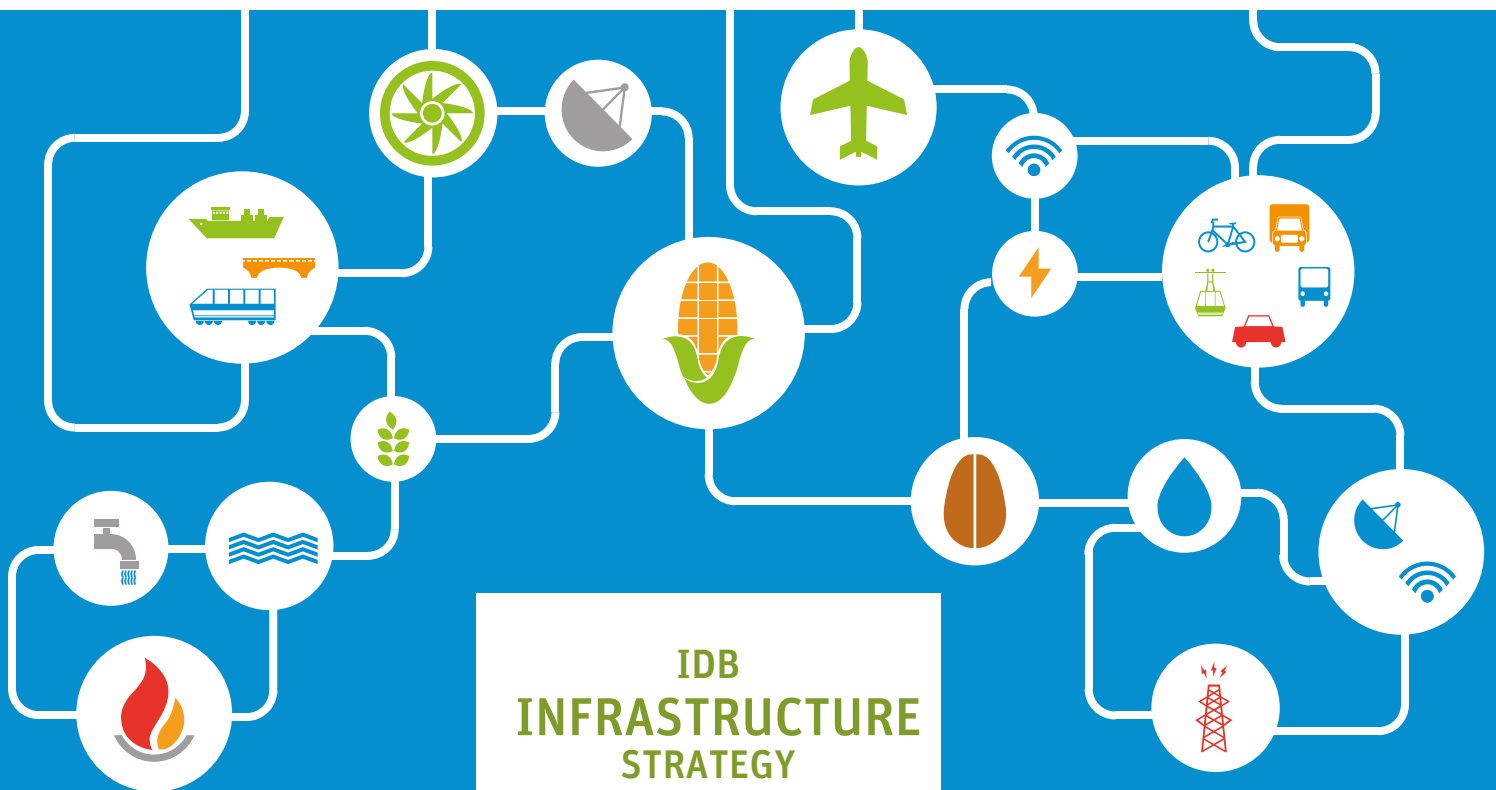


SUSTAINABLE INFRASTRUCTURE FOR COMPETITIVENESS AND INCLUSIVE GROWTH





Cataloging-in-Publication data provided by the Inter-American Development Bank Felipe Herrera Library

Serebrisky, Tomás.

Sustainable infrastructure for competitiveness and inclusive growth / Tomás Serebrisky.

p. cm. – (IDB Monograph ; 197)

Includes bibliographical references.

1. Infrastructure (Economics). 2. Economic development. I. Inter-American Development Bank. Infrastructure and Environment Sector. II. Title. III. Serie.

IDB-MG-197

Códigos JEL: H5, L1, O1, R1, R4, Q4, Q5

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Design and Production Coordinator: Bénédicte de Waziers

Graphic Design: WebXSP

Printed in Washington D.C.

Collaborators and Acknowledgements

The Infrastructure Strategy was prepared under the supervision of Alexandre Meira da Rosa, Manager of the Infrastructure and Environment Sector, and coordination of Tomás Serebrisky (principal author). The document benefited from inputs provided by several Bank units represented by: Julie Katzman, Juan Pablo Bonilla, Rafael Lima, Jaime Enrique Vargas (EVP/EVP); Santiago Levy, Ellis Juan, Mercedes Mateo-Berganza (VPS/VPS); Gastón Astesiano, Florencia Fabiani, Javier Morales Sarriera, Bénédicte de Waziers (INE/INE); Néstor Roa, Rafael Capristán, Esteban Diez-Roux, Leopoldo Montañez, Andrés Pereyra, Raúl Rodríguez Molina, María Romero Pons (INE/TSP); Federico Basañes, Jorge Ducci, Matthias Krause, Fernando Miralles, Carmiña Moreno, Tania Paez, Horacio Terraza, Patricio Zambrano-Barragán (INE/WSA); Leandro Alves, Carlos Echevarria, Ramón Espinasa, Emilio Sawada (INE/ENE); Héctor Malarín, Sergio Ardila, Ashley Camhi, Tsuneki Hori, Sergio Lacambra, Ginés Suarez (INE/RND); Walter Vergara, Hilen Meirovich (INE/CCS); Sebastian Hack, Graham Watkins (VPS/ESG); Andrew Morrison, Anne-Marie Urban (SCL/GDI); Roberto Manrique (IFD/IFD); Sebastián Lew (IFD/FMM); Maria Netto (IFD/CMF); Graciela Schamis, Lorena Rodríguez Bu (KNL/KNL); Antoni Estevadeordal, Paolo Giordano, Joaquim Tres (INT/INT); Roberto Vellutini, Grace Guinand, Flavia Milano (VPC/VPC); José Luis Lupo, Eduardo Borensztein (CSC/CSC); Juan José Taccone (CSC/CUR); Fernando Cuenin (CAN/CAN); Morgan Doyle (CAN/CEC); Fidel Jaramillo, Omar Zambrano (CAN/CPE); Hans Schulz (VPP/SCF); Jean Marc Aboussouan (SCF/INF); David Bloomgarden (MIF/MIF); Paul Constance, Helga Flores (EXR/CMG); and Jacqueline Bueso-Merriam (SPD/SDV).

Diego Margot (INE/INE) helped draft the document and Yolanda Galaz (INE/WSA) in editing it. Special gratitude is due to the participants of the public consultation process who generously provided valuable recommendations. Finally, guidance received from the Board of Executive Directors of the Inter-American Development Bank through the Policy and Evaluation Committee during the elaboration of this document is gratefully acknowledged.

Abbreviations and Acronyms

ADB	Asian Development Bank
ALADI	Latin American Integration Association
CAF	Andean Development Corporation
ECLAC	Economic Commission for Latin America and the Caribbean
ECMT	European Conference of Ministers of Transport
ESCI	Emerging and Sustainable Cities Initiative
FIRII	Infrastructure Project Preparation Fund
FOMIN	Multilateral Investment Fund
FSP	Fund for Special Operations
GCI-9	General Increase in the Resources of the Inter-American Development Bank
GDP	Gross domestic product
GHG	Greenhouse gases
HLP	High-Level Panel (on Infrastructure)
ICT	Information and communications technology
IDB/BANK	Inter-American Development Bank
IFC	International Finance Corporation
IIRSA	Initiative for the Integration of Regional Infrastructure in South America
IMT	International Merchandise Transit
IPCC	Intergovernmental Panel on Climate Change
ITU	International Telecommunication Union
LAC	Latin America and the Caribbean
OECD	Organization for Economic Cooperation and Development
PBL	Policy-based loan
PPIAF	Public-Private Infrastructure Advisory Facility
PPP	Public-private partnership
SIEPAC	Central American Electric Interconnection System
TC	Technical Cooperation
UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environment Programme
UN-Habitat	United Nations Human Settlements Programme
WHO	World Health Organization

Executive Summary

Infrastructure is a key pillar of development. Its suitable provision and proper administration stimulate economic growth and competitiveness. It is also essential for improving the quality of life and inclusion in modern societies.

A broad set of emergent demands and trends will determine the infrastructure agenda for Latin America and the Caribbean in the coming decades. Providing universal access to electricity, water and energy reducing the costs of logistics, responding to the growing demand for energy, resolving the challenges of increasing urbanization and use of cars, reducing vulnerability to natural disasters, building an infrastructure less vulnerable to climate change, and contributing to food security are some of the challenges to be addressed by the infrastructure of the Region.

Addressing these challenges will require a substantially larger investment. Estimates vary, but a broad consensus indicates that the Region needs to increase its investment in infrastructure by at least 2% of its gross domestic product over an extended period, in order to go from US\$150 billion to US\$250 billion per year. The Bank has supported the growing demand for financing infrastructure in the Region, allocating more than US\$5 billion annually—about 50% of its portfolio—to this sector since 2009.

The Infrastructure Strategy proposes that the IDB continue providing financing so that infrastructure may contribute to

economic growth, provide access, and foster regional and global integration, in a context where opportunities need to be maximized so that financing and private management help close existing gaps in the infrastructure of Latin America and the Caribbean.

Latin America and the Caribbean should not only invest to increase their stock of infrastructure; acting on and meeting emerging demands and trends require innovative solutions focused on the quality of service provided by the infrastructure. For this reason, this Strategy proposes that the IDB prioritize actions aimed at supporting the countries in the Region in their process of adopting a new vision where infrastructure is planned, built, and maintained to provide services of adequate quality that promote sustainable and inclusive growth. This new vision envisages infrastructure as an asset that should be appropriately managed and maintained, and incorporates environmental, social, and fiscal sustainability as its fundamental pillars.

The Infrastructure Strategy identifies top priority areas of action that will be implemented through a balanced combination of loans to support policy reforms, investment loans, technical cooperation operations, and knowledge products that entail the following:

1. Promote access to infrastructure services. Achieving universal access to electricity and water and sanitation in urban and rural areas will have a direct impact on the reduction of poverty. It will be equally important to promote access to information technologies (broadband) and to the rural road network to increase the productivity of the Region and expand access opportunities to the market.

2. Support infrastructure for regional and global integration. The share of global exports of Latin America and the Caribbean has remained at 7% over the last fifty years, while East Asia increased its share from 4% to 22%. To help the Region increase its integration to the regional and global economies, the Bank will take simultaneous action on the software (regulatory frameworks) and hardware (physical infrastructure) of integration, while ensuring coordination between national and regional investments.

3.

Foster financing mechanisms and leverage the participation of the private sector in infrastructure. Latin America and the Caribbean need to develop financial instruments and strengthen their regulatory capacities to expand private participation in infrastructure. The availability of deep domestic capital markets and the development of credit mechanisms within a stable and predictable regulatory framework are essential conditions for the public and private sectors to work together through public-private partnerships aimed at enhancing the quality and quantity of infrastructure.

4.

Adopt and promote a multisector agenda. The organization of governments in the Region has led to a fragmented infrastructure delivery model, in which the sectors do not consider the impacts (positive and negative) of a project on other sectors. As a result, the Strategy recognizes the need to expand multisector approaches to leverage the synergies among infrastructure sectors. The Bank will work together with the countries to implement multisector projects. This will require changing the “silo” mentality prevailing in governments and promoting innovative mechanisms that minimize the risks associated with the difficulties of executing multisector projects.

5.

Support the construction and maintenance of an environmentally and socially sustainable infrastructure. The Strategy proposes including the critical components of environmental sustainability (climate change adaptation and mitigation, natural disaster risk reduction, and conservation of biodiversity) from the very start of the project cycle, so that they are present as a core focus of infrastructure planning. The Strategy also stresses the need to design and manage infrastructure to boost its positive impacts on inclusion and poverty reduction. This requires fine-tuning the mechanisms for consultation and the incorporation of the gender and disability dimensions.

6.

Promote ongoing improvements in infrastructure governance. Governance for decision-making on infrastructure service management as well as the legal and regulatory framework for their regulation and supervision are the main factors determining their performance, quality, and sustainability. The Strategy identifies areas for improvement throughout the project cycle, emphasizing the need to improve transparency and strengthen human resources in the public sector. The Strategy claims that investment aimed at increasing the supply of infrastructure is not always the response to greater demand; the improved efficiency of providers (e.g. by reducing technical and nontechnical losses), the development of maintenance policies, and the use of standards and prices to make consumption more efficient are effective tools for increasing the quantity and quality of infrastructure.

The Infrastructure Strategy stresses that it is critical to recognize the heterogeneities of Latin America and the Caribbean in the design and implementation of infrastructure policies. While priority areas are expected to have a high return, the design and implementation of policies and projects should be tailored to the specific conditions and needs of each country in the Region.

Contents

An aerial night photograph of a city, likely Taipei, showing a wide river in the foreground. The city is illuminated with numerous lights, and long light trails from traffic are visible on the roads. A prominent bridge with a curved light trail spans the river. The background shows a dense urban landscape with many lit-up buildings and a dark sky.



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OBJECTIVES



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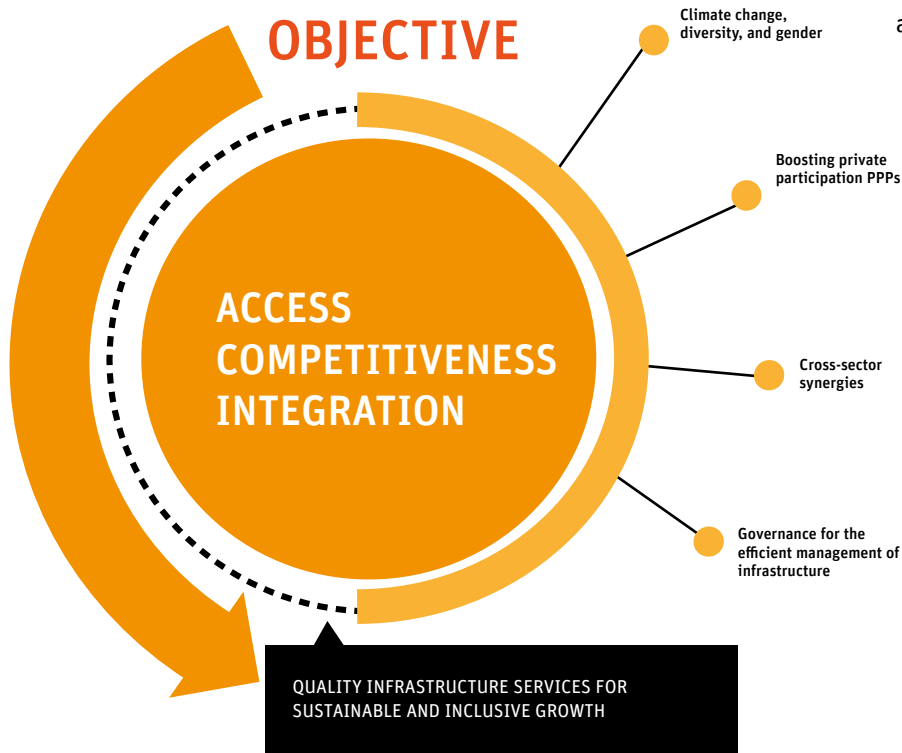
INFORMACION
DE SERVICIO
Y PRECIOS
EN ESTACIONES
Y PARADAS

OBJECTIVES

Infrastructure for competitiveness and social welfare is one of the five priorities established under the Ninth General Increase in the Resources of the Inter-American Development Bank (IDB) (GCI-9),¹ aimed at achieving the Bank's objectives of reducing poverty and inequality and promoting sustainable growth.²

The objective of this Infrastructure Strategy is to guide future Bank support for the countries of the Region toward their adoption of a new vision of the sector. According to this vision, infrastructure is planned, built, and maintained in order to support the provision of adequate quality services that promote sustainable and inclusive growth.

This new vision of infrastructure rests on the key pillars of environmental, social, and fiscal sustainability, and it recognizes the need to expand multisector approaches that allow the synergies among infrastructure sectors to be exploited.



This Infrastructure Strategy proposes that the IDB continue to provide financing and technical assistance to ensure that the infrastructure helps to enhance competitiveness, provide access to infrastructure services, and foster regional and global integration in a context where opportunities for private financing are maximized and thus contribute to the elimination of existing gaps in the quantity and quality of infrastructure in Latin America and the Caribbean. Projects will be designed and implemented based on the concept of infrastructure as an asset that must be managed and maintained in an effective manner, while making use of cross-sector synergies and responding to the growing demand for socially and environmentally sustainable infrastructure.

¹ Document AB-2764.

² The preparation of the IDB infrastructure strategy is a commitment established in document GN-2670-1 (September 2012), which sets out the framework for the policy instruments governing the IDB's operational work, with the aim of adapting these to comply with the GCI-9 mandates.



The Strategy identifies expected trends in infrastructure in the Region and their impact on investment needs, examines the role of the IDB in financing infrastructure in Latin America and the Caribbean, analyzes strengths, challenges, and opportunities, and identifies priority areas for IDB intervention. The Strategy is expected to guide the efforts of the IDB to strengthen and consolidate its capacities and comparative advantages, with the aim of meeting a growing demand for financing infrastructure and creating value in this area.

Owing to the wide variety of characteristics of the various infrastructure subsectors,³ this Strategy will concentrate on those priorities for intervention that are common to all subsectors. The relationship between multisector challenges and emerging and priority issues specific to each subsector will be developed in the sector framework documents that will be submitted for Board consideration over the 2013-2015 period.⁴

³ For the purposes of this strategy, and in accordance with document AB-2764, the infrastructure subsectors are as follows: transportation, energy (including pipelines), water and sanitation, irrigation, and telecommunications. This strategy includes all stages in the infrastructure value chain, from generation or extraction, transportation, and distribution, to use or consumption.

⁴ Document GN-2670-1 sets out the timeline for preparation of the sector framework documents and includes details on their structure.

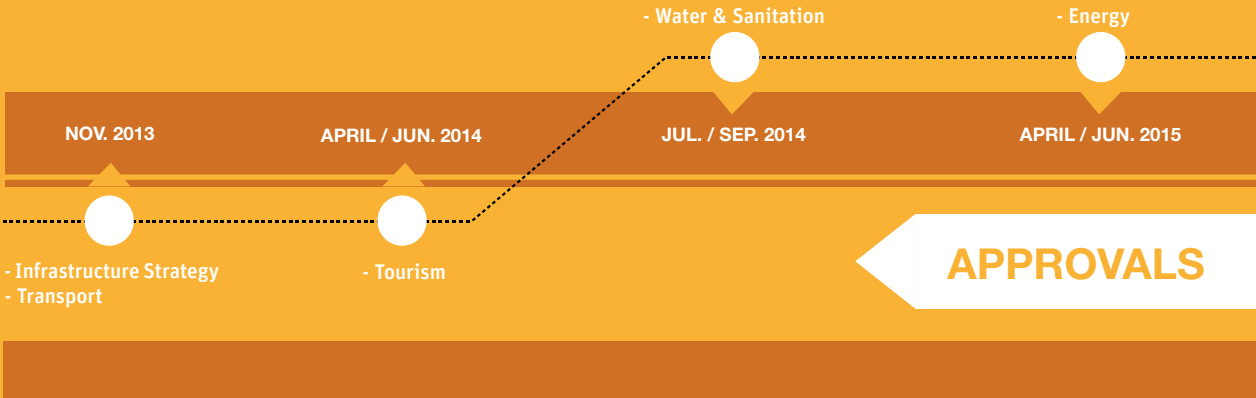
What are the Institutional Strategies?

These are documents that seek to define clear priorities for Bank action, to establish goals, and to define and mobilize resources to that end.

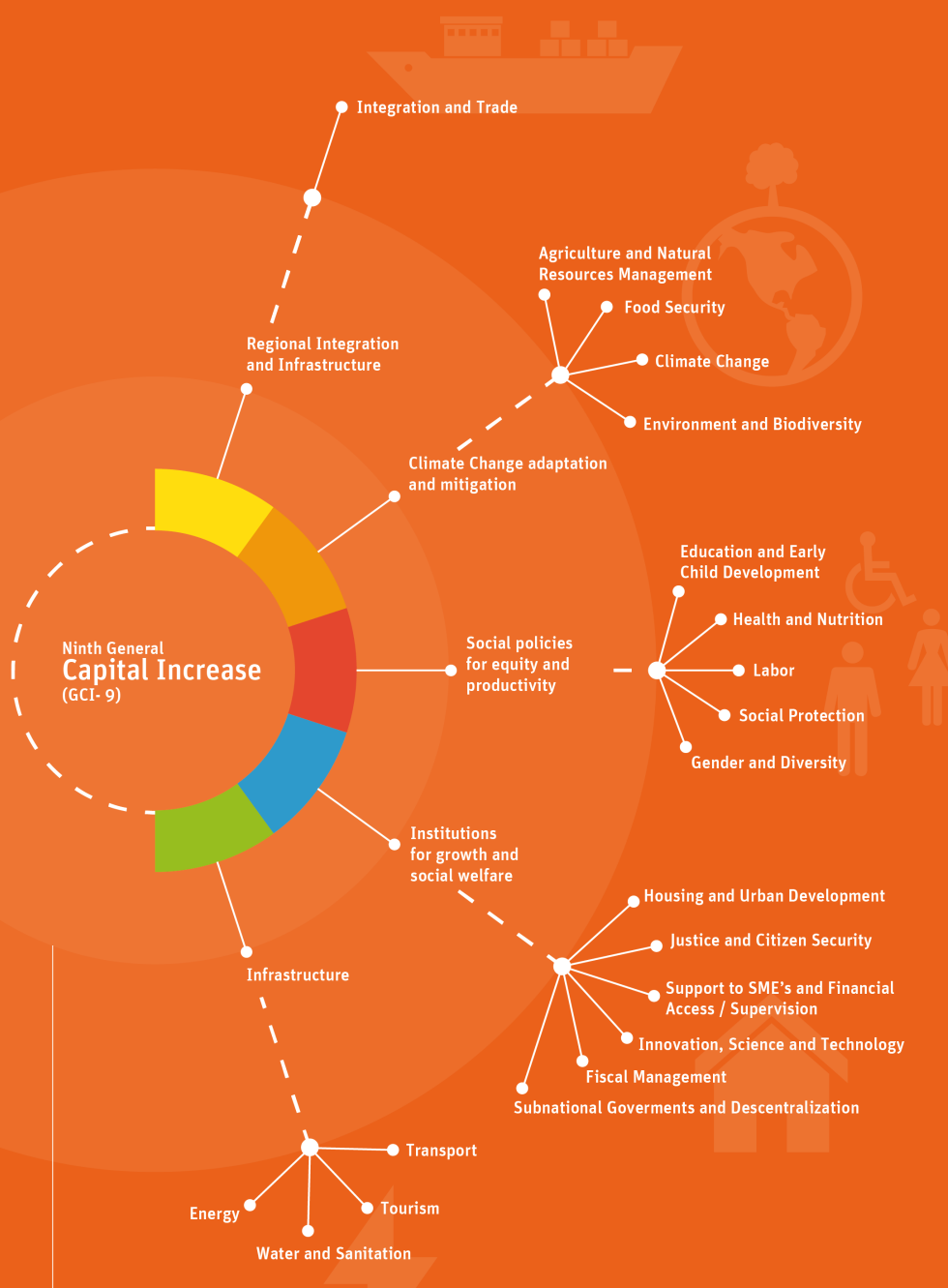
What are the sector framework documents?

These are syntheses of the best development knowledge available which guide Bank actions within a specific sector.

Sector frameworks linked to the Infrastructure Strategy.



IDB STRATEGIES



● **INSTITUTIONAL STRATEGIES**

● **SECTOR FRAMEWORK DOCUMENTS**



**RATIONALE: INFRASTRUCTURE
AS AN ENGINE OF SUSTAINABLE
DEVELOPMENT**



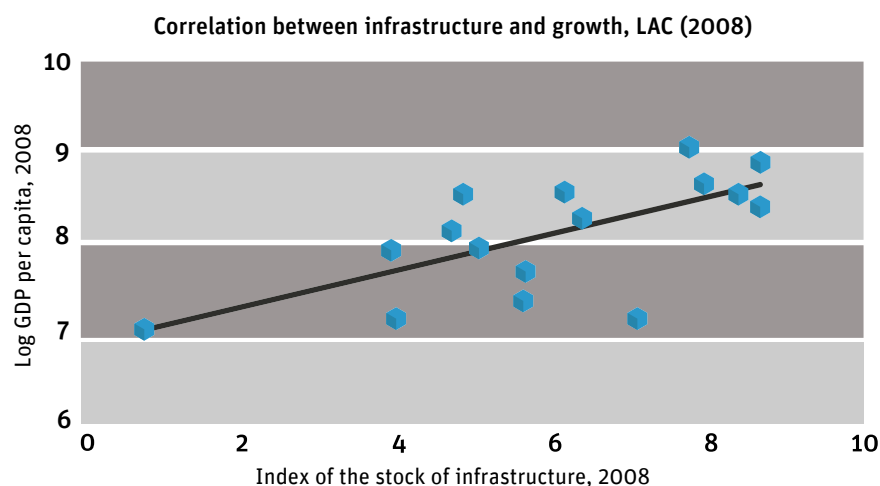
RATIONALE: INFRASTRUCTURE AS AN ENGINE OF SUSTAINABLE DEVELOPMENT

Infrastructure is a key pillar of modern society. The satisfactory provision and administration of infrastructure make economic development possible, create growth, and enhance competitiveness and productivity thus increasing participation in the global economy. This also improves territorial cohesion, and underpins improvements in quality of life and social inclusion.

Investment in infrastructure promotes economic growth. This has been demonstrated in recent theoretical research and evidence for Latin America, which has shown a positive correlation between growth and investment in infrastructure (see Graph 1).⁵

Graph

1



Source: Authors' calculations based on data from the World Bank Database and the Socio-Economic Database for Latin America and the Caribbean.

Infrastructure influences growth by improving productivity, reducing production costs, helping to diversify the productive structure, and creating employment through demand for the goods and services used to provide it. As economies attain higher levels of development and their stock of infrastructure grows, the returns on infrastructure increase, creating a virtuous circle. This phenomenon is the result of the role of infrastructure in providing networked services. When a new subway line is built, traveling times of new users drop significantly as they are given access to the subway network, but existing users also benefit as they enjoy more destination options. The same thing happens when a new power transmission line connects new power sources to distant locations on the grid, optimizing the balance between power supply and demand, incorporating new consumers, and improving the quality of service for existing ones. In the most advanced economies, where networks are

complete, investment in infrastructure yields lower returns. Latin America and the Caribbean, a very diverse Region on the subject of infrastructure stock and quality, is far from attaining this level of infrastructure development.

Infrastructure enhances the competitiveness of economies and maximizes their comparative advantages. In the case of firms, infrastructure services are an important production input. For this reason, the access and availability of services of adequate quality at reasonable costs are vital for business competitiveness. For example, reliable power supplies allow for effective planning of production processes and reduce costs related to the purchase of generators to deal with unforeseen power outages. In turn, sufficient availability of modes of transportation and multimodal facilities allows for the optimal location of production and distribution centers, thus minimizing logistics costs.

⁵ The same correlation is observed in other developing regions. See Esfahani and Ramirez (2003) and Calderón and Servén (2003, 2010) on Latin America and Africa, or Lin and Doemland (2012) on Asia. For a discussion of the theoretical modeling of the impact of infrastructure on growth, see Agénor (2013).



IDB research (Mesquita Moreira et al., 2012) demonstrates that reductions in transportation costs lead to significant increases in exports. In Chile and Peru, a 1% reduction in transportation costs would allow an increase of 4% to 5% in exports from the most remote regions, while in Colombia, a decline of 10% in transportation costs would boost exports by 5% to 7%.

Reductions in the costs of transportation

Increase of exports

▲ 5% - 7%

▲ 4% - 5%

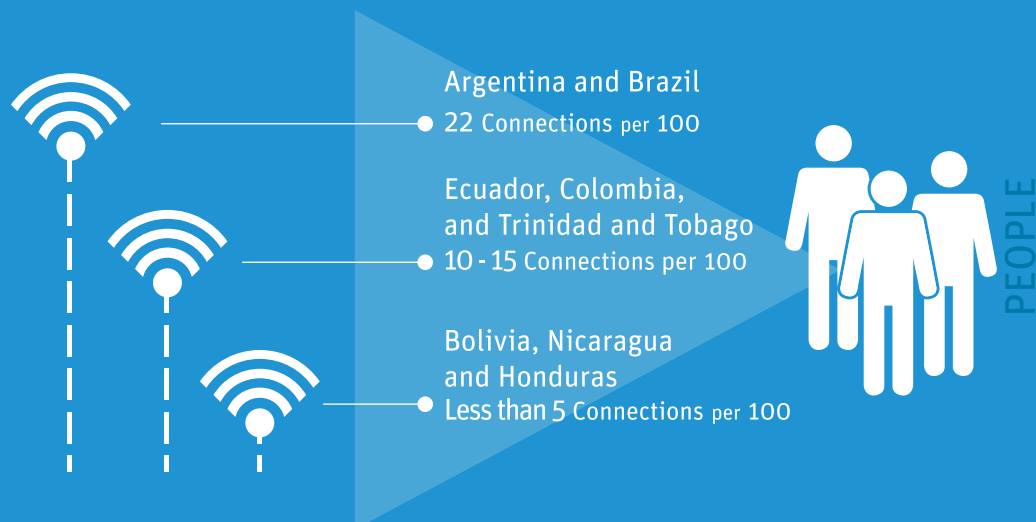


The impact on the productivity of enterprises and the competitiveness of the economy has been the main focus of infrastructure analysis.

The fundamental role of infrastructure in enhancing productivity becomes clear when the consequences of low-quality service provision are measured. Recent calculations (World Bank, 2012b) demonstrate that losses from power outages in Latin America reached US\$68 billion in 2012. The incidence was higher in Central America, where losses were equivalent to 1.5% of total business sales, and it was lower in the Caribbean (at 0.5% of sales). Similar losses resulted from water shortage or interruptions in the supply, while losses due to breakage or deterioration of merchandise during shipping exceeded US\$70 billion in 2012. In the rural sector, the provision of irrigation systems is one of the most effective means of increasing farm productivity (Foster et al., 2011).

The adoption of modern technologies for the production and management of infrastructure services has the potential to increase access, minimize costs, and contribute to environmental sustainability. Technological advances make it increasingly possible to design targeted solutions to meet the demand for infrastructure services. Photovoltaic power generation, microhydroelectric generators, and waste separation plants for recycling are examples in which technology fulfills the dual role of increasing the supply of services and contributing to environmental sustainability through the development of a lower-emissions supply. Recent estimates (Gischler

et al., 2013) show that the impact of adopting modern technologies that increase energy efficiency can be significant on the economy: the cost savings of importing fuel in Eastern Caribbean countries would represent 17% of the 2011 gross domestic product (GDP) if they were to adopt policies promoting energy efficiency and renewable power-generation policies. The adoption of the latest technologies can also help reduce service delivery costs, for example, through the installation of equipment capable of detecting technical losses in water and power distribution. Moreover, the adoption of advanced communication technologies enhances the returns on innovation and facilitates diversification of the production matrix (Infrastructure UK, 2010). In this context, Latin America and the Caribbean faces a substantial challenge in bridging the digital divide. Broadband Internet penetration is very uneven. It is relatively high in countries such as Argentina and Brazil, with more than 22 connections per 100 people; it is average in Ecuador, Colombia, and Trinidad and Tobago, with about 10 to 15 connections per 100 people; and it is low in Bolivia, Nicaragua, and Honduras, with less than 5 connections per 100 people.⁶ When Latin America and the Caribbean is compared with developed countries, there is a large gap. For example, Germany and the United Kingdom have more than 65 connections per 100 people.



⁶ Total number of fixed-line and mobile broadband connections, International Telecommunication Union data, June 2012.

If comparative advantages are to be fully exploited, infrastructure must contribute to integration and territorial cohesion.

Infrastructure serves as a backbone for national territorial integration. It also allows countries to participate in international trade, minimizing transportation costs and times, and supports the exchange of goods, services, information, and knowledge. At the same time, it is both a pillar and a precondition for the success of the decentralization processes that have spread throughout Latin America and the Caribbean.

Infrastructure services play a crucial role in terms of social inclusion and quality of life of the population, particularly in the case of the poorest groups.

Infrastructure has helped to reduce inequality through several simultaneous channels: by increasing connections to infrastructure services (households that receive access tend to be much poorer than those that already have basic services), by enabling small and medium-sized enterprises, the main source of jobs in Latin America and the Caribbean (IDB, 2010a), to increase their productivity by effectively integrating the regions that are lagging furthest behind, and by promoting innovation and productivity through the adoption of communication technologies. Infrastructure also produces positive impacts on the creation of jobs, either directly at project level or indirectly through the services industry needed for the operation and maintenance of infrastructure. Although they are receiving increasing attention, the full incorporation of disabled users as well as the gender dimension remain as components that are lagging behind on the infrastructure agenda in Latin America and the Caribbean.

Universal access to basic infrastructure services has been a primary objective in the countries of Latin America and the Caribbean.

Providing access to electricity, water, and sanitation services improves quality of life through its direct impact on health and education opportunities, above all for children. Diseases contracted by drinking contaminated water are a leading cause of infant mortality.⁷ Access to more efficient sources of energy has a similar impact. Replacing traditional open-fire methods with modern wood-burning stoves minimizes smoke inhalation and thus improves health. Access to electricity also holds the potential to increase literacy and school attendance rates, by allowing children to read after dark. Access has a positive impact even on gender, as the time previously spent by women in the poorest and most remote parts of the Region collecting water and fuel for cooking and heating can now be spent on productive activities or on joining the workforce (Agénor, 2013). Providing infrastructure to rural communities leads to higher earnings for agricultural workers, better food supplies, higher rates of primary school completion, and expanded opportunities in sectors other than agriculture (Escobal and Ponce, 2002).

Although important progress has been made in Latin America and the Caribbean, universal access remains a pending task. In 2010, over 38 million people lacked access to electricity, 32 million did not have improved water sources, and 120 million lacked improved sanitation services (World Health Organization-United Nations Children's Fund, 2012, Perroni et al., 2013).



⁷ Diarrhea is the second leading cause of mortality in children under five in Latin America and the Caribbean (World Health Organization, 2008).

If it contributes to climate change, and if its design, construction, and indirect and cumulative impacts destroy natural habitats, infrastructure may also have a negative impact on quality of life and on the creation of future growth opportunities.

Climate change should be understood as a challenge to development. For this reason, and given the long life cycle of infrastructure, failure to incorporate environmental and social considerations in the creation process of infrastructure from the planning stage is an error with lasting consequences. The IDB has led the way on the climate change and sustainability agenda, giving it a significant

boost by establishing it as a priority under the GCI-9, and by preparing a Strategy for Climate Change Adaptation and Mitigation, and Sustainable and Renewable Energy (document GN-2609-1). It has also developed mandatory policies for projects, aimed at implementing actions to mitigate the risk of negative environmental and social impacts (IDB, 2006, 2011e).

The incorporation of a disaster-risk analysis with a preventive approach from the planning stage is vital, given the extended life cycle of infrastructure.

Disaster risk management entails a set of measures ranging from risk reduction for physical infrastructure—and therefore for people and the environment—to individual and institutional capacity-building. Recent studies⁸ show that the incorporation of disaster risk management (DRM) from the planning state yields a high return, as it reduces four dollars in disaster losses for every dollar invested in DRM. The Bank has promoted this agenda through the Disaster Risk Management Policy (document GN-2354-5), which prioritizes a preventive approach to risk at the country and project level to address natural threats, whether geophysical or hydrometeorological. Given that the primary local manifestation of global climate change takes the form of disaster risk (Intergovernmental Panel on Climate Change (IPCC), 2012), effective implementation of the DRM policy will contribute directly to reducing its impact.

Infrastructure development tends to be associated with adverse environmental impacts, which is not always true, given the considerable potential for synergies among infrastructure projects, economic growth, and environmental stewardship.

There are a large number of infrastructure projects that are necessary to accelerate development or improve quality of life, and which entail no trade-off between growth and conservation (World Bank, 2012a). These projects represent a win-win situation for all, as they lead to greater availability and quality of infrastructure services and encourage environmental conservation. For example, expanding the coverage of public transportation systems with buses operating with clean technologies improves access to schools and hospitals for the poor, and cuts commuting times to work by alleviating traffic congestion while reducing emissions. Providing access to improved sanitation leads to less polluted drinking water sources

such as lakes and rivers insofar as wastewater is removed by sanitation systems instead of being channeled directly into sources of drinking water. Access to quality electricity services allows businesses to reduce their use of fossil-fuel based generators. Investing in improvements to the management of power or water distribution companies that lead to reductions in losses creates benefits in terms of climate change mitigation. Another example is the development of natural urban ecosystems (parks, protected areas) and their associated infrastructure, which act as hydrological buffers, improve drainage and the treatment of contaminated water, and simultaneously offer recreational areas for the population.

⁸ Mechler, 2005; Moench, Mecheler and Stapleton, 2007; Godschalk et al., 2009; Michel-Kerjan et al., 2012.



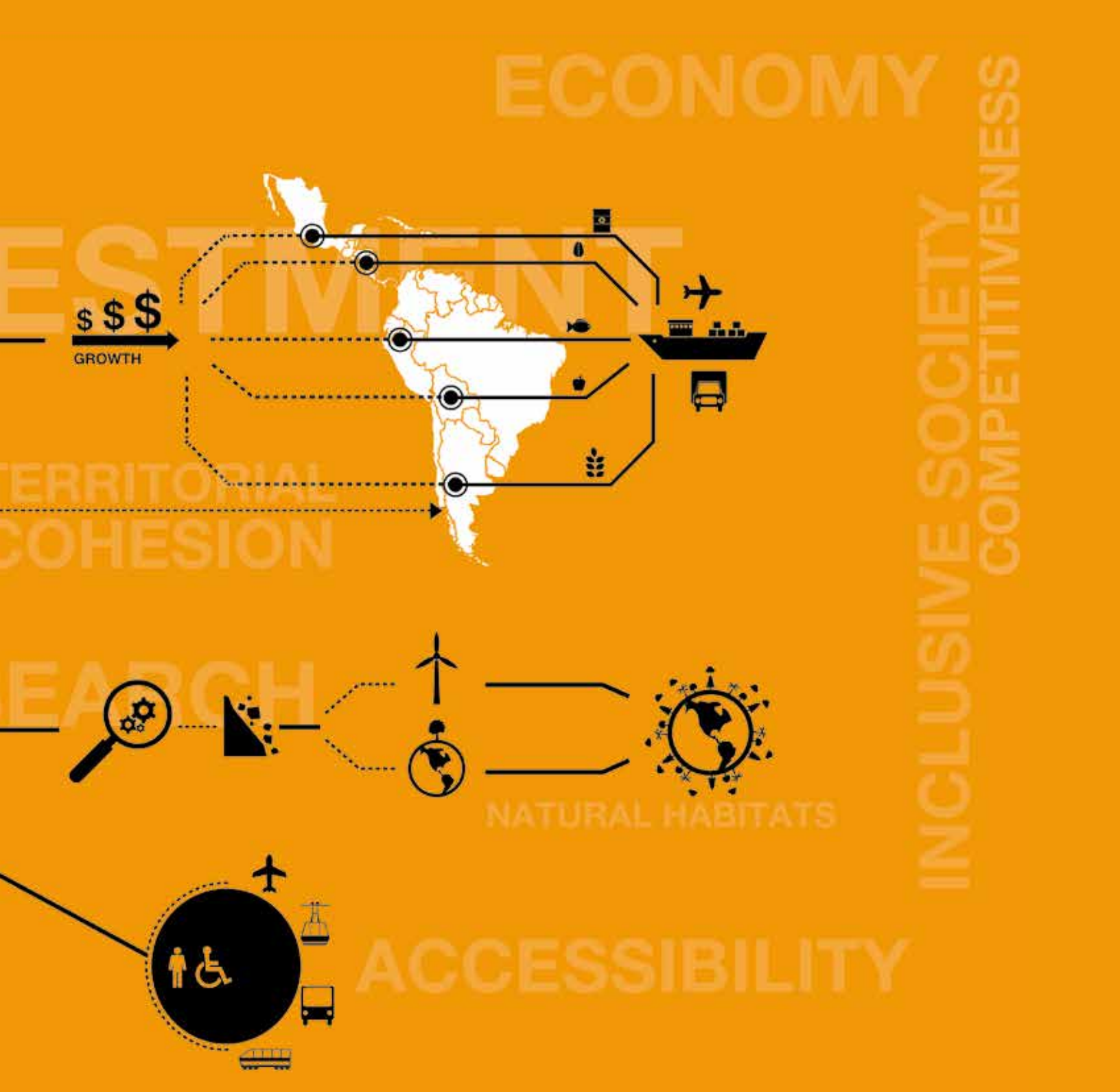
Infrastructure is a key pillar of modern society.

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Infrastructure development tends to be associated with adverse environmental impacts, which is not always true, given the considerable potential for synergies among infrastructure projects, economic growth, and environmental stewardship.

A photograph of a tunnel under construction. The tunnel is circular and has a rough, concrete-like interior. The floor is covered with large, dark, irregular rocks. A worker wearing a white hard hat and a brown jacket is visible on the right side of the frame, looking towards the tunnel's interior. The tunnel is illuminated by several bright lights hanging from the ceiling. A large, semi-transparent red circle is overlaid on the center of the image, containing white text.

**INFRASTRUCTURE AND SERVICES IN
LATIN AMERICA AND THE CARIBBEAN:
REQUIREMENTS AND TRENDS**



INFRASTRUCTURE AND SERVICES IN LATIN AMERICA AND THE CARIBBEAN: REQUIREMENTS AND TRENDS

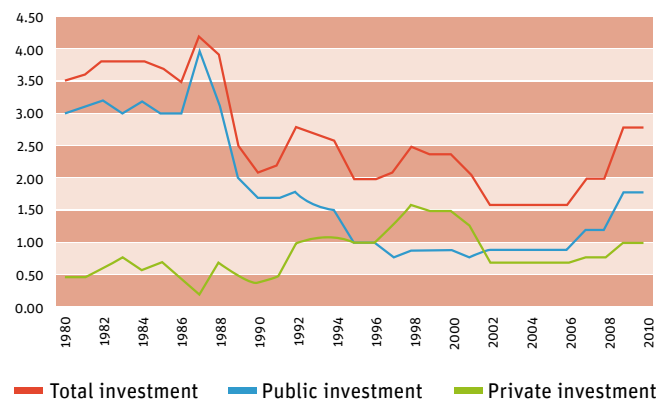
How much infrastructure investment does Latin America and the Caribbean need? This is probably the most frequently asked question in the area of public policy related to infrastructure in the Region. The answer depends mainly on the objectives to be achieved, which are varied and depend on the situation in each country. Thus, while some countries in the Region invest in infrastructure with the aim of boosting GDP growth (ports, freight railways, power generation for industrial use), others prioritize the coverage of basic needs such as access to safe drinking water or electricity, or the development of rural roadways providing year-round service regardless of the season or weather conditions.

Latin America and the Caribbean should invest around 5% of GDP (an amount equivalent to US\$250 billion in 2010) in infrastructure over a long period in order to close the infrastructure gap.

The most recent studies present similar results in their estimations, and concur that Latin America and the Caribbean needs to invest 5% of GDP in infrastructure (IDB, 2013; Bhattacharya et al., 2012; Economic Commission for Latin America and the Caribbean (ECLAC), 2010; Kohli and Basil, 2010; Fay and Yepes, 2003; Calderón and Servén, 2003). This figure, which is an average for the Region reflecting considerable diversity among countries, does not include the investment required to mitigate and adapt to climate change, which is estimated at approximately US\$30 billion per year, or 0.6% of the GDP (Vergara et al., 2012), nor does it include infrastructure maintenance requirements in all cases. Every study that has attempted to quantify investment needs in infrastructure for the Region has highlighted the lack of sufficient public information regarding the stock, quality, and cost of infrastructure there. Countries are increasingly basing infrastructure plans on detailed technical analyses, but these efforts are still in the initial stages. Accordingly, this Strategy identifies the need to collect and systematize information in order to provide a precise response to the question of how much infrastructure investment is required in Latin America and the Caribbean.

Infrastructure investment in Latin America and the Caribbean exceeded 3% of GDP in the 1980s but since then has declined sharply, fluctuating between 2% and 3% of GDP, far from the investment target of 5% required to close the existing gap. A large part of the decline in total investment was explained by a reduction in public investment, which stood at just 1% of GDP in the 1990s. It only began to recover in 2006, on the back of greater fiscal space resulting from the prudent macroeconomic policies implemented in the Region. Private investment in infrastructure was very significant in several countries until the middle of the twentieth century but then almost disappeared until the 1990s, when it grew above 1% of GDP (see Graph 2). If the trends in the public and private composition of investment seen over the previous decade continue, public investment will remain the engine of infrastructure investment in Latin America and the Caribbean.

Trends in public and private infrastructure investment (% of GDP)



Source: Authors' calculations based on Calderón and Servén (2010) and Andean Development Corporation (2011).

Graph
2

The infrastructure required by Latin American and Caribbean countries over the next few years must meet emerging demand stemming from international, regional, and local trends.

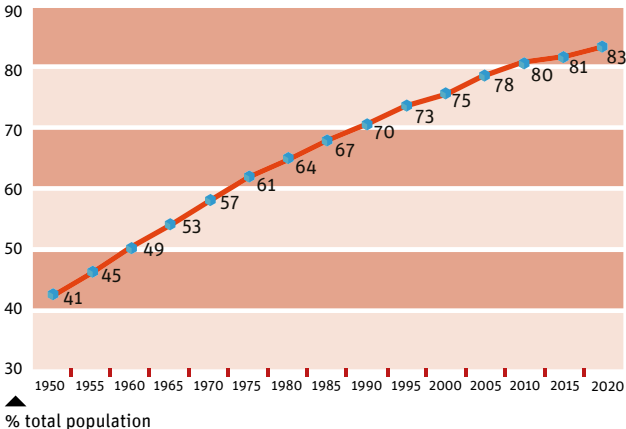
A. The geographical diversification of value chains is accelerating as a result of the process of trade liberalization. Increasingly products are assembled using components from different regions. This trend not only has a direct impact on transportation infrastructure but also implies a demand for information and communication technologies, as well as for energy. Latin America and the Caribbean is helping its economies join new global trade flows by reducing barriers: the average tariff in the Region declined from 38% in 1985 to 9% in 2011⁹ (see Graph 3). However, reductions in trade tariffs and other legal barriers will not be enough; the Region faces the challenge of reducing logistics costs, which are currently far higher than in developed countries.

B. Among developing regions, Latin America and the Caribbean has the highest rate of urbanization.

While in 1970, 50% of the population lived in cities, by the end of 2013 the proportion was estimated at 80%, equivalent to 480 million people (see Graph 4). The cities in the Region are growing by 6 million people per year.

Graph 4

Urbanization rate in LAC, trends and projections (1950-2020)

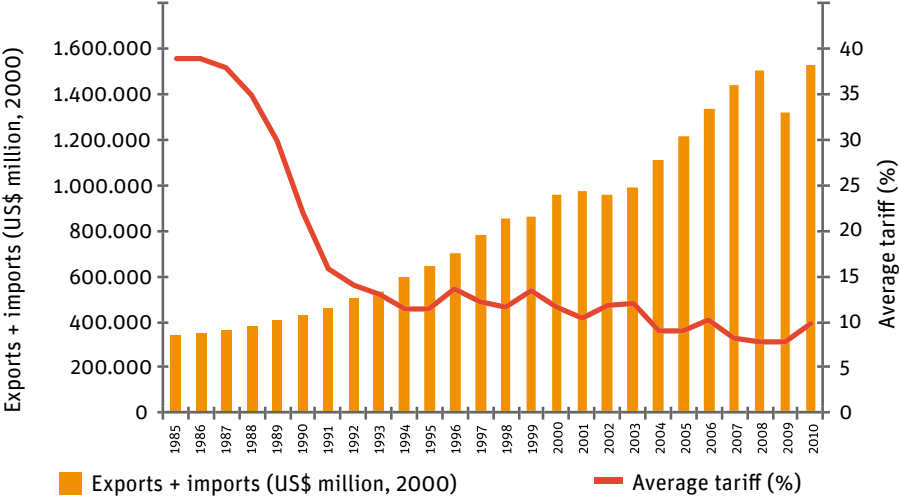


Source: UN Population Division

The benefits of agglomeration economies (greater productivity, better conditions for innovation, access to education and health facilities) are affected by weaknesses in mobility, lack of security, and deficient supply of basic services. Some 24% of urban dwellers in Latin America and the Caribbean still live in irregular settlements, often located in high risk or ecologically fragile areas, unsuitable for urban development (United Nations Human Settlements Programme, 2012).

Graph 3

Tariffs and trade volumes, LAC (1985-2010)

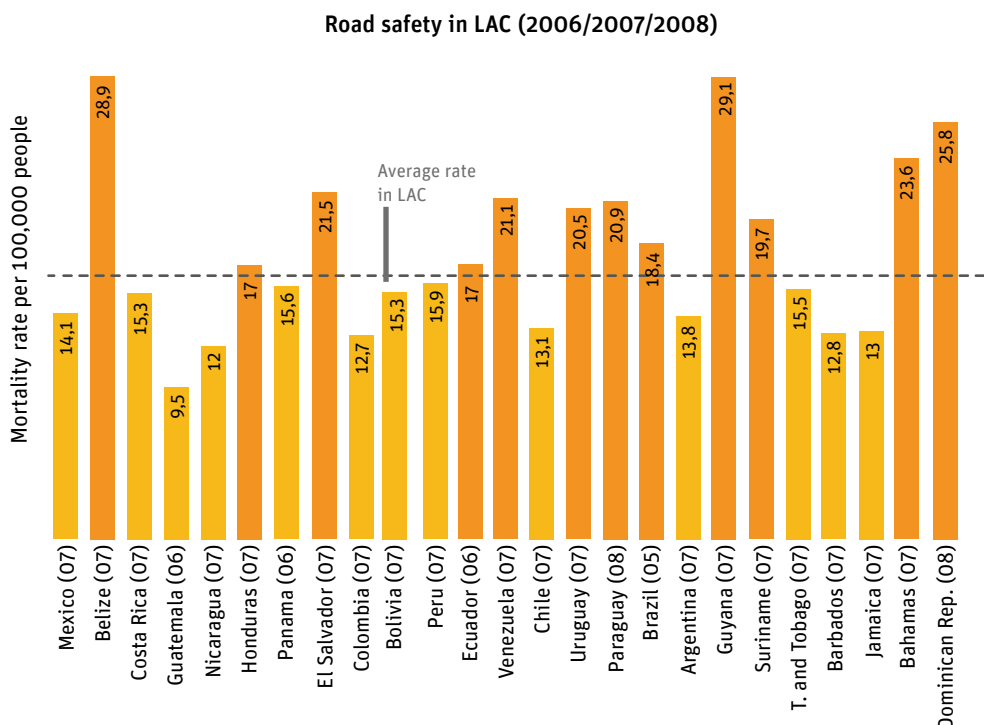


Sources: World Bank Database, Latin American Integration Association.

⁹ Data provided by the IDB's Integration and Trade Sector, based on information from INTradeBID, the United Nations Conference on Trade and Development (UNCTAD), and the Latin American Integration Association (ALADI).

C. Rising levels of vehicle ownership combined with road safety problems. Growth in per capita income and the greater availability of credit over the last decade have allowed a significant segment of the population in the Region to purchase their own vehicle for the first time. The direct effect has been an increase in the level of vehicle ownership, which exceeded 131 vehicles per 1,000 people in 2010, and which will raise to more than 280 vehicles per 1,000 people in 2020, with the resulting urban congestion and an increase in emissions and road safety problems. More than 100,000 people die each year in Latin America and the Caribbean as a result of road accidents. This is the main cause of death for the 15- to 29-year old age group, giving rise to costs estimated at 1% to 3% of GDP (see Graph 5).¹⁰

Graph 5



Source: INE Transportation Division

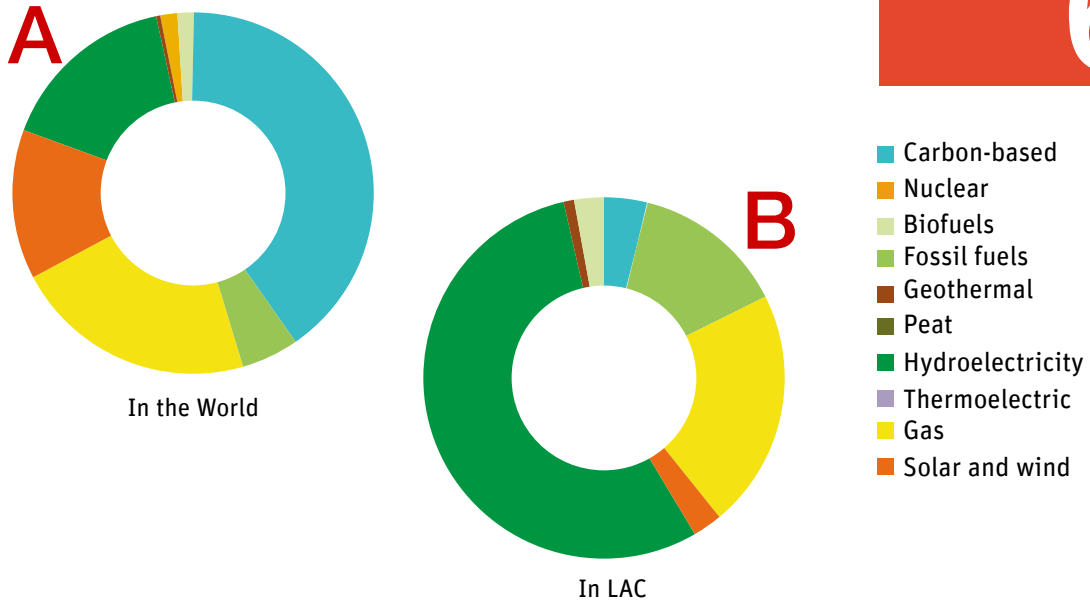
D. Economic growth in the Region is driving energy demand. Demand for energy in the Region is projected to rise to more than 1,600 TWh in 2020, representing an increase of 25% compared to 2012 (Yepez-García et al., 2010). Although Latin America and the Caribbean is the Region with the cleanest power generation matrix, nonrenewable energy sources are increasing in importance. This creates challenges from the perspective of environmental sustainability (see Graphs 6a and 6b).

E. Rising emissions. Unless current trends of generating emissions (“business as usual” scenario) in Latin America and the Caribbean are reversed, these are set to increase by 60% through 2050, entailing costs of between 1.8% and 2.5% of GDP (see Graph 7). To arrive at an ideal scenario, understood as one in which per capita CO₂ emissions are equal to two tons, an estimated annual investment in mitigation of 3.5% of 2010 GDP will be required (Vergara et al., 2012).



¹⁰ Data compiled by the IDB Transport Division for the Road Safety Strategy.

Power generation, by source (2010)

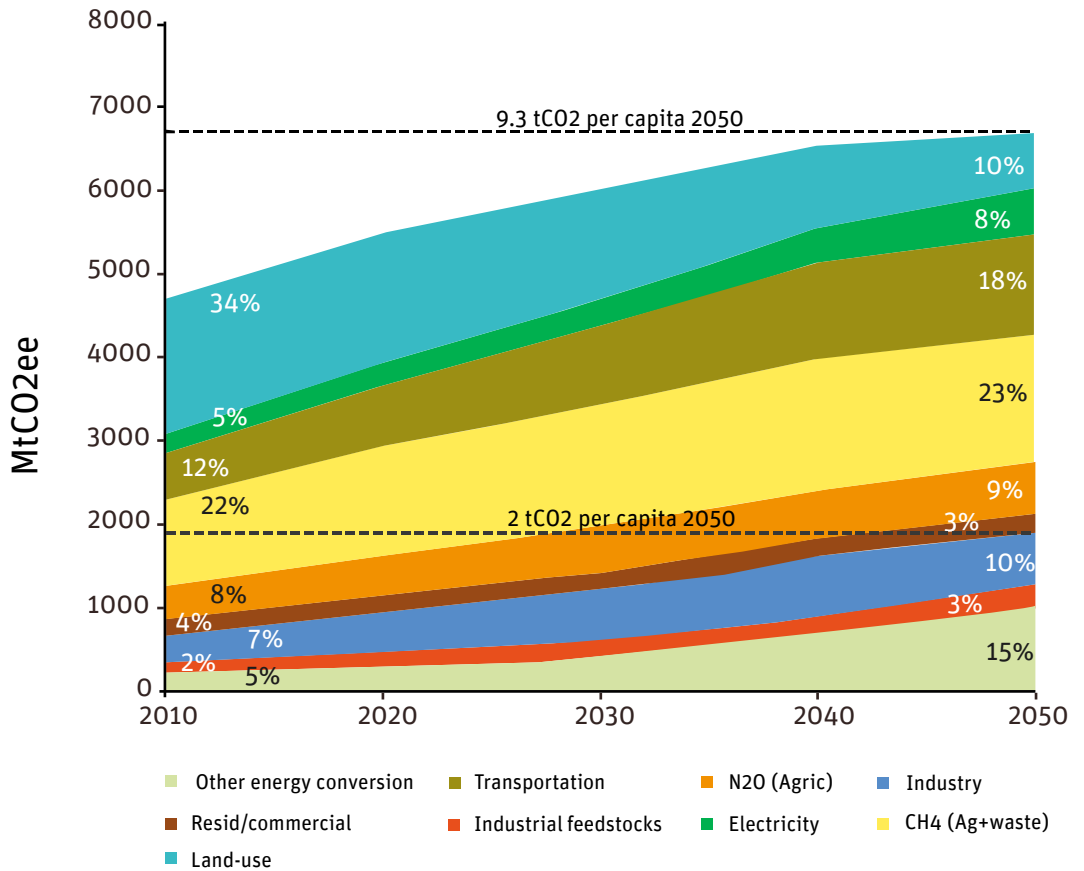


Source: IEA World Energy Balances and authors' calculations

Graph 6 A y B

Graph 7

Estimates of trends in LAC emissions through 2050



Source: Vergara et al. 2012

F. Of all regions, Latin America and the Caribbean is most vulnerable to natural disasters. The frequency of natural disasters and their cost have risen dramatically in the Region. Economic damages over the last three decades (1980-2010) exceeded US\$110 billion, a higher figure than the total of the damages recorded over the previous eight decades (1900-1980) (see Graph 8). The Region has the highest average of economic damages from disasters in the world (0.18% of GDP per event) (EM-DAT, n.d.). Natural disasters in Latin America and the Caribbean affect mainly the poorest and most vulnerable groups (IDB-ECLAC, 2000; World Bank, 2003), and the increase in their impacts is associated with environmental degradation, rapid and unplanned urbanization in dangerous areas, and the lack of adequate governance.¹¹

G. Latin America and the Caribbean has a leading role in the world regarding the attainment of food security. Although the Region is a net food exporter at the aggregate level, there is a dual reality. While a number of South American countries are world leaders in volume exports of agricultural commodities, Central America and the Caribbean are forced to import many of the foodstuffs that make up their basic consumption basket. The challenge for Latin America and the Caribbean as a region is to increase agricultural output and close the gap (of more than 30%) with developed countries (Ludena, 2010). Providing infrastructure is key to enhancing productivity, whether through irrigation, rural roads, or comprehensive improvements to logistics systems that lower the costs of trade. But regulations and improved institutional capacity are also essential in order to ensure the efficient allocation of water use, secure insurance against adverse weather events, and introduce innovative approaches in the production cycle.

H. The growth of the middle class in Latin America and the Caribbean has driven the demand for higher quality infrastructure services.

The middle class in Latin America and the Caribbean increased 50% between 2003 and 2009, growing from 20% to 30% of the population. In turn, during the same period, the poor population decreased from 45% to 30% (World Bank, 2012c).

The growth of the middle class in Latin America and the Caribbean has prompted a growing demand for higher quality public services in the Region. The demand covers various aspects that are vital to the quality of services and include:



Transportation: buses, metros, trains that operate in a timely manner, with sufficient frequency, and adequate cleanliness and safety (operational and personal)



Electricity and water: in addition to providing access, demand focuses on the delivery of uninterrupted service with proper attributes (voltage, potability)



Telecommunications: according to international comparisons, rates in Latin America and the Caribbean are relatively high and the service quality, measured by the availability of more advanced technologies, interruption of calls, and available broadband capacity, is worse



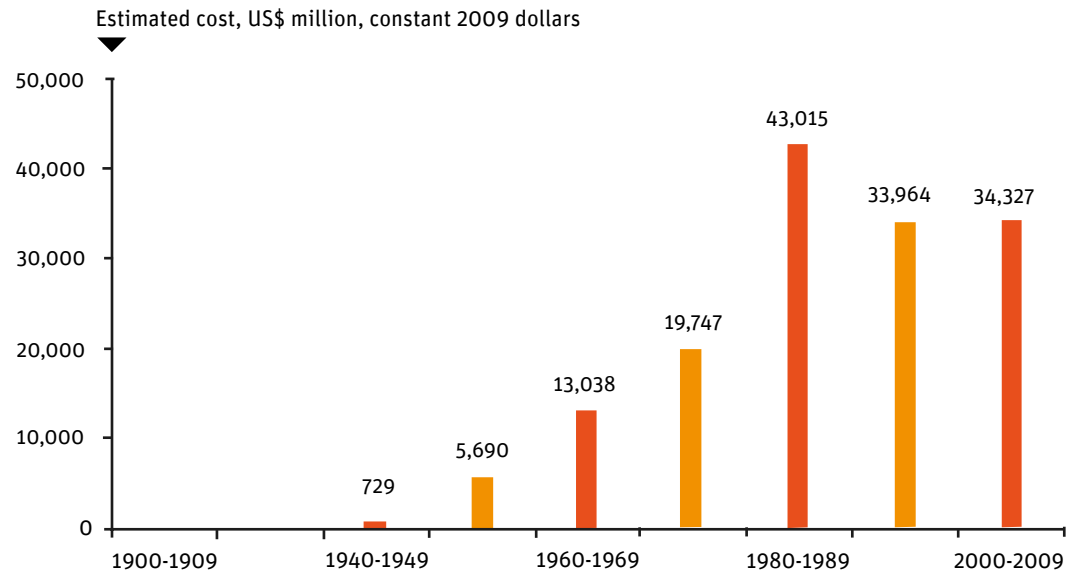
Solid waste: a latent demand for cleaner cities has been observed.

Trends and emerging demand suggest that infrastructure stands at the crossroads of most local, regional, and global challenges. Thus, responding to these trends and demands requires a multisector approach. Climate change, natural disasters, rapid urbanization, and a growing demand for energy and foodstuffs require the recognition of the interconnected nature of the infrastructure subsectors and incorporating their multidimensional characteristics into the planning stage. Given that investment in infrastructure is normally expensive and owing to its irreversibility its impact is long-term, the adoption of a comprehensive vision from its conception is essential to be able to chart a more sustainable growth trajectory.

¹¹ The impacts of the expected rise in the sea level are a reflection of climate change, and will be particularly acute in the Caribbean. The costs of failing to act to reduce the vulnerability of infrastructure to the expected rise in the sea level may cause annual losses of 7% of GDP in the Caribbean in 2050 (Lewsey, et al., 2004; Bueno, 2011).

Graph 8

Distribution of economic damages from natural disasters, LAC (1900-2009)



Source: EM-DAT, Bureau of Labor Statistics, and authors' calculations.



The determination of infrastructure investment needs should be the result of a planning process yielding a realistic vision of the country and its attainability based on available fiscal resources and the population's ability to pay. Alongside the development of such a vision, the existing stock of infrastructure should be surveyed in order to measure the gap that needs to be closed. Once this gap has been determined, an exercise to identify and prioritize infrastructure projects, based on robust cost-benefit analyses that reflect social and environmental externalities, consistent with policy priorities will be carried out.

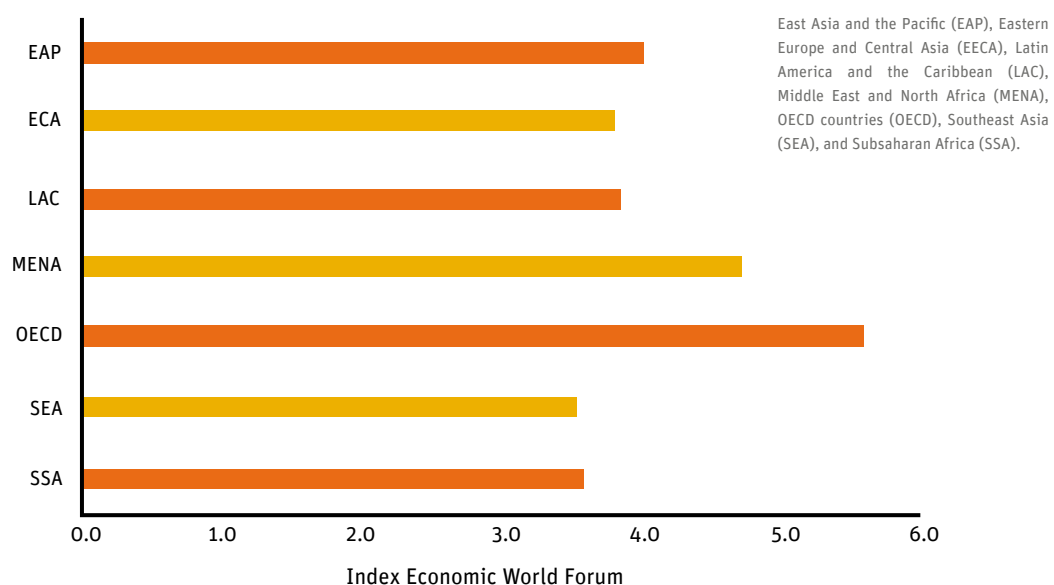
Project planning and evaluation processes should take into account synergies between infrastructure projects. Given the irreversibility of infrastructure investments, measuring the benefits of a metro project without taking into account the impact on energy consumption or greenhouse gas emissions, or calculating the benefits of a housing plan without reference to the availability, frequency, and cost of public transportation would be major mistakes with complex solutions. It would also be a mistake to fail to measure the potential benefits (and costs) of the availability and allocation of water rights in hydroelectric dam projects. These examples illustrate the importance of viewing infrastructure projects as part of a comprehensive development agenda that cuts across strict sectoral lines.

While the stock of infrastructure is very important, the quality of associated services is even more so. The central argument of this Strategy is that infrastructure should be designed and evaluated as a function of the services that it provides and their level of quality.

Therefore, analysis of infrastructure investment on the basis of financial value alone offers only a partial and simplified vision of the role of infrastructure in the economy. For example, having access to infrastructure for the delivery of water does not mean that the service is actually received. Moreover, quality of life in a household that receives drinking water meeting high quality standards 24 hours a day is undoubtedly much better than in a similar household that receives intermittent service of poor quality.

Users of infrastructure in Latin America and the Caribbean perceive that its quality is significantly inferior to that of countries in the Organization for Economic Cooperation and Development (OECD). Each sector has developed a wide variety of indicators for measuring quality. In water and sanitation, for example, the potability, color, and odor of water, together with interruptions in the continuity of the service are measured; regarding electricity, interruptions

Perceptions of infrastructure quality



Source: World Economic Forum.

and voltage variations; and in the subject of urban transportation, the frequency and punctuality of services and the incidence of accidents. Devising overall indicators of infrastructure service quality is a complex task; therefore they have not been developed in sufficient numbers or under agreement concerning their methodology. The index most frequently used is the one developed by the World Economic Forum, which placed Latin America and the Caribbean at a similar level as other developing regions in 2011-2012, but far below countries belonging to the OECD (see Graph 9).

In this Strategy, the concept of quality of infrastructure services includes environmental impacts. Failing to include them would entail ignoring negative externalities. For example, the quality of electricity provision will be considered substandard even if coverage is high and power is transmitted at the necessary voltage if the energy source being used is highly polluting and alternate sources that generate fewer greenhouse gas emissions are available. The same argument applies to sanitation services that discharge untreated waste into clean waterways.

The management of infrastructure services and the legal and regulatory framework governing them are the key determinants of performance and quality. Border crossings may have adequate infrastructure (hardware), but inefficient customs and trade rules and regulations (software)¹² will result in lengthy delays with dire consequences on the cost of logistics and thus on the competitiveness of the countries. Investments in pipes to expand access to water sources or in additional electrical transmission and distribution lines can be made, but if network maintenance and administration are weak, losses in the distribution, of water and electricity will not be reduced and the financial sustainability of the service will be compromised.

Improvements in infrastructure planning, project preparation, and implementation on time and to standard could be combined with improved maintenance of assets, reduced losses, and the implementation of demand optimization policies to increase the productivity of infrastructure by up to 60% (McKinsey Global Institute, 2013). The most efficient means of responding to an increased demand for infrastructure services is not only through greater physical investments to increase capacity, but also by improving the management of existing infrastructure. Understanding the implications of the interaction between the stock of infrastructure, its management, processes, rules, and regulations is fundamental for scaling investments in infrastructure. The performance of institutions that regulate

investments is also relevant at the macroeconomic level, inasmuch as public investment in infrastructure may crowd out private investment (Cavallo and Daude, 2011). The proper scaling of infrastructure and its corresponding quality level that should result from an adequate planning process is the step prior to determining how infrastructure will be financed.

The evolution of investment in infrastructure in Latin America and the Caribbean indicates that the public sector will continue to be the main source of funds for infrastructure financing. However, given the investment needs and budgetary constraints, an increase in mixed sources of financing will be required.

In Latin America and the Caribbean, the financial systems, national public development banks, and regulators have already taken pertinent steps to channel private capital to the financing of infrastructure projects with high socioeconomic value through various financial vehicles (Andean Development Corporation (CAF), 2012). However, there is still a need to support the Region in order to leverage financial vehicles, by promoting legal certainty, creating an incentive for adequate risk management, and promoting the transparent allocation of resources. In order to increase the capital ratio for infrastructure investment in Latin America and the Caribbean, work must also be done with the countries in the Region to develop the capital markets, promote domestic savings, and drive the consolidation of financial vehicles such as public stock market investment funds and private equity funds (including pension funds). In turn, it will be fundamental to leverage the capacity of the countries to structure public-private partnerships (PPPs) and create an adequate portfolio of infrastructure projects, in terms of size and quality, and a clear and predictable regulatory framework.

12 The IDB's Sector Strategy to Support Competitive Global and Regional Integration (IDB, 2011a) describes the role of software in bridging the regional integration gap in Latin America and the Caribbean and offers a menu of instruments that are used to support regulatory reforms.

Regardless of the source used to finance the construction and maintenance of infrastructure, it is paid for with direct charges to users (rates) or with transfers from the public treasury. In recent years, Latin America and the Caribbean has made a growing effort to recover costs through direct charges to users. The Latin American and Caribbean Region is, among developing regions, the one with the highest indicators of cost coverage through charges to users for water and electricity (Foster and Yepes, 2006; Andrés, et al., 2013).

Cost recovery through rates should pay particular attention to problems of access among the lower-income population.

The operation and financing of infrastructure services should recover costs through rates paid by users. However, occasionally, given the positive externalities associated with many infrastructure services and the need for universal access (primarily to water, sanitation, and electricity services), financial sustainability can be achieved by supplementing the income earned from rates for the sale of the service to the user with direct contributions from the government. Granting subsidies for infrastructure services requires, like any public expenditure, a detailed analysis of its efficiency. Unfortunately, very few countries in Latin America and the Caribbean evaluate the effectiveness of said subsidies. For that reason, the IDB will promote transparency in their allocation and use, subjecting them to frequent and effective accountability mechanisms; it will also encourage targeting the poorest populations. In addition, and to the extent of its capacities, the IDB will help countries replace rate subsidies for infrastructure services with more direct income transfer mechanisms targeted to the lower-income segments of the population.





**THE IDB'S SHARE OF
INFRASTRUCTURE
FINANCING IN LATIN
AMERICA AND THE
CARIBBEAN: STRENGTHS,
CHALLENGES, AND
OPPORTUNITIES**

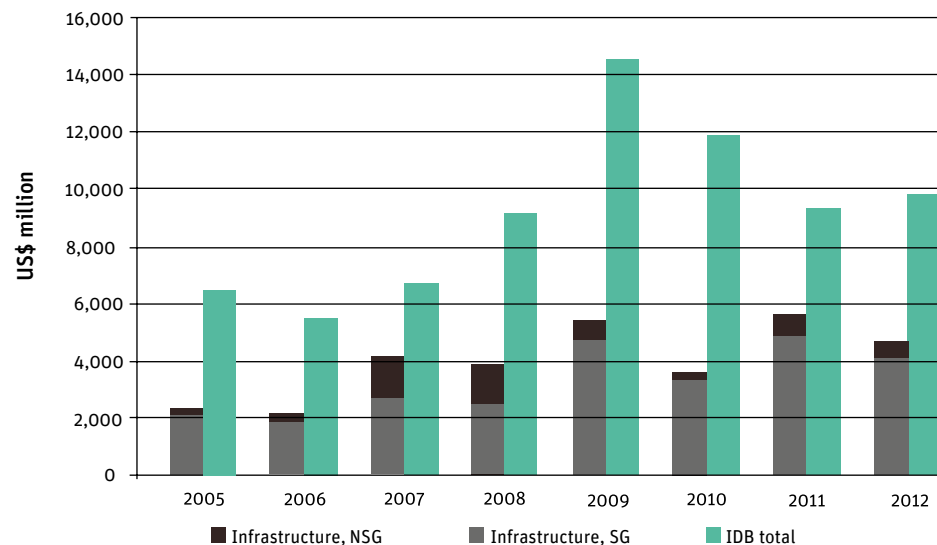


THE IDB'S SHARE OF INFRASTRUCTURE FINANCING IN LATIN AMERICA AND THE CARIBBEAN: STRENGTHS, CHALLENGES, AND OPPORTUNITIES

Multilateral institutions represent a vital source of financing for infrastructure projects in Latin America and the Caribbean. In times of economic crisis, they provide stable and critical financing for projects with a strong potential for reducing poverty. Projects financed by multilateral institutions also exhibit high social rates of return; by their nature, they do not usually offer the financial returns or levels of risk compatible with the minimum requirements of the private sector. The IDB has responded to the growing demand for financing infrastructure projects among the countries of the Region; IDB approvals in the area of infrastructure and the environment rose from US\$2 billion in 2005 to almost US\$5 billion per year after 2009 (see Graph 10).

Graph 10

IDB infrastructure loan approvals (2005-2012)



Note: Loans can be sovereign guaranteed (SG) or non-sovereign guaranteed (NSG).

Source: IDB-INE calculations

Whether to support and enhance growth in the economies of the Region—with an average of 3.5% per year from 2005 to 2012—or to implement countercyclical policies anchored in infrastructure to reduce the effects of the international financial crisis that began in 2008, the Region has increased its investments in infrastructure, and the IDB has responded to this demand. This marked increase in loans for infrastructure shows that the countries of the Region see the IDB as an essential source of financing in the infrastructure sector.

Multilateral institutions, while remaining a vital and convenient source of financing, account for a relatively small share of infrastructure investment in Latin America and the Caribbean, at 10% to 15% in recent years.

The IDB's share has ranged from 4% to 5.5% between 2009 and 2011. For example, according to calculations based on the limited data available, the Region as a whole invested approximately US\$125 billion in infrastructure in 2010, against an approved financing of US\$16 billion from the main multilateral sources. Nonetheless, aggregate regional figures encompass varying realities. In the Fund for Special Operations (FSO) countries,¹³ the IDB's share in total infrastructure investment tends to be much higher. For example, average IDB approvals with FSO and Ordinary Capital resources exceeded easily 20% of the public infrastructure investment commitments in Honduras and Nicaragua from 2008 to 2010.

Regardless of the size of its share in total infrastructure financing, the IDB's role as a strategic partner for its member countries in Latin America and the Caribbean is fundamental.

In addition to working alongside executing units to ensure the suitable design and implementation of projects, the IDB acts as catalyst for legal and regulatory reforms that help to improve public expenditure efficiency and attract private investment into the infrastructure sector. The IDB's presence as a partner ensures that the implementation of infrastructure projects moves forward even in the face of budget crises or changes in the political cycle.

Given the significant infrastructure investment needs in Latin America and the Caribbean, coordination among development assistance agencies offers an opportunity to optimize the use of available funding. Coordination should also encompass emerging bilateral funds, which increasingly represent an additional source of funding to that of the multilaterals. Country-backed funds (like those of China, Kuwait, and the United Arab Emirates) (Rouis, 2010) are increasingly active in all developing regions. These funds are not normally classified as official development agencies, but they do provide funding for infrastructure projects.¹⁴ No detailed information is available regarding total financing from bilateral sources, but rough calculations suggest that the multilateral agencies account for two thirds of the market, and the bilateral funds for one third (Estache, 2010a). As far as infrastructure sector distribution is concerned, transportation tends to receive one third of financing; energy, another third; the water and sanitation sector, one quarter; and telecommunications, 2%.



¹³ FSO funds, which are made up of contributions from IDB member countries, are used for concessional lending to the poorest countries in the region: Bolivia, Guyana, Honduras, and Nicaragua. Since 2007, Haiti, which has traditionally benefited from FSO resources, has received grant funding only, through the IDB's Grant Facility. Based on current eligibility criteria, Guatemala and Paraguay have also received a small amount of FSO funding, in addition to their standard access to Ordinary Capital financing.

¹⁴ According to aggregate lending data, in 2009 and 2011, China lent similar amounts to Latin American and Caribbean countries as the IDB and the World Bank, but in 2010, its direct lending exceeded the sum of loans made by the IDB and the World Bank (McKinsey Global Institute, 2013).



Strengths

The Bank's added value in the area of infrastructure derives from a number of strengths, in no way limited to the favorable financing conditions offered by the institution, which are intrinsically important given that positive returns on infrastructure projects are only seen after a prolonged period. The main strengths are described briefly below.

A comprehensive vision of infrastructure, combined with specific, project-level interventions tailored to the characteristics of the countries. The IDB combines credit instruments with nonreimbursable technical cooperation funding to support an approach based on a comprehensive vision of the sector where the investment project is to be carried out. Projects are thus designed prioritizing sustainability (environmental, social, and maintenance and management of assets) and adopting the best practices and lessons learned from similar projects in other countries in the Region, taking advantage of the Bank's presence throughout. The work of specialists' teams does not end with the project. Institutional reinforcing activities are also pursued in order to improve the countries' capacity to implement similar projects, and also to undertake regulatory, institutional, and legal reforms to enhance the quality and quantity of services.

The IDB works with countries throughout the entire project cycle, from the designing stage and the preparation of technical parameters and economic evaluations, to the implementation and supervision stages. This requires an investment in technical and financial resources for the proper conceptualization, design, and execution of the works, as well as in plans and projects to mitigate possible negative environmental and social impacts. Activities at the project-level, which are usually financed through investment loans that specify the works to be built, are complemented by policy-based loans (PBLs). The objective of PBLs is to act as catalysts for legal and institutional reforms that help to improve the performance of one or more infrastructure subsectors.¹⁵ All IDB operations are prepared and supervised with particular attention to the characteristics of the countries, thus recognizing the heterogeneities present in the Region.

Flexibility in responding to the demands of the countries. Defining the needs of infrastructure is the result of a process of dialogue between the countries and the IDB, which is reflected in the country strategies. The areas for collaboration defined in these strategies feed the loan portfolio, which is sufficiently flexible to adapt, year after year, to financing projects on the basis of government-established priorities.

Extensive regional presence allowing a close and permanent dialogue with countries. The IDB has offices in 26 countries in the Region, a fact that sets it apart from other multilateral institutions. The presence of technical staff in the offices in each country facilitates the dialogue with different sectors and the resolution of problems that emerge during the implementation of projects.¹⁶ The IDB organizes highly successful Regional Policy Dialogues on sector issues, convening public authorities and private sector stakeholders. These events are critically important and useful for identifying priorities and sharing experiences among the countries of the Region

Ample technical capacity for the preparation and supervision of projects. The impact on development of an efficient execution of projects is both recognized and prioritized by the IDB. For this reason, the Bank has specialized staff in all areas related to the implementation of an infrastructure project, including engineering, economics, procurement, law, and financial, environmental, and social management. It also works together with the countries to reinforce the capacities of executing entities and of the public sector in general, so that projects are executed as planned and on schedule. Activities to strengthen management capacities for monitoring and support in the supervision of projects are particularly important in the poorest and most vulnerable countries in the Region.



Availability of funds for technical cooperation and project preparation. The IDB distinguishes itself from other development assistance providers by the availability of own resources from its Ordinary Capital for technical cooperation, as well as of specific funds for the preparation of projects in Latin America and the Caribbean. Technical cooperation operations constitute an agile mechanism by which the Bank provides funding so that top international and local experts may analyze and propose solutions to infrastructure performance problems. Technical cooperation operations can also be used, alongside project preparation funds, to carry out feasibility studies and detailed designs and to calculate economic and social returns on investment projects.¹⁷ For the 2007 to 2012 period, US\$137 million in technical cooperation funding destined to infrastructure sectors were approved.¹⁸

Fluid interaction between private and public sector windows. Collaboration between the IDB's internal departments engaged in sovereign and non-sovereign guaranteed lending is close, inasmuch as they share common financing priorities, form joint project teams, and use the same quality control mechanisms. This does not mean that ongoing efforts to perfect interaction between these windows are not required, owing to the varying characteristics of public and private clients, and to the diverging technical backgrounds of IDB staff in the departments that work with the public and private sectors.

Commitment to regional and global integration. The IDB has granted central importance to the regional approach of infrastructure, which has materialized in technical and logistical support to official initiatives, an increase in the number of regional infrastructure loans and, increased support for the development of cross-border regulations. Concrete examples include: (i) the Initiative for the Integration of Regional Infrastructure in South America (IIRSA), included in the South American Council for Infrastructure and Planning, in which the IDB is a member of the Technical Coordination Committee and helped to create a portfolio, which as of 2013, had 583 projects in various stages of design and execution, worth in excess of US\$155 billion; (ii) the Mesoamerica Project, where figures for 2011 show that the Bank has committed US\$1.775 billion in loan resources, for projects including the Central American Electric Interconnection System (SIEPAC) and the creation of a regional electricity market; (iii) the Mesoamerican broadband information highway; (iv) the Pacific corridor from Puebla to Panama City, with new sections of highway, investment in border crossings, and the corresponding

investment in software including the implementation of the International Transit of Goods (TIM) system; and (v) the Andean Electric Interconnection System (SINEA), in which the IDB plays the role of Technical Secretary and spearheads the development of studies on physical infrastructure planning and regulatory harmonization.

Robust identification and institutionalization of emerging regional priorities. The IDB has demonstrated innovation and leadership through initiatives for the assessment, analysis, and design of interventions that help to improve public policy in emerging areas, and offer a high potential for impact in the Region. In the area of infrastructure and the environment, the most recent examples are the Emerging and Sustainable Cities Initiative, and the Special Program and Multidonor Fund for Biodiversity and Ecosystem Services.

15 Recent PBLs have included: the design of mitigation and adaptation policies for infrastructure in El Salvador; the development of policies aimed at improving logistics performance in the Colombian economy; and the implementation of new regulatory arrangements to improve the environmental and financial policy frameworks for Peru's sanitation sector, as well as the rules governing management of the various operators.

16 For example, according to January 2013 data, 52% of the Infrastructure and Environment Sector's technical staff are assigned to the Country Offices.

17 The aim of the Project Preparation and Execution Facility is to support and strengthen the project preparation process and reduce preparation times, thus facilitating project approval and execution. The Infrastructure Project Preparation Fund provides resources to support the private and public sectors and PPPs in the identification, preparation, and development of infrastructure projects (document GN-2404). The Fund for the Financing of Technical Cooperation for Initiatives for Regional Infrastructure Integration provides financing for technical assistance in the preparation of regional infrastructure integration projects through the Ordinary Capital Fund (document GN-2344-4) and the Multidonor Regional Infrastructure Integration Fund (document OP-590-1). AquaFund provides resources to support sovereign guaranteed and non-sovereign guaranteed Bank operations in the water and sanitation sector that are aligned with the Bank's Water and Sanitation Initiative and contribute to the fulfillment of the Millennium Development Goals for the sector (document GN-2487).

18 The amount of US\$137 million includes US\$9 million for institutional strengthening activities granted by the Institutional Capacity Strengthening Thematic Fund (ICSF), the Program to Implement the External Pillar of the Medium-term Action Plan for Development Effectiveness (PRODEV), and the Transparency Fund.





Challenges and opportunities

An emphasis on strengths alone would be incompatible with the objectives of the IDB, which aims to be an institution capable of contributing effectively to the acceleration of social and economic development in its member countries. The main challenges and opportunities for the IDB in the infrastructure sector are presented below. In the section on areas of intervention, options to confront weaknesses and take advantage of opportunities are proposed.

Strengthen partnerships with other organizations in order to maximize financing impact, align development objectives, share experiences, and disseminate those experiences to the countries of the Region. The limited availability of financing compared with existing needs should push the IDB and other lending institutions to collaborate in order to maximize investment impact. This entails an active effort to coordinate agendas, financing mechanisms, and the recognition of emerging actors such as the IIRSA Technical Secretariat comprised by the IDB, the Andean Development Corporation (CAF), and the River Plate Basin Development Fund (FONPLATA), housed by the Bank at the Institute for the Integration of Latin America and the Caribbean (INTAL) offices.

The mobilization of financial resources, in addition to filling financing gaps, can contribute to the expansion or scaling of projects at a national or regional level. Key stakeholders for leveraging reimbursable and nonreimbursable resources include the private sector, bilateral agencies, and other traditional and nontraditional donors. Moreover, the strengthening and creation of partnerships with successful practices from the private sector and solutions developed in universities and academia can give rise to value-added knowledge innovation leading to improvements in the effectiveness of public interventions.

In the areas of institutional strengthening and generation of knowledge, cooperation and coordination could potentially have a major impact. As a regional bank, the IDB has a geographically limited area of intervention. For this reason, there should be deeper interaction and an exchange of experiences with institutions that work in other regions, or with other multilateral banks present in the same region. The South-South Cooperation (SSC)¹⁹ agreements with the Asian Development Bank are an example of partnership that may improve the experience and capacity of the IDB technical staff and allow the clients in Latin America and the Caribbean to learn about the problems and solutions of other regions.

Seek alternatives for the expanded use of guarantees in PPPs. The role of guarantees in facilitating and increasing infrastructure investment is extremely important. The report of the Multilateral Development Bank Working Group on Infrastructure (2011) and the Report of the G-20 High-level Panel on Infrastructure (2011) identified guarantees as one of the instruments that should be used more intensively to exploit the full potential for attracting private investment (and leveraging public investment) in infrastructure in developing countries. In this context, the IDB should play a more active role in issuing guarantees in PPP arrangements, especially in those aimed at guaranteeing expenditures by public sector agencies.

Deepen the production of analytical work, the development of databases, and the dissemination of lessons learned from operational work. The infrastructure sector of the Region is characterized by major structural weaknesses in the generation of statistical information. The lack of public information means that basic questions regarding infrastructure investment needs, the performance of service providers, and rate structures and trends cannot be answered. Given its widespread presence in the Region, the IDB has the opportunity to lead the data collection process and to create databases that will constitute a regional public good and help to improve the design and monitoring of public policies in the infrastructure area. The Bank should also leverage the in-depth sector knowledge acquired through project execution and supervision to systematize and transmit the lessons learned to the countries in the Region, with the aim of improving the efficacy of future investment projects.

19 SSC promotes the exchange of knowledge, experiences, and resources among developing countries and has been part of the international development agenda since the Accra Action Plan (2008) and especially since the Fourth High-level Forum on Aid Effectiveness (Busan, 2011). Since 2011, the Bank has become an active promoter of SSC, in particular through the Asia-LAC SSC Program with the Asian Development Bank.

Boost multisector work.

The historical tendency in the Region, which has been largely replicated in the IDB and other development assistance agencies, has been attempting to resolve sector needs without considering cross-sector synergies. A silo mentality has prevailed, with insufficient dialogue among sector specialists. The IDB has adopted specific measures to encourage cross-sector cooperation and support the development of multisector projects. In 2012, a double-booking protocol was implemented, allowing two or more divisions to include the same project in their accounts. The protocol is aimed at aligning incentives for collaboration and allocating more resources to finance the participation of specialists from different divisions in project teams. In 2012, five operations were prepared in the IDB's Infrastructure and Environment Sector under the double-booking protocol (10% of all loans). Two of these were prepared by sector specialists and investment officers, thus exploiting one of the IDB's comparative advantages: the synergies that can be created between sector specialists and those in the private sector.

Place increasing importance on measuring results.

Since 2008, the IDB has introduced formal systems and processes for measuring and evaluating all its products,²⁰ focusing on the measurement of outcomes (e.g., disease reduction, lower transportation costs, higher incomes) over outputs (e.g., number of water connections or paved kilometers). Loans must contain elements that ensure that they are well formulated, as well as an economic analysis and the necessary features for monitoring and measuring their results. The reason for improving evaluability lies on the need to increase the number of projects with rigorous evaluation plans, in other words, where evaluation is based on a valid counterfactual, represented by the situation without the project (IDB, 2010b and 2011b). This type of evaluation has been infrequent in the infrastructure sectors in the countries of the Region, and in the IDB and other development assistance organizations. However, new impact evaluations are beginning to be performed in IDB projects in the water and energy sectors. The challenge, therefore, will lie in creating a substantial body of impact evaluations in the area of infrastructure so that the lessons learned can help to provide relevant information for improving the design of public policy interventions in the Region.





20 In 2008, the Board of Executive Directors approved the Development Effectiveness Framework. Based on these guidelines, and on the strategic objectives and priorities established under the GCI-9, the IDB adopted a Results Framework that monitors progress towards attainment of the targets agreed upon by the Governors, using quantitative and qualitative indicators.



**STRATEGIC PRINCIPLES
AND PRIORITY AREAS
FOR ACTION**



STRATEGIC PRINCIPLES AND PRIORITY AREAS FOR ACTION

This section of the Strategy presents the strategic principles and priority areas that will guide the IDB's actions in the infrastructure field. The principles and their respective associated priority areas are applicable to all infrastructure sectors. The identification of strategic principles and the priority areas for action that will implement them is the final result of an open and participatory consultation process carried out through onsite meetings and online questionnaires. Exchanges of opinion with experts and Bank staff were also organized to validate the scale of the priorities to be developed. The actions proposed are fully coordinated with those presented in the four strategies prepared under the framework of the GCI-9.²¹

The strategic principles are organized around two complementary focus areas:

The first strategic principle proposes that:

A

The IDB should continue to provide financing and technical assistance to ensure that infrastructure supports economic growth, provides access, and fosters regional and global integration, in a context where opportunities for private financing to help close existing gaps in infrastructure in Latin America and the Caribbean are maximized.

The second strategic principle, which complements and builds on the first, proposes that:

B

The IDB should emphasize actions intended to help the countries of the Region adopt a new vision where infrastructure is planned, built, and maintained to support the delivery of quality services that promote sustainable and inclusive growth.

This new vision of infrastructure rests on the key pillars of environmental, social, and fiscal sustainability, and recognizes the need to expand multisector approaches that allow benefiting from synergies among infrastructure sectors. Specifically, the second strategic principle is based on the idea that infrastructure should be viewed as an asset that must be properly managed and maintained and must meet the growing demand in Latin America and the Caribbean for socially and environmentally sustainable infrastructure.

21 The Sector Strategy to Support Competitive Global and Regional Integration (document GN-2565-4); the Integrated Strategy for Climate Change Adaptation and Mitigation, and Sustainable and Renewable Energy (document GN-2609-1); the Private Sector Development Strategy: Fostering Development through the Private Sector (document GN-2598-7); the Strategy on Social Policy for Equity and Productivity (document GN-2588-4); and the Sector Strategy Institutions for Growth and Social Welfare (document GN 2587).

The new vision of infrastructure proposed in the Strategy

Traditional Vision

In the traditional vision, the project itself is the objective, the center of attention. Technical and financial analyses determine its economic return and the associated direct effects: environmental impact and resettlements, if needed.

Members of the project team: sector specialists (engineer, economist), safeguards specialists.

Example: construction of a road. Under the traditional vision, the project studies the effect of the road on transportation costs and the environmental impacts associated with it (what species will be impacted, the effects of deforestation required by its construction). If necessary, there is a relocation of the inhabitants affected by the course of the road.

Multisector Vision

In the multisector vision, the project considers a broad set of objectives. It studies not only its economic return and associated direct effects, but also the interaction with existing infrastructure and how it affects land use, its influence on and resilience to climate change, the various alternatives for its financing, and the associated governance to ensure its sustainability. Ultimately, the project is designed on the basis of the services provided by the infrastructure and their potential impacts.

Members of the project team: multisector team, sector specialists, financial and regulatory specialists, urban planners, productive development specialists, and safeguards specialists.

Example: construction of a road. The multisector vision incorporates the construction of the road into a broader transportation strategy, how it interacts with the modal transportation system in the region, the various alternatives for financing the project (including PPPs), and proper governance for ensuring its maintenance and quality over time. It also studies how land use will be affected and the effects on the prices of agricultural products in the area. It considers the social context: how the road will affect the quality of life of neighboring populations along its path and that of its users.

Box 1

Presents the strategic principles and the priority areas for action described in detail below.

Strategic principles

A

Financing and technical assistance for infrastructure that supports economic growth, provides access, and fosters regional and global integration.

B

Planning, building, and maintaining infrastructure for the delivery of quality services that promote sustainable and inclusive growth.

Priority areas for action

1. Promote access to infrastructure services

2. Support infrastructure for regional and global integration

3. Promote innovative mechanisms for infrastructure financing, and leverage the participation of the private sector

1. Adopt and promote a multisector agenda

2. Support the construction and maintenance of socially and environmentally sustainable infrastructure, thus enhancing quality of life

3. Promote the ongoing improvements in infrastructure governance to enhance efficiency in the delivery of infrastructure services



Financing and technical assistance for infrastructure that supports economic growth, provides access, and fosters regional and global integration.

The IDB will continue to provide financial support to the countries in areas where efficiency and effectiveness in meeting the demand of its members has been demonstrated. This entails continuing to work in promoting economic growth, competitiveness, and inclusion, within a framework that emphasizes the environmental and social sustainability of the projects to be financed.

This Strategy addresses solely issues common to all of the infrastructure sectors it covers (water and sanitation, energy, transportation, irrigation, and telecommunications). Given that the sectors do not share similar supply and demand characteristics, the priorities of each one will be determined and updated every three years in the Sector Framework Documents.²² The programming of specific projects to be financed will be established jointly between the countries and the IDB in the annual country programming documents.

1. Promote access to infrastructure services

Contributing to the attainment of universal access to water and sanitation services and electricity is a central element of the IDB's mandate and one of the strategic priorities established under the GCI- 9.²³

The coverage rates for this region are higher than in other developing regions, but access gaps are still significant:



In 2010

21% of the population had no access to improved sanitation,
6% lacked safe water
7% had no electricity

The estimated cost to achieve universal coverage is:

US\$50 billion
in the case of water and sanitation

US\$60 billion
in the case of electricity

²² The Sector Framework Documents, which will be updated every three years, aim to define the challenges of each sector and identify the specific spheres of action that the IDB will prioritize, and the tools and types of interventions that will be used (document GN-2670-1).

²³ The IDB's prioritization of achieving universal access for public utilities is fully aligned with the recommendations of the High-Level Panel on the Post-2015 Development Agenda (United Nations, 2013).

In 2010, 21% of the population had no access to improved sanitation, while 6% lacked safe water, and 7% had no electricity (World Health Organization-United Nations Children's Fund, 2012; Latin American Energy Organization, 2011). Achieving universal coverage, with an estimated cost of US\$50 billion in the case of water and sanitation, and US\$60 billion in the case of electricity, would have a direct impact on poverty, especially in rural areas, as households that lack access to these services are generally poorer than those that already have connections. In the case of households without access to safe water and electricity, they are usually located in isolated areas, and therefore, the traditional solution of expanding networks is not feasible. Thus, achieving universal access to basic services will pose very different challenges depending on the service and the geography. The IDB will work with the countries on the implementation of innovative, affordable solutions to provide access to households that still require it.²⁴

Access to information and communication technologies as well as access to the road network also constitutes priority actions for the IDB. Ensuring access to rural communities by means of roads that are serviceable in all weather conditions is also a priority for the IDB. In addition to improving living conditions in rural communities, these roads expand

income-generating opportunities while providing access to markets. Access to modern communication technologies deserves a similar emphasis. In order to support countries in their strategy to move toward goals of universal access, the IDB created the Special Broadband Program (document GN-2704) in 2013. The objective of this special program is to support the creation of an institutional and regulatory environment that facilitates competition and investment to accelerate and expand access, adoption, and usage of broadband services. The IDB will provide support in three critical areas so countries can improve their capacity to: (i) develop public policies and governance models that ensure leadership in the design and implementation of broadband strategies; (ii) develop strategic regulations that encourage effective and sustainable competition, while providing legal certainty for investment; and (iii) build up the capacity of the various institutions involved in moving toward the objectives of universal access, usage, and adoption of broadband services.



²⁴ As an example of the work done by the IDB to increase access to electricity, its role as a member of the "Sustainable Energy for All" initiative stands out. The IDB is the agency leading the activities in Latin America and the Caribbean.

2. Support infrastructure for regional and global integration

Regional and global integration was identified under the GCI-9 as one of the institutional priorities for increasing the IDB's effectiveness as a development partner for the region. Demonstrating its commitment to regional and global integration, the IDB's target is for 15% of loans to support integration and regional cooperation by the end of 2015.

Regional and global integration requires effective local and regional infrastructure to expand and integrate markets, achieve economies of scale, promote private sector participation, and attract foreign investment. However, the development of integration infrastructure presents a number of challenges, as a result of: (i) the geographical diversity of the Region's countries; (ii) the varying levels of economic development in each of them, particularly their infrastructure networks; (iii) the asymmetric distribution of local infrastructure costs; (iv) the differing degrees of coordination between the planning and financing of national and subnational levels of government; and (v) the need for substantial investment and for simultaneous investment in hardware and software in the various countries that seek to be connected physically.

The IDB has a high level of added value in the Latin American and Caribbean integration agenda, as a result of its historical presence in the Region, its knowledge of political, economic, and technical issues, the infrastructure and trade initiatives that it has led, and the portfolio of products that it administers. The participation of the IDB has been crucial, for example, in the development of regional integration initiatives such as the South American Infrastructure and Planning Council COSIPLAN/IIRSA and the Mesoamerica Project in Central America, where knowledge, capacity for dialogue, and human, financial, and logistics resources provided have helped to consolidate them. The IDB has provided reimbursable funds in excess of US\$4.5 billion for 33 projects belonging to the COSIPLAN/IIRSA portfolio, leveraging a total investment in excess of US\$12 billion. At the same time, it has contributed over US\$250 million to SIEPAC.

Consistent with the Sector Strategy to Support Competitive Global and Regional Integration, the IDB's Strategy to promote regional infrastructure development is based on three pillars: project financing, strategic participation, and analytical work.

a. Financing of national and regional infrastructure projects that strengthen and accelerate regional and global integration, in the areas of transportation, energy, and telecommunications.

The IDB will prioritize the financial structuring of the projects selected for implementation, as well as the institutional, commercial, and technical arrangements considered necessary to ensure their sustainability. The Bank's experience in financing infrastructure projects, using a combination of standard sovereign and non-sovereign guaranteed loan instruments, FSO funds, and even the mobilization of donor resources, will prove essential to support the development of regional infrastructure. In this regard, the role of technical cooperation operations is fundamental because they use resources to structure investment projects. The value added by the IDB's technical cooperation operations has recently been recognized, with the boom in South-South cooperation by some of the Bank's borrowing member countries, including Chile, Colombia, and Mexico, which have contributed resources to multidonor funds for regional and global integration.

b. Active strategic participation in regional integration plans (e.g. COSIPLAN/IIRSA and the Mesoamerica Plan).

The IDB will act as (i) an impartial intermediary and, at the request of the countries, as coordinator for existing and future regional platforms, spearheading proposals and formulating alternatives to ensure the execution of priority projects for regional and global integration; (ii) a facilitator for dialogue among countries, institutions, and agencies; and (iii) a promoter of new initiatives that the IDB considers of high-impact on integration processes in Latin America and the Caribbean.



c. Analytical work.

The IDB will continue to produce studies and analyses that enhance knowledge in the area of regional and global integration, show the costs and benefits of integration, and consolidate the Bank's intellectual leadership and capacity as an institution of regional and global renown. The dissemination of ideas, proposals, evaluations, and results, along with national and regional capacity-building, will be fundamental toward achieving objectives in the area of regional infrastructural integration.

3. Promote innovative infrastructure financing mechanisms and leverage the participation of the private sector

Among developing regions, Latin America and the Caribbean pioneered the introduction of private participation in the construction and management of infrastructure and from 1990 to 2011, it attracted private investment in excess of US\$672 billion. Nonetheless, its share relative to other developing regions has declined. Between 1990 and 2000, Latin America and the Caribbean attracted 52% of total investment, yet this share fell to 29% in the 2001-2011 period.²⁵

This Strategy maintains that the Region needs to increase the share of private investment in infrastructure financing in order to close existing gaps. The public sector in Latin America and the Caribbean has increased infrastructure investment sharply, from 0.9% of GDP between 2000 and 2005 to 1.8% between 2006 and 2010, representing a cumulative additional investment of nearly US\$200 billion. However, it is unlikely that more fiscal space will be devoted to the infrastructure sector in the coming years. For that reason, Latin America and the Caribbean should generate conditions to attract more private capital; investments in infrastructure by the private sector in recent years, at around 1% of GDP, are insufficient.

Private investment in infrastructure depends on the existence of a suitable investment climate. The availability of savings and financial instruments is not a sufficient condition to attract private investment to the infrastructure sector. An investment climate that reduces the uncertainty associated with infrastructure projects which, by their nature, require long-term commitments must be created.

The IDB is working actively on the generation of a better climate for investment through its public and private sector windows. Specifically, it is working on the optimization (stability, equity, and transparency) of tax regimes, the establishment of property rights, the improvement of legal regimes (including bankruptcy laws), and the quality of the legal system.²⁶

The IDB should increase its efforts to support governments, financial institutions, and public development banks in the creation or improvement of technical capacities and a sophisticated regulatory structure to allow them to spearhead financial innovation for infrastructure projects.

The IDB will have to make an effort to accelerate the dissemination of financial/legal instruments to generate or increase structured loans and issues through public markets for the financing of infrastructure. The IDB could develop this effort through policy-based loans that create incentives for capital market reforms, as well as the development of credit mechanisms (subordinated debt, national trust mechanisms, syndication of resources, mezzanine financing, etc.) to leverage private investment.

The IDB is committed to continuing and intensifying actions to facilitate the structuring of more and better PPPs aimed at enhancing the capacity and quality of regional infrastructure.

The IDB's recent experience suggests that every dollar spent on financing a PPP leverages five additional dollars from the private sector,²⁷ which points at the value added by PPPs in infrastructure sectors, especially in emerging ones, such as renewable energy. In support of this agenda, the IDB's internal departments engaged in sovereign and non-sovereign guaranteed lending will coordinate their work throughout all stages of the PPP project cycle, with priority given to the following actions.²⁸

25 The data mentioned in this paragraph are taken from the "Public Participation in Infrastructure" database managed by the Public-Private Infrastructure Advisory Facility and the World Bank. The numbers reflect investment commitments rather than actual investments and for this reason tend to be overestimates.

26 The Private Sector Development Strategy: Fostering Development through the Private Sector (IDB, 2011c) and the Sector Strategy Institutions for Growth and Social Welfare (IDB, 2011d) describe in detail the actions implemented and prioritized by the IDB to improve the investment climate.

27 The estimation of this "multiplier" of the IDB's financing was done by the IDB's Vice Presidency for the Private Sector. It includes all sectors, but gives greater weight to funding for renewable energy projects.

28 These actions complement those contained in the Private Sector Development Strategy: Fostering Development through the Private Sector (IDB, 2011c).

a. Institutional frameworks.

The IDB will work alongside governments to create and maintain legal and regulatory frameworks that promote the formulation of PPPs and the inclusion of the largest possible number of investors. The IDB will continue to work to improve knowledge of best practices in PPPs, and to identify areas for improvement in the countries.²⁹

b. Development of financial instruments to increase PPPs.

Recent studies by the IDB (IDB, 2013) conclude that Latin America and the Caribbean lack adequate instruments to channel domestic savings towards infrastructure projects. Latin America and the Caribbean therefore have to move forward with the agenda to develop innovative financial instruments and deepen the capital markets to generate greater bank penetration and to create incentives so that pension funds are invested in infrastructure.

c. Structuring.

The impact of PPPs depends on their design, which is largely the product of the correct allocation of risks, the measurement of explicit and contingent fiscal impacts, the maximization of competition in order to select the best investor, a suitable allocation of guarantees, and the creation of incentives to merge the construction and operation of infrastructure in a context that promotes transparency and integrity. It is therefore essential to create and improve capacity in the public sector, irrespective of the institutional framework considered by each country to be most appropriate for the management of PPPs.

d. Supervision.

PPPs are normally established by means of long-term contracts, generally lasting more than twenty years, aimed at ensuring that the private operator is able to recover its investment and obtain a reasonable rate of return. However, long-term contracts reduce flexibility in the face of unforeseen changes in specific economic and sector conditions. To guarantee the economic and financial sustainability of a PPP and ensure that it has the expected impact on the economy, an economic regulator to effectively apply the available regulatory instruments should be in place. It is essential to strengthen the institutional capacity of the various stakeholders in order to establish sound regimes that strengthen good governance. Latin America and the Caribbean still has a long way to go with respect

to the creation and strengthening of effective regulatory agencies (Estache and Serebrisky, 2006; Serebrisky, 2012; Andrés, Guasch, and López Azumendi, 2008).

e. Evaluation and continuous learning.

The rate of PPP renegotiation is high, and has reached 30% in Latin America and the Caribbean (Guasch, 2004). This underscores the need to develop lessons learned that can inform the design of new PPPs. PPPs are a relatively recent public policy instrument, and even the most developed countries are constantly searching for ways to improve them.³⁰ The IDB will support the countries in this process, while also focusing its efforts on the evaluation of PPPs and on sharing the knowledge generated in different countries and regions.

²⁹ Under this line of activity, the IDB will continue to produce benchmarking publications such as *Infrascope*, which assesses government capacities to implement efficient and sustainable PPPs, and the organization of knowledge events such as *PPP Americas*, which brings together leading public and private stakeholders with interest in PPPs.

³⁰ For example, in December 2012, the United Kingdom announced that it would update its regulatory framework applicable to PPPs through the *Private Finance 2* initiative.

The IDB will focus its efforts on PPPs on the smaller countries and on the subnational levels of government. Trends in PPPs projects show major differences among the countries of the Region. Brazil and Mexico account for 65% of total investments, and this figure rises to more than 80% if Colombia, Peru, and Chile are included. The IDB's experience with respect to PPPs has for the most part mirrored this regional distribution, focusing on the largest economies. Although the IDB will continue supporting PPPs in countries that have developed an adequate institutional framework, in the coming years, as a result of an analysis of gaps, the IDB will concentrate its efforts on the development of PPPs in the smaller countries and on subnational governments. As an example of this prioritization, in 2012 the Multilateral Investment Fund (MIF) and the IDB Infrastructure Sector launched a regional program of assistance for PPPs. In addition to providing assistance for institutional strengthening and the creation of capacity for the design and supervision of these partnerships, the program will support specific transactions, financing feasibility studies and guiding the process to ensure appropriate financial structuring. Supplementing the regional assistance program, the Institutions for Development Sector department will work with subnational governments on the modeling and subsequent budgetary institutionalization of the contingent liabilities generated by PPPs.

Planning, building, and maintaining infrastructure for the delivery of quality services that promote sustainable and inclusive growth.

This Strategy maintains that the change in paradigm towards the planning and execution of infrastructure as a function of the services that it provides necessitates deepening work in three areas: (i) the adoption and promotion of a multisector agenda; (ii) commitment to the creation of socially and environmentally sustainable infrastructure; and (iii) seeking out ongoing improvements in governance aimed at improving the efficiency of infrastructure services management.

1. Adopt and promote a multisector agenda

The sector approach needs to make way for the development of multisector projects that incorporate from the very beginning synergies among the different infrastructure sectors. A comprehensive adoption of the multisector agenda depends on incentives. The IDB will need to work together with the countries so that the multisector approach is internalized from the very beginning of the project cycle, incorporating it as a central element in the planning of infrastructure. Adopting a multisector approach is not risk-free: multisector projects face difficulties owing to lack of interagency coordination, which complicates their effective implementation and the pace of disbursements. Just as the IDB needs to fine-tune internal incentives for its departments

and divisions³¹ to work together, the countries must also change the silo mentality that characterizes how their public administrations work (see Box 2).

Cities are the social and economic setting where the challenges of the multisector approach to infrastructure converge; for this reason, cities will be a priority for Bank action. Infrastructure is a vital vector for quality of life and the sustainability of cities. Cities have positive effects on productivity, knowledge generation, and innovation. The agglomeration of people, industries, and trade in urban areas creates economies of scale and proximity, facilitating efficiency and innovation in production processes, and enhancing labor market access (OECD, 2006). This dynamic highlights the synergies between infrastructure and urban development: through planned, participatory investments, the Region can not only sustain economic growth, but also facilitate a transition toward denser, more equitable, and intelligent cities. This would result in significant savings in infrastructure costs and positive environmental externalities for society.

³¹ The IDB started providing incentives for multisector work through the adoption of the "double booking" criteria, whereby a multisector project is accounted for as an output for all units involved.

What does “multisector” mean in the context of this strategy?

Infrastructure projects generate long-term physical impacts as a result of their irreversibility and specific use. The construction of a hydroelectric dam, a subway tunnel, a water treatment plant, a gas pipeline, or a port are examples of specific, irreversible investments; it is practically impossible to use such infrastructure for alternative purposes without making significant additional investments. Adopting a multisector approach as an organizing principle for future IDB work in infrastructure is based on the recognition of the characteristics of investments in this sector: they are irreversible, specific, and large-scale.

In this strategy, multisector means:

Interactions between infrastructure projects.

Infrastructure projects tend to have impacts that extend beyond the specific subsector for which they were designed. For example, the assignment of water usage rights (irrigation, drinking water storage for towns) when a hydroelectric dam is built; the use of information and communication technologies (ICTs) in urban transportation projects to help reduce urban congestion; changes in electricity demand as the result of a project to increase energy efficiency in water distribution companies; the effectiveness of housing plans when the frequency and coverage of urban transportation is affected; greenways, a multifunctional tool that reconfigures urban space by recovering environmentally degraded areas, bringing the population closer to natural spaces and promoting physical and recreational activities that contribute to public health, while also providing an alternative for drainage and rainwater absorption in cities (Mayorga Mora, 2013).

Interactions between infrastructure projects and the environment.

While such interactions are traditionally associated with negative impacts, there are many positive examples: the incorporation of renewable energies into the energy matrix, the adoption of technologies that reduce the emissions of buses used for urban transportation; the joint planning and construction of new roads implementing sustainable productive development systems (agriculture, forestry); and investments to increase the energy efficiency of public lighting and buildings.

Interactions between infrastructure projects and inclusion

It is essential to fully understand the relationship between infrastructure and people (direct users, but also those who participate in the entire infrastructure chain, from its construction to its use). If properly designed, infrastructure projects can have positive impacts on inclusion. Infrastructure can be designed considering the needs of current and potential users with disabilities (e.g. access for the disabled to transportation systems, including stations and buses);

neighborhood improvement programs with water and energy interventions can add components aimed at improving security (public lighting, improvement of spaces for public use), consultations with users can improve the designs of intercity routes, correcting the design of the path and signage, and of measures to prevent flooding, and projects that breakdown impacts by type of user can modify their design to maximize their impact on gender.

To maximize the impacts of the multisector approach, it is necessary for the projects to internalize the approach from their initial planning stages. The multisector approach will be a core consideration in the design of IDB infrastructure projects, and this priority is aligned with that of other development agencies (CAF, 2011; World Bank, 2012d).



In Latin America and the Caribbean, four out of five people live in cities, and the process of urbanization is characterized by a high degree of metropolization. Latin America and the Caribbean is characterized by a large concentration of people in a small number of large cities.³² Eight megacities alone account for 14% of the total population, equivalent to approximately 65 million people (United Nations Human Settlements Program, 2012). Four of these (Mexico City, São Paulo, Buenos Aires, and Rio de Janeiro) have more than 10 million inhabitants and rank among the fourteen most populous cities in the world. The four remaining cities (Lima, Bogotá, Santiago, and Belo Horizonte) have populations of between 5 million and 10 million inhabitants.

Nonetheless, the greatest share of the region's urban population resides in intermediate cities (those with between 100,000 and 2,000,000 inhabitants). These are growing at a faster pace than the large cities and are projected to account for 40% of regional GDP by 2025. These cities are beginning to experience the same problems that characterize megacities in the Region: poor mobility with growing congestion, territorial segregation, insufficient housing, worsening environmental pollution, more serious impact of natural disasters, and lack of access to basic services in fringe areas where formal land rights are absent; on the other hand the pace of urban expansion is so relentless that it is technically, economically, and institutionally impossible for municipal governments to

provide the necessary infrastructure. These problems, which represent very real obstacles to the economic and social development of cities and the Region, are still reversible for intermediate cities, at reasonable economic and social cost.

Against the current backdrop, and given the challenge of developing the Region's intermediate cities in an organized and sustainable manner, a paradigm shift in the model of urbanization used up to now is clearly required. It will be necessary to go beyond large urban planning and civil engineering projects, incorporating environmental management content. Issues of social and ecological integration should be at the center of infrastructure and land-use design, with special emphasis on natural disaster management and climate change adaptation. Interventions should be multisectoral in essence, and institutions should be organized accordingly. At the same time, interventions and institutions should be designed and implemented taking into account the risks associated with coordination problems among levels of government. In order to promote this paradigm shift, in 2011 the IDB created the Emerging and Sustainable Cities Initiative (ESCI), in which a multidisciplinary approach enables it to address these new challenges faced by Latin America's intermediate urban areas.³³



³² In Central America and the Caribbean, the major cities are relatively less important, accounting for only 50% of GDP and just 25% of the total population in these countries (McKinsey Global Institute, 2011).

³³ The Emerging and Sustainable Cities Initiative (ESCI) is an example of an activity requiring cross-sector organization, both in the cities and within the IDB. Application of the ESCI methodology requires the formation of multidisciplinary teams. Within the IDB, teams are made up of members with a wide range of experience and training, from the Institutions for Development and Infrastructure and Environment Sectors in the public sector window, and the Structured and Corporate Financing Department in the private sector window.

Example of Multisectoral Work: the Emerging and Sustainable Cities Initiative (ESCI)

Using a rapid evaluation methodology, the ESCI assesses the situation of a city in terms of sustainability, with reference to three main areas of analysis: (i) environmental sustainability and climate change; (ii) urban development; and (iii) fiscal sustainability and good governance. This assessment and the subsequent prioritization exercise in which the various local stakeholders (civil society, local government, private sector, and academia) participate lead to a comprehensive and coherent vision of the different projects needed to improve the sustainability of a city. The objective of the ESCI is to develop an action plan with the necessary cross-sector content and required level of consensus. The plan should offer possible solutions to address the challenges of rapid urbanization in Latin America and the Caribbean, generating specific transitions of the urban infrastructure in a sustainable manner through the following activities:

a

The expansion and maintenance of sustainable transportation systems, particularly given the link between mobility and access to economic and social inclusion activities.

b

Sewage treatment and reuse and the efficient use of water at household, neighborhood, and regional levels, making use of existing informal systems that are found to be effective.

c

Minimization of waste and emphasis on its recycling in productive processes, including the formalization of informal recycling processes.

d

The deployment of renewable technologies to generate power and promote energy efficiency in production and consumption processes, with special attention to the creation of innovative solutions, particularly in expanding urban areas and areas that are hard to reach for service networks.

e

Use of sustainable construction materials and methods and coverage against natural phenomena, in both new and existing urban developments, supported by new policies and regulations.

f

The strengthening of participatory processes for the design and maintenance of infrastructure systems, with special attention to fiscal sustainability, and foreseeing a dense urban and regional land use with higher levels of productivity per land unit.

In the latter part of 2011, the ESCI completed the first plan of action, prepared for the city of Trujillo, Peru, which includes a diagnostic assessment and a menu of priority interventions. As of July, 2013, eleven additional plans of action were completed in Cochabamba (Bolivia), Mar del Plata (Argentina), La Paz (Mexico), Santa Ana (El Salvador), Port-of-Spain (Trinidad and Tobago), Goiania (Brazil), Montevideo (Uruguay), and Barranquilla, Bucaramanga, Manizales, and Pereira (Colombia).

Multisectoral work will also be relevant in rural areas, where complementarity in investments has positive effects on household income. Global and regional evidence shows that providing simultaneous access to infrastructure services (water, electricity, roads, and telecommunications) has a greater impact on family income and the generation of sources of employment than providing access to a single service, or to several in a temporary or uncoordinated manner, or with heterogeneous levels of quality (Webb, 2013; Estache, 2010b; Escobal, 2005).



2. Support the construction and maintenance of socially and environmentally sustainable infrastructure, thus enhancing quality of life

Infrastructure can be a key vector for fostering social inclusion. However, Latin America and the Caribbean have a great deal of work before them to make infrastructure more inclusive. The agenda of social inclusion for infrastructure addresses a broad set of objectives and activities: from closing the gap in access to essential services such as water, sanitation, electricity, and improved roads, allowing the population's basic needs to be met, improving opportunities for social inclusion through greater access to health centers, and improving academic and job performance, to moving forward on newer but equally important issues for historically underserved sectors of the population such as women and the disabled. For these reasons the Bank's actions must focus on closing gaps in access to basic infrastructure services and promoting agendas that address gender and the inclusion of the disabled in infrastructure projects.

Latin America and the Caribbean as a region is highly vulnerable to the effects of climate change and variability and to geophysical events, which affect poor and indigenous groups disproportionately, and which are reflected in economic and human losses caused by disasters, changes in ecosystems, crop yields, and the availability of water for human consumption, energy production, and irrigation. Under the GCI-9, Bank activities aimed at creating the conditions for the attainment of environmental sustainability are given high priority. A target of 25% of loans was set for programs in the areas of climate change, renewable energy, and environmental sustainability by the end of the 2012-2015 period. To fulfill these objectives, the IDB will work on the following areas related to the environmental and social sustainability agenda:

a. Infrastructure as a vector for social inclusion to enhance quality of life.

Closing the gap in access to basic infrastructure services and promoting the generation of knowledge to enhance the effectiveness of public policies that foster access. Access to basic infrastructure services has the effect of leveling the playing field for all. People who lack access to water or electricity, for example, do not have the same opportunities to study or work as those who do have access. Their opportunities for social inclusion are clearly lower than those of the rest of the population, and therefore, closing this gap must remain one of the IDB's main priorities. At the same time, there is a need to expand studies that measure the effectiveness of policies ensuring access to basic infrastructure services, since there are few available studies for the Region and virtually no available data. The ultimate objective is to identify those sectors with the greatest impact on improving social inclusion for the most disadvantaged groups.





Planning and building an infrastructure that enables greater accessibility for the disabled. Designs must be modified, incorporating new components from the planning stage, to allow the disabled to use and benefit from infrastructure services. For example, urban transportation systems must have ramps to provide access to people with mobility problems. However, just changing the designs of the physical infrastructure is not enough. Equipment and conduct must also be modified. Continuing with the example of urban transportation, the equipment must allow safe access, and incentives should be provided for drivers to assist disabled passengers. Similar changes must take place to fully incorporate the gender dimension into the entire infrastructure cycle.

Redoubling efforts to mainstream gender in the planning, design, and execution of infrastructure projects. There are significant differences between men and women in demand and need for infrastructure services. For example, the Bogotá Urban Mobility Survey (2005) showed that women use public transportation for two reasons—economic and domestic—and their patterns of usage included consecutive trips of shorter duration that usually begin later in the day and include children more frequently. These characteristics should have direct implications in the design and frequency of routes and the accessibility of bus services.

Evidence shows that infrastructure investments tend to have positive effects for women and children, particularly in terms of income, access to education and health services, and workloads in the home. In Nicaragua, access to electricity increased the propensity of women in rural areas to work outside the home by 23% (Grogan and Sadanand, 2012). In Peru, rural road projects increased women's income by 14%, primary school attendance by girls by 7%, and the number of visits by women and children to health centers by 55% (World Bank, 2000). At the same time, it has been

shown that women's participation can help to ensure that infrastructure projects fulfill their objectives.³⁴

The IDB will aim to be an effective agent of change by promoting the gender agenda in infrastructure projects. To do so, it will prioritize the lines of action presented in Box 4.

³⁴ A review of 121 rural water projects concluded that women's participation was strongly correlated with project effectiveness (Narayan, 1995).

The IDB's gender agenda in infrastructure projects

Box 4



Introduce specific gender elements at the design stage, in order to increase the use of services. This means that particular attention must be paid to infrastructure usage and access preferences when designing the different components. For example, loans and microfinance programs can help female-headed households, which traditionally have lower incomes, to gain access to infrastructure services such as electricity

Promote women's access to employment created by infrastructure projects. Cultural norms dictate that women are usually excluded from the construction and maintenance of infrastructure, which prevents them from reaping some of the significant economic benefits of these programs. Professional training and the dissemination of information that prepares women for infrastructure-related employment can facilitate their active participation. Dissemination of information and awareness-building among men and the community in general can help to minimize negative attitudes towards the employment of women in nontraditional occupations, such as women in infrastructure

Perform impact evaluations to gather evidence on what works and improve the design of projects. Greater empirical evidence is required to understand the impact of specific gender interventions and to determine which ones have the greatest effect on women's well-being and gender equality

Establish gender-related indicators and measure results. Disaggregating some results indicators by gender is a tool that can contribute to a more comprehensive measurement of project effectiveness

Mitigate gender-related risks associated with large-scale infrastructure projects (e.g. transportation and hydroelectric plants), including HIV/AIDS and violence against women. These measures may include the review and improvement of company codes of ethics that encompass incentives and consequences; information, education, and communication in local communities, and educating the workforce to reduce the transmission of HIV/AIDS; and the creation of local grievance mechanisms.

b. Safe infrastructure with more resilience (adaptation).

The sustained increase in economic damages caused by disasters in Latin America and the Caribbean over the last three decades, recently marked by the geophysical disasters in Haiti and Chile, can be attributed primarily to the increase in exposure and vulnerability.³⁵ The IDB will continue to support the countries on the implementation of risk assessment systems and on the definition of building standards, by applying novel tools for disaster-risk analysis³⁶ to promote a safe infrastructure. Together with this preventive approach, work will be done to reduce preexisting physical vulnerability. Both approaches (prospective and corrective) yield high returns and help make infrastructure investment more efficient (UNISDR, 2011; Balcázar, 2012).

Climate change could increase the risk of natural disasters such as hurricanes and floods. For this reason, building standards need to be updated if infrastructure services are to be maintained even under more adverse climatic conditions. In the case of places that are sensitive to the impact of climate change (coastal zones subject to flooding, or drought-prone areas where water supplies are affected, for example), future decisions concern whether to adapt existing infrastructure or relocate it to safer areas.

c. Infrastructure and services that help to mitigate climate change.

The operation or use of infrastructure can have a substantial impact on carbon emissions. However, providing an infrastructure service can also lead to lower greenhouse gas emissions without compromising its economic viability. One example is a modal shift that encourages the use of river or rail transportation, instead of roads. In turn, the incorporation of intelligent design elements facilitates optimization of infrastructure design, minimizing the resources necessary for operation. Examples include intelligent transmission networks, which anticipate energy demand and promote the use of renewable energy sources; public transit systems that react to demand loads by adjusting the number of vehicles in circulation; and water meters that measure consumption. In sectors that generate high levels of emissions, such as power generation based on fossil fuels, the IDB uses and requires minimum standards aimed at ensuring adoption of the best available technology. In the case of all projects that generate significant greenhouse gas emissions, the IDB calculates them for public disclosure.

d. Incorporation of the environmental dimension into the planning of infrastructure at the local, national, and regional levels.

On their own, project-level safeguard policies are insufficient to fully and effectively manage the cumulative and indirect impacts of infrastructure projects. The IDB will intensify its activities aimed at helping governments in the Region, at all levels, to bolster institutional capacities in the planning of a safe infrastructure, less vulnerable to natural climate variability, climate change, and geophysical threats, through the application of disaster risk analysis, strategic environmental evaluation, and impact assessments relating to infrastructure policies and projects. The adoption of safe construction designs in the face of natural threats will help reduce contingent liabilities, while increasing the benefits of the investment and, therefore, its effectiveness.

Infrastructure planning should increase its scope, extending beyond the dimensions of the location and size of the project. A comprehensive approach to planning can boost the positive impacts of infrastructure on development. For example, a road built in an area without illegal deforestation control generates high adverse impacts. However, if governance is strengthened by designing sustainable forestry exploitation programs, the road can even yield net positive impacts. Policy-based loans and technical cooperation operations will be among the instruments that the IDB will use to help manage the social and environmental externalities associated with infrastructure development.

³⁵ See IPCC, 2012, in reference to hydrometeorological events.

³⁶ The IDB has developed, in conjunction with the World Bank, and disseminated a methodology for estimating the probabilistic risk of disasters called the Comprehensive Approach for Probabilistic Risk Assessment (CAPRA).

e. Ensuring compliance with safeguard policies.

The IDB will continue to implement its safeguard policies,³⁷ in a continuous joint effort with the countries to draw lessons from their application. Especially important is the proper, exhaustive implementation of these policies in infrastructure projects. Thus, the Environment and Safeguards Compliance Policy establishes that potential impacts of projects be evaluated using analytical instruments appropriate to their scale and magnitude (for example, the Environmental Impact Assessments), under which mitigation measures proposed in project frameworks should include all actions aimed at preventing, minimizing, reducing, and offsetting the potentially associated adverse environmental and social impacts, commensurate with the mitigation hierarchy.³⁸ Likewise, the Indigenous Peoples Policy, together with technical cooperation operations and participation in forums and policy dialogues, provide the foundation on which the IDB will be able to deepen its actions to move forward in the dialogue between the public and private sectors and indigenous organizations, in order to improve the design and application of processes aimed at protecting the rights of indigenous peoples affected by infrastructure development. Cumulative experience has led to the development of good practices (see Box 5), which the IDB will apply in its infrastructure projects.

37 Environment and Safeguards Compliance Policy (2006, document GN-2208-20), Disaster Risk Management Policy (2007, document GN-2354-5), Involuntary Resettlement Policy (1998, document GN-1979-3), Indigenous Peoples Policy (2006, document GN-2386-8), and Gender Equality in Development Policy (2010; document GN-2531-10).

38 For an explanation and illustration of the concept of mitigation hierarchy, see McKenney, 2012.



Examples of good practices in the management of environmental and social impacts in infrastructure projects

Reventazón Hydroelectric Project, Costa Rica

The Acre Sustainable Development Program, Brazil

Background

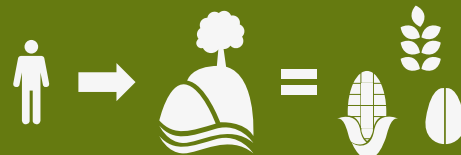
This project is financing the construction of a dam that will be used for the installation of hydroelectric generation capacity. The dam will create a barrier to connectivity in the Volcánica Central-Talamanca Biological Corridor, which links two large protected areas and is considered a critical natural habitat. The dam will also lead to the conversion of natural aquatic habitats on the Reventazón River.

This project packaged social and environmental components (including land use planning) together with infrastructure investments, with the objective of improving quality of life for the population of Acre and preserving the natural wealth of the state.

Good Practices

The Bank provided technical assistance to improve the social and environmental assessment of the project, including the evaluation and management of cumulative impacts. The project will support consolidation and improved management of the biological corridor, and it will establish a biodiversity offset mechanism by ensuring conservation of the Parismina River. The project is an example of how private and public investment can come together to ensure long-term sustainability.

The project regularized land tenure, supported the creation of protected areas, improved the capacity of the state to enforce environmental legislation, and established a clear understanding of the sociocultural context, composed of indigenous groups and local communities that depend on forest products. This project is an example of infrastructure built concurrently with regional investments in support of a planned approach to land use and the creation of capacities for the improved use of infrastructure.





f. The challenge of increasing the contribution of biodiversity and ecosystem services to sustainable development in Latin America and the Caribbean.

The incomparable wealth of biodiversity and ecosystems in Latin America and the Caribbean (the Region has 40% of the biological diversity of the planet) offers innumerable cultural, supply, regulatory, and support services, driving key economic sectors in the Region. From food and shelter, safe drinking water and clean air, the mitigation of flooding and landslides, and disease and pest control, to dazzling landscapes and sacred places, the ecosystem services of the Region are crucial for human life. These services directly support sectors such as agriculture, fishing, forestry, and tourism, which collectively account for 15% of the GDP of the Region, employ 17% of the workforce, and contribute 50% of total exports on average.

Against this backdrop, the IDB has decided to create the Special Program and Multidonor Fund for Biodiversity and Ecosystem Services as an instrument for the sustainable development of the Region. This program, which will be key to improving understanding of the interaction between physical infrastructure and biodiversity, will act in four interrelated areas: (i) integration of the value of biodiversity and ecosystem services in economic sectors of key importance; (ii) protection of priority regional ecosystems; (iii) support for effective environmental governance and policy; and (iv) the creation of opportunities for new sustainable development businesses.

3. Ongoing improvements in infrastructure governance will be key to enhancing efficiency in the delivery of infrastructure services

This Strategy holds that the main factors determining the performance, quality, and sustainability of infrastructure services are governance for decision-making on their management and the legal and regulatory framework governing and supervising them. There is considerable room for improvement in governance in the Region, and this requires simultaneous efforts across a number of areas, from the analysis of general aspects of the political economy for macrosectoral decision-making to specific issues

relating to improvements in the management efficiency of service providers. The areas that the IDB considers to have precedence in the Region in terms of infrastructure governance are presented below.

a. Promote improved sector governance.

Policy decision-making processes in the infrastructure sector need to be analyzed, understood, and incorporated into the design of sector institutions, including the presidency, ministries, the legislative branch, regulatory agencies, service providers, and the participation of community organizations. These institutions, with their capacities, orientations, biases, and restrictions, condition the formulation of investment policies (how much, when, and where to invest), who participates in the provision of a service (public and/or private), the rates to be charged for these services, the level of autonomy and control to be given to operators, and the autonomy and independence of regulatory agencies. This Strategy proposes to deepen the analysis of sector decision-making processes and to identify and support processes of institutional change wherever a window of opportunity is created, be it through a crisis situation, the emergence of strong leaders, or the existence of broad constituencies in support of sector reforms. Each process should be accompanied by measures specific to the context in which reforms are pursued, entailing the need for a flexible and gradual approach, as well as long-term support. The Strategy promotes the creation, gathering, and dissemination of knowledge in this area of special importance for the performance of infrastructure in the Region.

b. Maintain a comprehensive vision of the project cycle, strengthening institutional capacities at all stages.

The success of an infrastructure project depends on the capacity and effectiveness of the institutions involved in each of its stages. The provision of infrastructure and associated services should be seen as a process in which public institutions perform multiple tasks so that project objectives can be achieved. The strong positive correlation between adequate institutional capacity and the achievement of results identified in the project planning stage has been widely documented.³⁹

The project cycle begins, ideally, with the formulation of projects that address the policy objectives of each sector (see Graph 11). The selected portfolio of projects is subjected, also

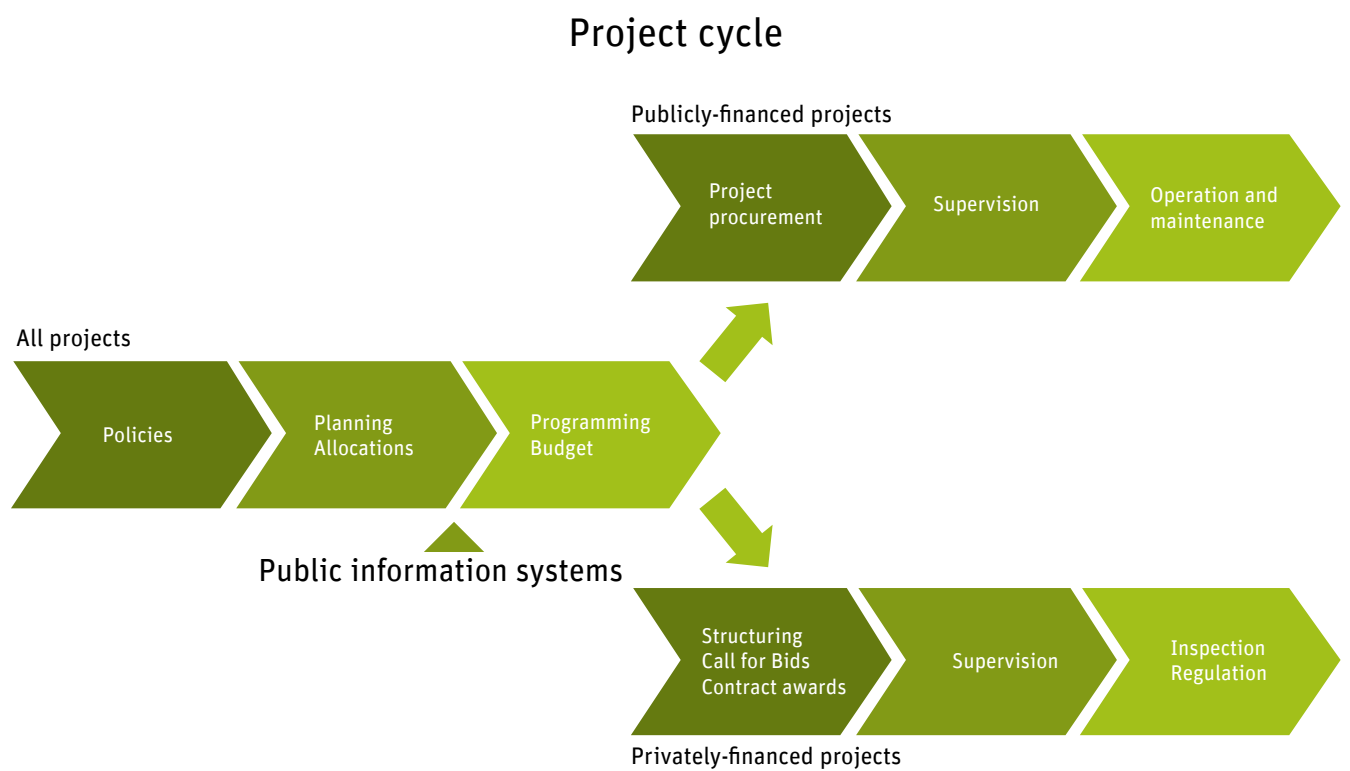
ideally, to a review process based on a cost-benefit analysis incorporating environmental and social considerations. The review, conducted by a public investment agency, determines the relative priority of projects. Thereafter, financing sources for projects are identified, depending largely on the nature of the infrastructure services to be provided.

The IDB has identified the need for improvements throughout the entire infrastructure project cycle. One of the issues common to every single stage is the scarcity of adequately trained human resources with sufficient budgetary resources to effectively perform their responsibilities. This is particularly the case in relation to pre-investment studies (feasibility and design), works supervision, and the lack of available data for adequate project design and supervision. Various international studies highlight the integrity risk inherent in infrastructure projects (Transparency International, 2012; OECD, 2008). For that reason, it is essential to strengthen the institutional capacity of the stakeholders involved to detect indicators of fraud and corruption at all stages of the project cycle. At the planning stage, coordination among the different government areas and jurisdictions is usually weak. Projects are often selected without regard to technical criteria of economic, financial, and environmental viability. In many cases also, political actors involved in decisions regarding investment projects are not guided by technical criteria and have a short-term perspective, which places the sustainability of infrastructure works at risk. A serious weakness at the planning stage is the practice of ignoring the impact of projects on the fiscal accounts, despite knowing that infrastructure investments normally involve fiscal commitments of an explicit (operation and maintenance) and implicit (contingent liabilities) nature over a prolonged period. In the execution stage, there are weaknesses in procurement and supervision capacities for public works, causing delays in construction times, increasing the integrity risk, and generating high levels of conflict with contractors. Lastly, where concessions or PPPs are used to execute works, significant weaknesses can be seen in supervisory and regulatory bodies.

³⁹ For a detailed analysis of institutions and their development impact, see IDB (2011d).

The IDB has a long history of working together with the countries of the Region to improve public sector performance at each stage of the project cycle. However, in analyzing requests for support and in order to enhance efficiency in the execution of infrastructure projects, priority will be given to assistance for improvements in pre-investment capacity. The availability of a well-formulated project portfolio, with technical designs and reliable economic, financial, and environmental evaluations, is the key determining factor in selecting and executing, as planned and on schedule, and mitigating the risks of higher costs in infrastructure projects in the region.

Figure 11



Source: Authors' calculations based on Andean Development Corporation (2011).



c. Develop private sector capacities in infrastructure.

The marked infrastructure investment cycles in Latin America and the Caribbean have become a significant constraint on the development of a regional entrepreneurial fabric capable of delivering services related to the construction and operation of infrastructure. Even developed countries increasingly recognize the need to generate a sufficient, predictable portfolio of infrastructure projects to stimulate the creation and continuity in the market of efficient local infrastructure enterprises (Infrastructure UK, 2010). Other development agencies with a presence in Latin America and the Caribbean, particularly CAF (IDEAL, 2011), have also recognized that Latin America and the Caribbean face the challenge of creating incentives for the development of enterprises throughout the entire infrastructure service delivery value chain. It should be noted that incentives must be provided in an environment that fosters competition in order to favor the development of economically viable enterprises rather than those driven by public revenues. The agenda for business development should include corporate strengthening components on environmental and social aspects, so that business practices enable the reconciliation of infrastructure development with environmental conservation.

d. Promote technological innovation to foster efficiency, access, and environmental sustainability.

Technological advances make it increasingly possible to design targeted solutions to meet the demand for infrastructure services. Photovoltaic power generation, microhydroelectric generators, and waste separation plants for recycling are examples for which technology fulfills the dual role of increasing the supply of services while contributing to environmental sustainability through the development of a lower-emissions offering. The adoption of the latest technologies can also help reduce service delivery costs; for example, through technical and nontechnical loss detection in water and power distribution. Moreover, technological innovations such as smart meters have the potential to reduce utilities consumption during periods of high demand. This Strategy highlights the role of technology for increasing access with cost-effective solutions and managing consumption, while avoiding onerous investments in increased capacity. The Strategy recognizes that the Bank will help disseminate information on the adoption, financing, and management systems for the most appropriate technology solutions in each particular combination of infrastructure service and demand.



e. Optimize the management of infrastructure.

An increase in the supply of infrastructure is not always the most efficient solution for responding to an increase in demand. A common issue is the misdiagnosis of a problem that leads to the construction of additional infrastructure, when the improved use and management of existing assets could enhance the supply and quality of services without the need of onerous investments. At the extreme, the construction of new infrastructure that is not economically justifiable can threaten the fiscal sustainability of a country and even lead to a deterioration in existing infrastructure owing to a lack of sufficient funding for proper maintenance. The most important areas in which action needs to be taken to improve management are as follows:

i. **Provide incentives for efficient management of companies.** The cost of investments to reduce transmission and distribution losses for electricity and water, which in the case of many companies in the Region exceed 40%, is equal to just 3% of the cost of adding the same amount of new capacity. In addition, results can also be achieved in a far shorter time period (McKinsey, 2013). The IDB has pursued an intense work agenda in this area, focusing on the efficiency of public enterprises. Support has been provided through loans that finance the development of governance systems that include comprehensive audits, a risk management system, performance-based contracts, performance monitoring and evaluation systems, and reporting and accountability mechanisms, all aimed at improving company management and supervision by various stakeholders, including the state.

ii. **Develop and implement stable asset-maintenance policies.** Infrastructure investment in Latin America and the Caribbean has been subjected to marked cycles, and this has impacted the quality of services. Of note are the bias towards new construction, fluctuations in the level of funding for infrastructure, and, in particular, an absence of policies that consider infrastructure to be an asset and accordingly allocate sufficient resources for its maintenance. The IDB will continue to pursue sector dialogue so countries adopt a vision of the infrastructure asset life cycle. It will also continue its practice of issuing loans that are disbursed as targets for asset maintenance are reached.

iii. **Promote efficient use of infrastructure.** Improvement in management⁴⁰ (or supply) is not the only means of using infrastructure in the most efficient way possible. Demand optimization mechanisms can potentially modify patterns of use, increasing the availability of infrastructure services. Policies that set standards (energy-efficient lighting and appliances, minimum number of passengers per vehicle) or create price incentives (congestion fees, peak/off-peak rates, taxation of parking spaces in city centers) can be effective, although their design is key to achieving the desired objectives. In turn, advances in technology can also help optimize consumption, for example, through smart meters or electronic tolls. Similar effects on consumption are beginning to be achieved through awareness campaigns that inform society of the costs associated with overconsumption. The more efficient use of infrastructure through price mechanism, technology, or awareness campaigns saves costs because it sidesteps the investment in additional capacity associated with overconsumption. It also contributes to environmental sustainability by creating incentives for conservation, thus reducing emissions and adverse impacts on ecosystems. When establishing price incentives and adjusting rates, special consideration should be given to the distributive impact on users. Along these lines, there is a need for more analytical work in Latin America and the Caribbean to help improve the design of reduced rates for low-income customers.

f. **Promote greater transparency and accountability with respect to user demands.**

Infrastructure construction and management processes in Latin America and the Caribbean do not usually fully incorporate user demands. Progress has been made with consultation processes to mitigate the social impacts associated with infrastructure (expropriations and the restitution of conditions for carrying out professional or commercial activities, for example), but there have been few advances with respect to the incorporation of user feedback to set quality standards, which are generally established on the basis of engineering standards alone.

Greater transparency is needed in the management of public and private information in the infrastructure sectors. The Strategy will promote targeted transparency, understood as the adoption of systems that enable the determination of information needs, the way in which information should be made available, and the best channels for its distribution. This has the aim of (i) contributing to the management of companies and public institutions in the Region, allowing for a social audit to mitigate integrity risk in infrastructure projects; (ii) seeking out better information transparency practices for private companies, such as disclosure of their economic and financial results, and (iii) enabling greater accountability by public institutions regarding the regulation of public services and the way user rights are protected. The Strategy proposes that the IDB continue working to promote the adoption by various stakeholders of good practices and international standards on transparency, such as those proposed by the Extractive Industries Transparency Initiative (EITI) and the Construction Sector Transparency Initiative (CoST).

40 Guidelines prepared by the IDB to improve the energy efficiency of water and sanitation service providers are a good example of improvements in management. See <http://www.iadb.org/es/temas/agua-y-saneamiento/eficiencia-energetica-en-operadores,4492.html>.



A photograph of a banana ripening room. In the foreground, a person's hand in a white shirt is weighing produce in a metal bowl. In the background, bunches of green bananas hang from the ceiling. A large circular blue overlay is centered on the image, containing the text "RESULTS FRAMEWORK". A thermometer is visible in the upper left, showing a temperature of approximately 28 degrees Celsius.

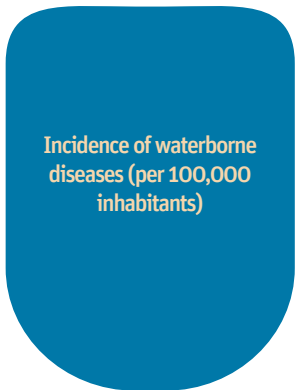

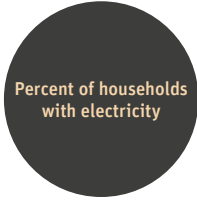

RESULTS FRAMEWORK



In the context of the GCI-9, regional development goals along with the Bank's contributions to reaching these goals in the 2012-2015 period have been identified (see Tables 2 and 3 in Annex I of document AB-2764). For the preparation of the results framework, the indicators established in document AB-2764 were used, and additional indicators that reflect the priorities established in this Strategy were added. Those indicators corresponding to document AB-2764 as well as the additional indicators are presented in detail in Table 1 and Table 2.

Table 1

Indicators from the Corporate Results Framework⁴¹ supported by IDB interventions

Development goals included in the Corporate Results Framework		Expected contribution of IDB projects to the development goals, 2012 – 2015	
Goal	Baseline	Indicator	Expected result
 <p>Incidence of waterborne diseases (per 100,000 inhabitants)</p>	 <p>19 (2002)</p>	Households with new or upgraded water supply	825,000 (baseline: 381,639, 2012)
		Households with new or upgraded sanitary connections	1,244,000 (baseline: 156,000, 2012)
		Households with wastewater treatment	1,245,000 (baseline not available)
		Households with wastewater treatment	120,000 (baseline not available)
Paved road coverage (km/km ²)	0,038 (2006)	Kilometers of inter-urban roads built or maintained/upgraded	12,000 (baseline: 9,560, 2012)
 <p>Percent of households with electricity</p>	 <p>93 (2007)</p>	Kilometers of electricity transmission and distribution lines installed or upgraded	10,000 (baseline: 2,138, 2012)
		Power generation capacity from low-carbon sources	93% (baseline: 71%, 2012)
CO2 emissions (kg) per US\$1 of GDP	0.29 (2006)	Population with access to low-carbon transportation systems	8,500,000 (baseline: 1,600,000, 2012)
Trade openness (trade as a percent of GDP)	84.9 (2007)	Support for national, cross-border, and transnational projects ⁴²	22 (baseline: 17, 2011)
Intraregional trade in Latin America and the Caribbean as a percent of total merchandise trade	24.2% of exports and 33.1% of imports (2007)	Support for cross-border and transnational projects	22 (baseline: 17, 2011)

⁴¹ The expected results in Table 1 correspond to those presented in document AB-2764 unless they have been updated in the Corporate Results Framework 2012-2015, Interim Update Proposal.

⁴² Sovereign and non-sovereign guaranteed operations classified under the GCI-9 priority of financing for regional and global integration are national and regional operations that contribute to the greater integration of Latin American and Caribbean countries into the regional and/or global economy.

Table 2

Contribution of IDB projects to indicators other than those included in the Corporate Results Framework

Priority area of the strategy	Indicator	Baseline (2012)	Expected result (cumulative 2013-2015)
Access	Number of households with potential access to fiber (FTTH) ⁴³	4,200,000	6,500,000 (2018)
Access	Number of projects approved that increase access in rural areas (roads, water and sanitation, and electricity)	2	7
Competitiveness	Measurement of logistics performance (scorecard). Number of countries	Methodology in preparation	8
Competitiveness	Number of national logistics plans supported by the IDB	3	6
Quality and cost-efficiency	Number of projects approved aimed at reducing losses in the water and energy sectors	6	20
Climate change adaptation and mitigation	Number of projects approved that support the preparation of Nationally Appropriate Mitigation Actions (NAMAs) ⁴⁴	2	7
Foster private sector participation in infrastructure	Number of project with PPP components	4	15
Multisector synergies in urban infrastructure	Number of pilot plans undertaken by the Emerging and Sustainable Cities Initiative	10	20
Multisector synergies between infrastructure sectors	Number of projects approved that are considered multisector projects incorporating synergies between different infrastructure sectors ⁴⁵	7	25
Incorporation of gender in infrastructure	Number of infrastructure projects approved annually that include gender-related indicators in their results matrix ⁴⁶	6	22

43 This indicator was taken from the "Proposal for the Creation of a Special Program and a Multidonor Fund for Broadband Services - L@C Digital," IDB (2013). Note that the indicator provided in that document corresponds to the number of households with access in 2018. FTTH (Fiber-to-the-home): optical fiber extending to the household or office, even if the user is not connected.

44 NAMA is the acronym for "Nationally Appropriate Mitigation Action."

45 This indicator corresponds to the projects considered under the IDB's double booking protocol.

46 This indicator is aligned with the Gender Action Plan, 2011-2013, IDB (March 2013).

Bibliography

Agénor, P. R. (2013). "Public Capital, Growth and Welfare. Analytical Foundations for Public Policy." Princeton University Press.

Andean Development Corporation (CAF) (2011). "La Infraestructura en el Desarrollo Integral de América Latina. Diagnóstico estratégico y propuestas para una agenda prioritaria IDEAL 2011." Bogota, Colombia. October.

----- (2012). "La Infraestructura en el Desarrollo Integral de América Latina IDEAL 2012." Bogota, Colombia. October.

Andrés, L., Guasch, J. L., & López Azumendi, S. (2008). "Regulatory Governance and Sector Performance: Methodology and Evaluation for Electricity Distribution in Latin America." Policy Research Working Paper No. 4494. Washington, D.C.: World Bank.

Andrés, L., Schwartz, J., & Guasch, J. L. (2013). "Uncovering the Drivers of Utility Performance. Lessons from Latin America and the Caribbean on the Role of the Private Sector, Regulation and Governance in the Power, Water and Telecommunication Sectors." *Directions in Development. Infrastructure*. Washington, D.C.: World Bank.

Asian Development Bank and OECD (2008). "Supporting the fight against corruption in Asia and the Pacific," Asian Development Bank / OECD Anti-Corruption Initiative, 2008 Annual Report.

Bhattacharya, A., Romani, M., & Stern, N. (2012). "Infrastructure for development: Meeting the challenge." Intergovernmental Group of Twenty-Four (G24), The Centre for Climate Change Economics and Policy (CCCEP) and The Grantham Research Institute on Climate Change and the Environment.

Bueno, R. (2011). "The Caribbean and Climate Change: The Costs of Inaction." Stockholm Environment Institute. PowerPoint presentation. Available at www.sei-us.org/climate-and-energy/climate-economics.html.

Calderón, C., & Servén, L. (2003). "The Output Cost of Latin America's Infrastructure Gap." In: W. Easterly and L. Servén (eds.), *The Limits of Stabilization: Infrastructure, Public Deficits and Growth in Latin America*, pp. 95-118. Stanford, CA: Stanford University Press.

----- (2004a). "Trends in Infrastructure in Latin America." Policy Research Working Paper No. 3400. Washington, D.C.: World Bank.

----- (2004b). "The Effects of Infrastructure Development on Growth and Income Distribution." Policy Research Working Paper No. 4301. Washington, D.C.: World Bank.

----- (2008). "Infrastructure and Economic Development in Sub Saharan Africa." Policy Research Working Paper No. 4712. Washington, D.C.: World Bank.

----- (2010). "Infrastructure in Latin America." Policy Research Working Paper No. 5317. Washington, D.C.: World Bank.

Cavallo, E., & Daude, Ch. (2011). "Public Investment in Developing Countries: a Blessing or a Curse?" *Journal of Comparative Economics*, Elsevier, vol. 39(1), pp. 65-81, March.

Chong, A., & Calderón, C. (2004). "Volume and Quality of Infrastructure and the Distribution of Income: An Empirical Investigation." *Review of Income and Wealth*, 50:87-105.

Economic Commission for Latin America and the Caribbean (2010). "Aportes para un diagnóstico sobre las restricciones al desarrollo y a una integración económica más profunda." Santiago de Chile: Economic Commission for Latin America and the Caribbean.

EM-DAT (Centre for Research on the Epidemiology of Disasters), n.d. Data on natural disasters in Latin America and the Caribbean. Lovaine-La-Neuve, Belgium: Lovaina University.

Escobal, J. (2005). "The Role of Public Infrastructure in Market Development in Rural Peru." PhD Thesis, Wageningen University.

Escobal, J., & Ponce, C. (2002). "The Benefits of Rural Roads: Enhancing Income Opportunities for the Rural Poor." Working Paper, Group for the Analysis of Development (GRADE), No. 40. Lima: GRADE.

- Esfahani, H. S., & Ramírez, M. T. (2003). "Institutions, infrastructure, and economic growth." *Journal of Development Economics* 70, pp. 443– 477.
- Estache, A., & Serebrisky, T. (2006). "Transport Infrastructure Deregulation and Public-Private Partnerships." Transportation Research Centre, Round Table 129, European Conference of Ministers of Transport.
- Estache, A. (2010). "Infrastructure Finance in Developing Countries: An Overview." *European Investment Bank Papers*, Vol. 15.
- Estache, A. (2010). "A Survey of impact evaluation of infrastructure projects, programs and policies". ECARES Working papers 2010-005.
- Estache, A., & Garsous, G. (2012). "The Scope for an Impact of Infrastructure Investments on Jobs in Developing Countries." International Finance Corporation Economics Notes, Note 4 (April). Washington, D.C.: International Finance Corporation.
- European Commission (2013). "Green Infrastructure – Enhancing Europe’s Natural Capital." COM (2013) 249. Brussels.
- Fay, M., & Yepes, T. (2003). "Investing in Infrastructure: What is Needed from 2000 to 2010?" Policy Research Working Paper No. 3102. Washington, D.C.: World Bank.
- Foster V., & Yepes, T. (2006). "Is Cost Recovery a Feasible Objective for Water and Electricity? The Latin American Experience." *Policy Research Working Paper* No. 3943. Washington, D.C.: World Bank.
- Foster, W., Valdes, A., Davis, B., & Anríquez, G. (2011). "The Constraints to Escaping Rural Poverty: An Analysis of the Complementarities of Assets in Developing Countries." *Applied Economic Perspectives and Policy*, Vol. 33, No. 4.
- Gischler, Ch., Janson, N., & Valencia, A. (2013). "Challenges and Opportunities for the Energy Sector in the Eastern Caribbean: Achieving an Unrealized Potential." IDB Monograph. Washington, D.C.
- Godschalk, D. R., Rose, A., Mittler, E., Porter, K., & Taylor West, C. (2009). Estimating the Value of Foresight: Aggregate Analysis of Natural Hazard Mitigation Benefits and Costs." *Environmental Planning and Management* 52:6, 739-756, September.
- Global Resource Information Database (GRID) - Arendal, United Nations Environment Programme (2011). "CO2 Emissions Per Person in Latin America and the Caribbean Compared to World and OECD Average Emissions." New York: GRID-Arendal, United Nations Environment Programme.
- Grogan, L. , & Sadanand, A. (2012). "Rural Electrification in Poor Countries: Evidence from Nicaragua." (forthcoming)
- Guasch, J. L. (2004). "Granting and Renegotiating Infrastructure Concessions. Doing it right." Washington, D.C.: World Bank.
- High Level Panel (2011). High Level Panel on Infrastructure Recommendations to G-20, Final Report. Cannes: High Level Panel.
- Infrastructure UK (2010). "Strategy for National Infrastructure." London: Infrastructure UK. Crown Copyright 2010.
- Inter-American Development Bank (2006). Environment and Safeguards Compliance Policy (document GN-2208-18). Washington, D.C.: Inter-American Development Bank.
- (2010a). *The era of productivity: Transforming economies from the bottom up*. Washington, D.C.: Inter-American Development Bank.
- (2010b). *Development Effectiveness Overview*. Washington, D.C.: Inter-American Development Bank.
- (2011a). *Sector Strategy to Support Competitive Global and Regional Integration*. Washington, D.C.: Inter-American Development Bank.
- (2011b). *Development Effectiveness Overview*. Washington, D.C.: Inter-American Development Bank.
- (2011c). *Private Sector Development Strategy: Fostering Development through the Private Sector* (document GN-2568). Washington, D.C.: Inter-American Development Bank.

----- (2011d). Sector Strategy: Institutions for Growth and Social Welfare (document GN 2587). Washington, D.C.: Inter-American Development Bank.

----- (2011e). Integrated Strategy for Climate Change Adaptation and Mitigation, and Sustainable and Renewable Energy. Washington, D.C.: Inter-American Development Bank.

----- (2013). "Rethinking Reforms: How Latin America and the Caribbean Can Escape Suppressed World Growth." *Latin American and Caribbean Macroeconomic Report*. Washington, D.C.: Inter-American Development Bank.

Inter-American Development Bank - Economic Commission for Latin America and the Caribbean (2000). "*A Matter of Development: How to Reduce Vulnerability in the Face of Natural Disasters*" (Mexico City: Economic Commission for Latin America and the Caribbean).

Intergovernmental Panel on Climate Change (2012) - Field, C. B., Barros, V., Stocker, T. F., Qin, D., Dokken, D. J., Ebi, K. L., Mastrandrea, M. D., Mach, K. J., Plattner, G.-K., Allen, S. K., Tignor, M., & Midgley, P. M. (Eds.). Available from Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 8RU ENGLAND, 582 pp.

Jaramillo, M., & Alcázar, L. (2013). "Does Participatory Budgeting have an Effect on the Quality of Public Services? The Case of Peru's Water and Sanitation Services." Working Paper No. 386. Washington, D.C.: Inter-American Development Bank.

Kohli, H. A., & Basil, P. (2010). "Requirements for Infrastructure Investment in Latin America under Alternate Growth Scenarios: 2011–2040." *Global Journal of Emerging Market Economies*, 3(1), 59-110.

Latin American Energy Organization (OLADE) (2011). Manual de Estadísticas Energéticas Año 2011.

Lewsey, C., Cid, G., & Kruse, E. (2004). "Assessing climate change impacts on coastal infrastructure in the Eastern Caribbean." *Marine Policy*, 28, 393-409.

Lin, J. Y., & Doemeland, D. (2012). "Beyond Keynesianism, Global Infrastructure Investments in Times of Crisis." *Policy Research Working Paper* No. 5940. Washington, D.C.: World Bank.

López, H. (2004). "Macroeconomics and Inequality." World Bank research workshop: Macroeconomic Challenges in Low Income Countries (October).

Ludena, C.E. (2010). "Agricultural Productivity Growth, Efficiency Change and Technical Progress in Latin America and the Caribbean." Working Paper No. IDB-WP-186. Washington, D.C.: Inter-American Development Bank.

Mayorga Mora, N. (2013). "Experiencias de parques lineales en Brasil: espacios multifuncionales con potencial para brindar alternativas a problemas de drenaje y aguas urbanas." Forthcoming, Washington D.C.: Inter-American Development Bank.

McKenney, B. (2012). "Smart Infrastructure and "Net Impact" for Nature: Taking a Closer Look" Latin America Conservation Council.

McKinsey Global Institute (2011). "Building globally competitive cities: The key to Latin American growth."

McKinsey Global Institute (2013). "Infrastructure productivity: How to save \$1 trillion a year." McKinsey Infrastructure Practice, January.

McKinsey Global Institute (2013). "China's rising stature in global finance." McKinsey Quarterly, July.

Mechler, R. (2005). "Cost-benefit Analysis of Natural Disaster Risk Management in Developing Countries." Working paper, GTZ.

Mesquita Moreira, M., Blyde, J., Volpe, C. and Molina, D. (2012). "Too Far to Export? Domestic Transport Costs and Regional Export Disparities in LAC." VPS/INT Flagship Report. Washington, D.C.: Inter-American Development Bank.

Michel-Kerjan, E., Hochrainer-Stigler, S., Kunreuther, H., Linnerooth-Bayer, J., Mechler, R., Muir-Wood, R., & Young, M. (2012). Catastrophe Risk Models for Evaluating Disaster Risk Reduction Investments in Developing Countries. Risk Analysis.

Moench, M., Mechler, R., & Stapleton, S. (2007). Guidance note on the costs and benefits of disaster risk reduction. *Paper for ISDR High level Platform on Disaster Risk Reduction*.

Narayan, D. (1995). "The Contribution of People's Participation: Evidence from 121 Rural Water Supply Projects." Washington, D.C.: World Bank.

Office of the Mayor of Bogotá and the Administrative Department of Statistics (2005). Bogotá Urban Mobility Survey, 2005. Bogotá: Office of the Mayor of Bogotá and the Administrative Department of Statistics.

Organization for Economic Cooperation and Development (2006). "OECD Territorial Reviews: Competitive Cities in the Global Economy." Paris: Organization for Economic Cooperation and Development.

Organization for Economic Cooperation and Development and European Conference of Ministers of Transport (2004). "Transport Services: The Limits of (De)Regulation." Report to the 129th Round Table on Transport Economics. Paris: Organization for Economic Cooperation and Development and European Conference of Ministers of Transport.

Perroni, A., Ducci, J., Soulier Faure, M., & Altamira, M. (2013). "Agua Potable, Saneamiento y los Objetivos de Desarrollo del Milenio en América Latina y el Caribe." Forthcoming, Washington D.C.: Inter-American Development Bank.

Rouis, M. (2010). "Arab Development Assistance: Four Decades of Cooperation." MENA Knowledge and Learning Quick Notes Series No. 28 (August).

Serebrisky, T. (2012). "Airport Economics in Latin America and the Caribbean, Benchmarking, Regulation, and Pricing." Directions for Development. Washington D.C.: World Bank.

United Nations Human Settlements Programme (2012). *State of Latin American and Caribbean Cities 2012*. Nairobi: United Nations. Available at www.unhabitat.org/pmss/listItemDetails.aspx?publicationID=3380.

United Nations Office for Disaster Risk Reduction (UNISDR) (2011). "Global assessment report on disaster risk reduction."

United Nations, Sustainable Development Solutions Networks: A Global Initiative for the United Nations (2013). "An Action Agenda for Sustainable Development. Report for the UN Secretary-General." June. New York.

Vergara, W., Ríos, A. R., Galindo, L. M., Gutman, P., Isbell, P., Suding, P., Grunwaldt, A., Deeb, A., Samaniego, J., Alatorre, C., & Panuncio, M. (2012). "The Climate and Development Challenge for Latin America and the Caribbean: Options for Climate-Resilient, Low-Carbon Development." Washington, D.C.: Inter-American Development Bank.

Webb, R. (2013). "Conexión y despegue rural." Universidad San Martín de Porres. Peru.

World Bank (2000). *Peru Rural Roads Project Impact Survey*. Washington, D.C.: World Bank.

----- (2003). "*World Development Report 2003: Sustainable Development in a Dynamic World*" Washington, D.C.: World Bank.

----- (2012a). "Inclusive Green Growth. The Path to Sustainable Development." Washington, D.C.: World Bank.

----- (2012b). *Enterprise Survey*. Washington, D.C.: World Bank.

----- (2012c). *Economic Mobility and the Rise of the Latin American Middle Class*. Washington, D.C.: World Bank.

----- (2012d). *Transformation Through Infrastructure: Infrastructure Strategy Update FY2012-2015*. Washington, D.C.: World Bank.

World Health Organization and United Nations Children's Fund (2012). *Joint Monitoring Program Data and Estimates, 2012*. Geneva: World Health Organization and United Nations Children's Fund. <http://www.wssinfo.org/data-estimates/table/>.

World Health Organization, Data and Statistics (2008). <http://apps.who.int/gho/data/?vid=10012>.

Yepez-García, R., Johnson, T. M., & Andrés, L. (2010). "Meeting the Electricity Supply/Demand Balance in Latin America and the Caribbean." Washington D.C.: World Bank.