated November 11, 2015 for project "Broadband Program" for the amount of **US$25,000,000** chargeable against the Korean Infrastructure Development Co-financing Facility for Latin America and the Caribbean (the "Facility").

Original Signed	11/12/2015
Sonia M. Rivera Chief Grants and Co-Financing Management Unit ORP/GCM	Date

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-__/15

Nicaragua. Loan ____/BL-NI to the Republic of Nicaragua
Broadband Program

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the Republic of Nicaragua, as Borrower, for the purpose of granting it a financing to cooperate in the execution of the Broadband Program. Such financing will be for the amount of up to US$15,000,000 from the resources of the Single Currency Facility of the Bank's Ordinary Capital, corresponds to a parallel loan within the framework of the multilateral debt relief and concessional finance reform of the Bank, and will be subject to the Financial Terms and Conditions and the Special Contractual Conditions of the Project Summary of the Loan Proposal.

(Adopted on ___ _____ 2015)

LEG/SGO/CID/IDBDOCS#39935666
NI-L1090

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-___/15

Nicaragua. Loan ____/BL-NI to the Republic of Nicaragua
Broadband Program

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the Republic of Nicaragua, as Borrower, for the purpose of granting it a financing to cooperate in the execution of the Broadband Program. Such financing will be for the amount of up to US$10,000,000 from the resources of the Bank's Fund for Special Operations, corresponds to a parallel loan within the framework of the multilateral debt relief and concessional finance reform of the Bank, and will be subject to the Financial Terms and Conditions and the Special Contractual Conditions of the Project Summary of the Loan Proposal.

(Adopted on ___ _____ 2015)

LEG/SGO/CID/IDBDOCS#39935665
NI-L1090

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-___/15

Nicaragua. Loan ____/__-NI to the Republic of Nicaragua
Broadband Program

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, acting as Administrator of the Korea Infrastructure Development Co-financing Facility for Latin America and the Caribbean (hereinafter, the "Facility"), to enter into such contract or contracts as may be necessary with the Republic of Nicaragua, as Borrower, for the purpose of granting it a financing to cooperate in the execution of the Broadband Program. Such financing will be for an amount of up to US$25,000,000 from the resources of the Facility, and will be subject to the Financial Terms and Conditions and the Special Contractual Conditions of the Project Summary of the Loan Proposal.

(Adopted on ___ _____ 2015)

LEG/SGO/CID/IDBDOCS#39935664
NI-L1090