



BULLETIN

FAL

FACILITATION OF TRANSPORT AND TRADE IN LATIN AMERICA AND THE CARIBBEAN

Governance of infrastructure for sustainable development in Latin America and the Caribbean: an initial premise

Background

During its "Governance Week on Natural Resources and Infrastructure" (7-11 November, 2016), ECLAC launched a dialogue aimed at constructing a common vision for a new approach to infrastructure governance in order to support the Sustainable Development Goals and to make a sectoral contribution to the Forum of Latin American and Caribbean Countries on Sustainable Development, established as the regional mechanism for implementing and monitoring Agenda 2030.

In this context, this *FAL Bulletin* puts forward some of the basic elements relating to infrastructure governance in order to achieve a vision of infrastructure services geared to sustainable development and to identify the agents of change for its implementation in the region. In line with this objective, the paper contains four sections. The first provides a brief introduction to the issue of infrastructure conducive to sustainable development. The second offers a brief diagnosis of the current state of infrastructure services. The third section contains a proposal concerning the changes needed in public infrastructure policies, as well as the manner in which the State articulates its activities with the private sector and civil society, developing the theme of sector governance. The last two sections propose a roadmap for ECLAC in working with its member States on the transition to a new model of governance for infrastructure services in favour of development based on equality and sustainability and the 2030 Development Agenda.

I. Infrastructure in support of development based on equality and sustainability

In its most recent institutional document, "Horizons 2030: Equality at the centre of sustainable development", ECLAC, in line with Agenda 2030 and the Sustainable Development Goals, highlights the need to promote progressive

This *FAL Bulletin* presents an initial approach to the topic of infrastructure governance, which was the main theme of discussions during the Governance Week on Natural Resources and Infrastructure organized by ECLAC in Santiago, from 7 to 11 November, 2016.

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The opinions expressed in this document are the exclusive responsibility of the authors and do not necessarily represent those of the Organization.



Background



I. Infrastructure in support of development based on equality and sustainability



II. Infrastructure development in Latin America and the Caribbean: a traditional challenge of regional dimensions



III. Improving infrastructure in Latin America and the Caribbean: another governance issue for the region



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structural change that will enhance the incorporation of knowledge into production, guarantee social inclusion, and combat the negative effects of climate change. This is a process that involves institutional changes and the coordination of various policies for moving towards sustainability and equality in the region.

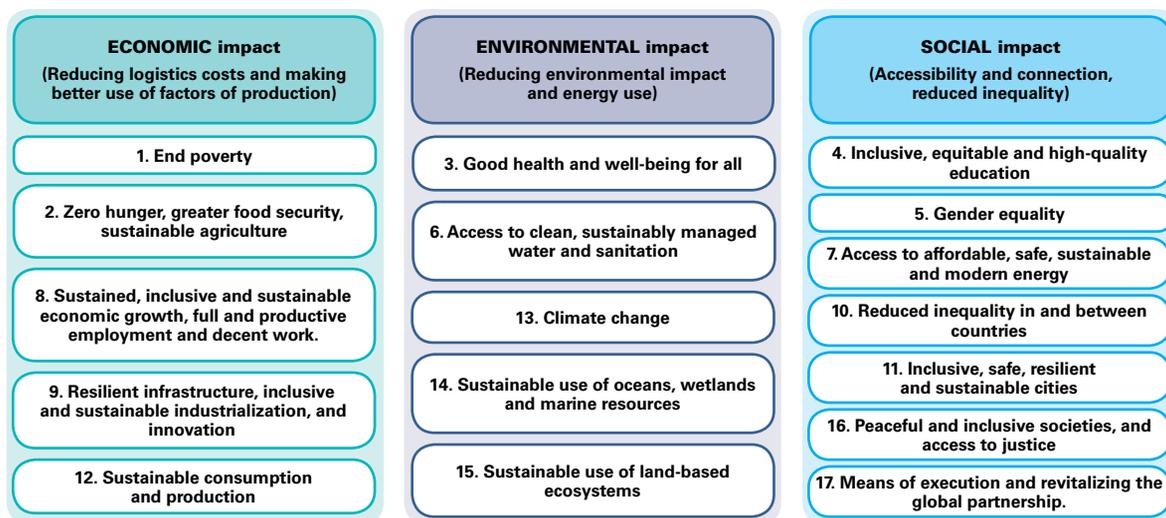
The transformation of infrastructure services¹ represents a condition sine qua non for the progressive structural change proposed by ECLAC. The insufficient, inefficient and unsustainable provision of these infrastructure services represents one of the factors behind the structural imbalances that characterize the region, such as an undiversified productive structure, lagging efforts and performance in terms of innovation, high concentrations of income and wealth, and vulnerability to climate change (ECLAC, 2016a).

The ways in which infrastructure availability and functions affect sustainable development are recognized in the 2030 Sustainable Development Agenda, and in particular in Sustainable Development Goal (SDG) 9, referring to the development of high-quality, reliable, sustainable and resilient infrastructure. SDGs 6, 7 and 11, for their part,

make explicit reference to infrastructure, highlighting the need to “ensure access to water and sanitation for all”, to “ensure access to affordable, reliable, sustainable and modern energy for all” and to “make cities inclusive, safe, resilient and sustainable”. By the same token, global action programmes for the most vulnerable developing countries, such as the Vienna Programme of Action for Landlocked Developing Countries for the Decade 2014-2024, identify transportation, energy infrastructure and information and communication technologies as among the priorities for achieving sustainable and inclusive growth in landlocked developing countries, due to their impact on trading costs, competitiveness and integration into the world market, and on productive capacity.

Thanks to its economic, social and environmental impacts, infrastructure and the use of its services has a cross-cutting impact on the Sustainable Development Agenda (see diagram 1). At the same time, as discussed briefly in the following paragraphs, in no dimension of sustainable development can the positive impact of infrastructure be achieved automatically, or guaranteed solely by an increase in the quantity of infrastructure, much less by following the rule of “business as usual”.

Diagram 1
Cross-cutting impact of infrastructure services in 2030 Agenda



Source: Adapted from Jaimurzina, Prez Salas and Sanchez, 2016.

When it comes to economic growth, infrastructure has a key role to play: it articulates the territory, it supports human settlement, and it lays the foundations on which the other factors of production interact. The network services of energy, transport, telecommunications and water and

sanitation infrastructure constitute a central element for integration of the economic, social, and territorial system of a country, making possible transactions within a given geographic and economic space. The improvement of infrastructure and its services promotes productivity and, with it, economic development —and the lower its initial endowment the greater will be the impact of any improvement. Similarly, infrastructure reflects and

¹ Infrastructure is defined here as a set of engineering structures and installations, of long useful life, that constitute the basis for delivering the services deemed necessary for productive, geopolitical, social and individual purposes.

conditions the productive structure of a country or a region, and it may work for or, in many cases, against structural change. In Latin America and the Caribbean, a region that has based its development to a large extent on the export of natural resources, much of the economic infrastructure has been designed to facilitate such exports, without much heed to the opportunities for creating productive linkages and boosting value added. Structural change will not be achieved without an improvement and overhaul of transportation, energy, water and telecommunications infrastructure, making it more feasible and more profitable for the region to process its natural resources into intermediate or final goods in the future. Similarly, a greater degree of productive specialization and the development of competitive advantages on regional and global markets will require the integration of physical infrastructure that provides the connectivity and accessibility needed to move goods and services within the required quantity, quality, safety and time benchmarks.

From the social viewpoint, infrastructure can for example enhance access for the poorest people to education and health services, facilitate the supply of drinking water and energy, or protect public health by offering greater defences against natural disasters. Moreover, it can have the indirect effects of boosting agricultural productivity, reducing transportation costs, fostering integration into global markets, and creating jobs. However, the relationship between infrastructure endowment and poverty reduction is not straight-forward. If infrastructure is not specifically designed to pursue objectives of sustainable and inclusive development in an orderly and systematic manner, it may not result in economic and social progress, and may even be regressive. There is a very complex set of variables and factors to be considered for ensuring that infrastructure development will contribute effectively to improving the well-being of the underprivileged.

Lastly, the same reservation applies to the link between infrastructure and environmental protection. Infrastructure has a profound effect on the consumption patterns of its users: the choices as to which infrastructure facilities will be built, and the manner in which they are designed, will have a significant effect on energy consumption as well as emissions levels. For example, according priority to highway construction will favour the use of private automobiles fuelled by hydrocarbons, over the use of public transit systems, implying an enormous future demand for fossil fuels for this type of individual transportation, and hence continued growth in emissions of polluting gases. In this respect, infrastructure development that encourages the use of more environmentally-friendly modes of transport is an element that will smooth the way to an economy with lower

greenhouse gas emissions. Similarly, the expansion of urban drinking water and sewage services, without a concomitant investment in wastewater treatment plants, can cause serious problems of water pollution, with negative impacts on public health and on agricultural exports.

In this regard, it is a matter of great concern that, as shown in the following section, infrastructure development in the Latin American region at this time is failing to maximize support for sustainable development in any of its substantive dimensions. Thus, beyond recognizing the link between infrastructure services and development, it is essential to understand that what the region needs is a greater and better endowment of infrastructure that is specifically designed and adapted to sustainable development purposes. To achieve this transformation, there must be a profound change in the design, financing, implementation and use of infrastructure in the region, and this implies a change in the sector's governance, i.e. in all the processes involved both in taking infrastructure decisions and in implementing those decisions, in which the mechanisms, procedures and rules established formally and informally by institutions all play a role.

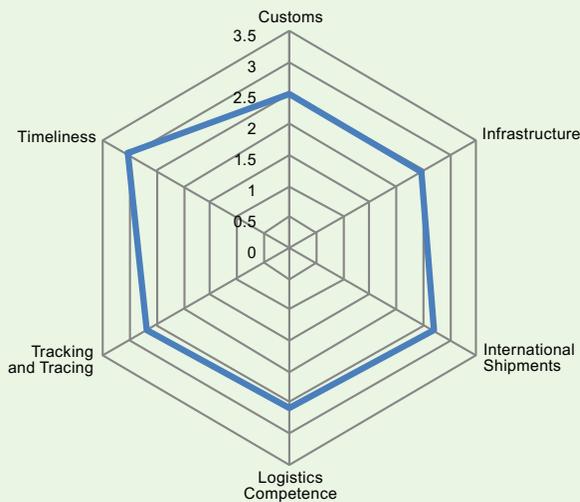
II. Infrastructure development in Latin America and the Caribbean: a traditional challenge of regional dimensions

The Latin American and Caribbean region is known to have inadequate infrastructure, although the situation is not uniform across countries. As noted in one of the recent editions of the ECLAC publication *Economic Survey of Latin America and the Caribbean*, the lag is especially obvious when the region is compared, not only with developed countries, but also with certain developing countries that in the 1980s had the same level of infrastructure endowment as Latin America (ECLAC, 2015). Moreover, applying to infrastructure the criteria of quality, reliability, sustainability and resilience, and not only availability, the current situation of Latin American countries appears even more alarming, highlighting the profound need for significant efforts in terms of investment and other improvements in the sector.

In the transport and logistics sector, the scarcity of infrastructure shows up in various global indicators of logistics performance, such as the World Bank's Logistics Performance Index, which identifies infrastructure as one of the region's weakest points, according to perception surveys of its principal economic partners. See figure 1.



Figure 1
Latin America and the Caribbean: Components of the Logistics Performance Index, 2016

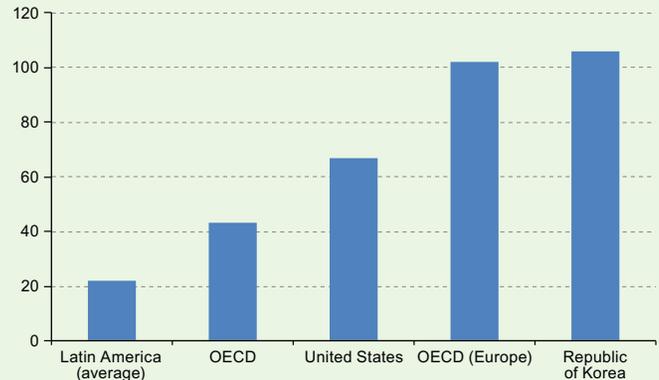


Source: Infrastructure Services Unit of the Economic Commission for Latin America and the Caribbean (ISU/ECLAC), with data from *Connecting to Compete*, World Bank, 2016.

Together with these perception indicators, traditional indicators in the area of transport infrastructure, such as the road density index, demonstrate how the region is lagging behind. For example, with an average of 22 km of road for every 100 km² of land area in 2014 (figure 2), Latin America betrays a very significant gap in comparison with the United States (67 km, the Republic of Korea (106 km) or the average for the European members of OECD (102 km).

In addition, the paved proportion of the region's road network is low, particularly in its secondary and tertiary segments, which represent up to 90% of the total network. According to data compiled by ECLAC on the basis of national sources, in most countries of the region less than 25% of the total network is paved, on average, despite the priority given to road infrastructure in national and regional investment projects.

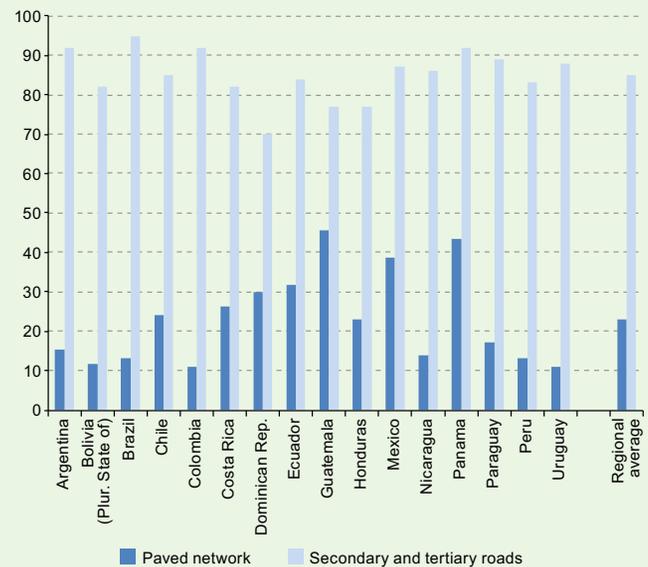
Figure 2
Total road network density, 2014
(Kilometres per 100 km²)



Source: ISU/ECLAC, on the basis of national source data (2012-2014 and Organization for Economic Cooperation and Development (OECD).

Note: the average for Latin America includes Argentina, Bolivia (Plurinational State of), Brazil, Chile, Colombia, Costa Rica, Ecuador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru and Uruguay.

Figure 3
Paved network and secondary and tertiary network as a proportion of the total road network, 2014
(Percentages)



Source: ISU/ECLAC, on the basis of national source data (2012-2014).

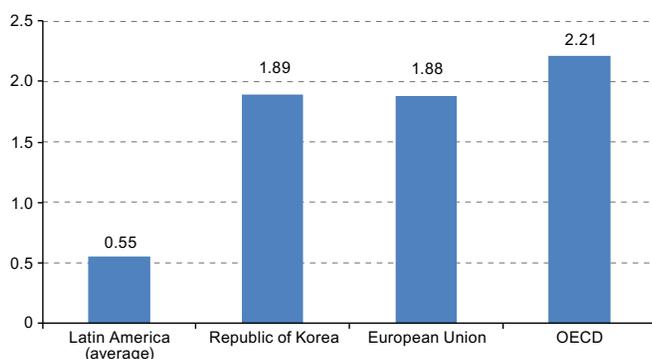
Note: The average covers only the countries included in the graph.

The shortage of transport infrastructure is even more visible in the rail transport subsector. In fact, the best values for rail network density recorded for countries of the region, such as those of Argentina, Brazil or Mexico, are still far from comparable with the rail density of the United States and European countries (ECLAC, 2015). The same pattern prevails with river transport, although Latin America has one of the most important river basin systems in the world (Wilmsmeier, 2013).

Infrastructure shortage can also be seen in other economic infrastructure services.

In the energy sector, according to OLADE data, the region's installed electric generating capacity showed average annual growth of 4.1% between 1980 and 2012, rising over those years from 86 GW to 310 GW. That increase in installed capacity still falls short of the population growth rate and the new demand for energy in countries of the region and, in relative terms, is far below that recorded for European or Asian countries. Moreover, there are segments of the population (generally poor and rural), amounting to some 28 million persons, who still have no access to energy. All countries of the region witnessed an increase in electricity coverage between 1990 and 2010, but only a few (Brazil, Chile, Costa Rica, Mexico, Uruguay and the Bolivarian Republic of Venezuela) have nearly full coverage, while the remainder still face serious challenges. See figure 4.

Figure 4
Installed capacity for producing electric power, 2012 (Megawatts)



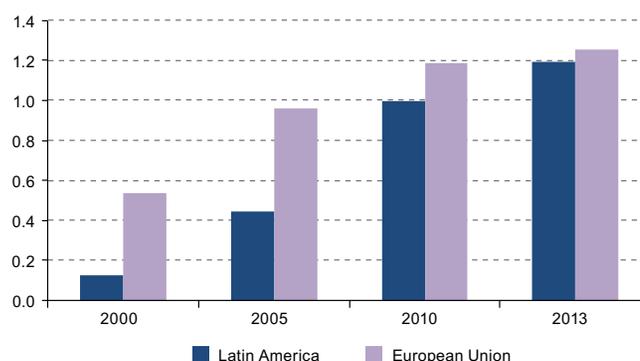
Source: ISU/ECLAC, on the basis of data from the Latin American Energy Organization (OLADE), United States Energy Information Administration, and World Bank.

In environmental terms, the increase in electric power generation capacity noted above has been covered essentially through an expansion of thermoelectric (fuel oil, coal and, more recently, natural gas) and nuclear capacity, which implies that the region continues to depend heavily on fossil fuels (ECLAC, 2015).

When it comes to telecommunications, Internet access, measured by fixed broadband subscriptions per 1,000 inhabitants, was the fastest-growing subsector between 2000 and 2013, with an average annual rate of 56.2% (or 25.2% for 2005-2013, recognizing that mass use of the Internet began to increase only in 2000), reaching 94 subscriptions for every 1,000 inhabitants in 2013. According to ITU data, the rate of growth of this technology in the region exceeded that in the European Union, but there is still a major coverage gap vis-à-vis those countries (294 subscriptions for every 1,000 inhabitants).

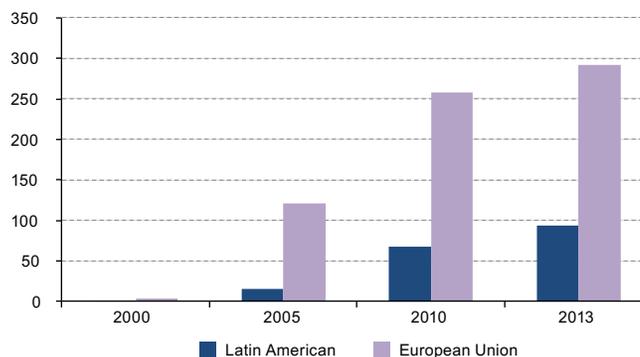
The performance of mobile telephony was similar to that for Internet access, although it expanded somewhat more slowly. Measured by the number of subscriptions per 1,000 inhabitants, mobile telephony rose by 18.9% in the region between 2000 and 2013 (or by 13.1% from 2005 to 2013), and in 2013 it overtook the European Union, with 1,190 subscriptions for every 1,000 inhabitants. See figures 5 and 6.

Figure 5
Mobile telephony subscriptions (Per 1,000 inhabitants)



Source: ISU/ECLAC, on the basis of ITU data.

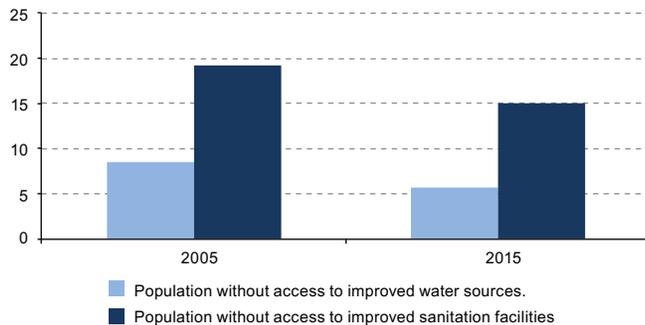
Figure 6
Fixed broadband subscriptions (Per 1,000 inhabitants)



Source: ISU/ECLAC, on the basis of ITU data.

Lastly, with respect to drinking water and sanitation services, despite the region's significant progress over the last decade, it still lags behind in the coverage of improved services: nearly 6% of the total population of Latin America and the Caribbean lacks access to improved water sources, and 15% has no access to improved sanitation facilities (see figure 7). According to data from the WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation, in 2015 there were still 33 million people in the region without access to improved drinking water sources, and 106 million people without access to improved sanitation facilities.

Figure 7
Latin America and the Caribbean: population
without access to improved water
and sanitation sources
 (Percentages)



Source: ISU/ECLAC, on the basis of data from WHO/UNICEF 2016.

Access to these services remains, in many cases, insecure and of poor quality: intermittent water services (available a few hours a day or a few days a week), with no effective quality control over the water delivered to households, sanitation by means of latrines with low levels of access to sanitary sewers, inadequate level (20%-30%) of treatment of wastewater collected in sewage networks, high level (around 40%) of losses (unmetered water), and persistent overstaffing in utility entities. Moreover, there are still concerns over the great and persistent discrepancies in the situation between urban and rural areas: 61% of people without access to improved water sources in the region (21 million people) live in rural areas (WHO/UNICEF, 2015).

In summary, the shortage of economic infrastructure endowment remains one of the main features of the region, affecting directly and indirectly its capacity to maximize the positive impact of infrastructure on the road to sustainable development. Public infrastructure policies have a direct role to play in improving the infrastructure endowment but, as discussed in the following section, until now those policies have not been able to achieve the required progress: a profound change is needed, then, in the way these policies are designed, implemented and assessed.

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III. Improving infrastructure in Latin America and the Caribbean: another governance issue for the region

The ECLAC assessment with respect to the current situation of infrastructure services in the region highlights two major shortcomings in public infrastructure policies that explain, in large part, the persistent shortage and poor quality of infrastructure services. First, the region is not investing enough to satisfy the needs arising from its growth over the medium and longer term. Second, the

shortage of investment is compounded by the scattered and haphazard nature of public actions and approaches to infrastructure and its services, resulting in an inefficient supply of services and a lack of adequate infrastructure.

A. Low levels of investment in infrastructure

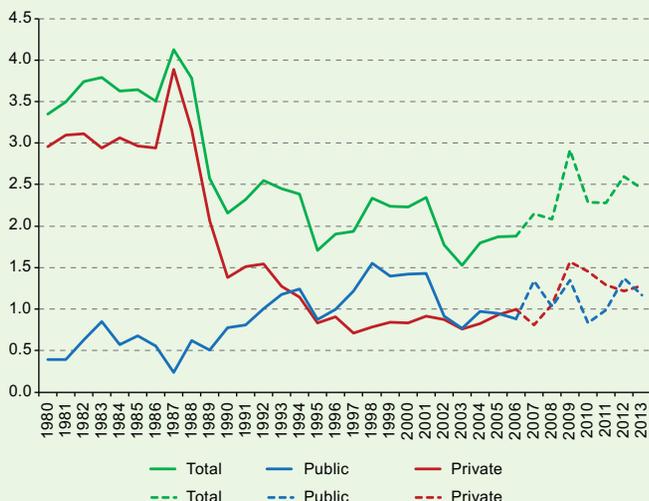
In 2011, an ECLAC study examined the various dimensions of the infrastructure gap in Latin America and the Caribbean, concluding that the region would have to commit to an annual average investment in the order of 6.2% of GDP in order to meet the infrastructure needs of businesses and final consumers during the period 2012-2020. Yet the average investment has been barely one-third of that figure (Perrotti and Sanchez, 2011). Work now under way to update that study suggests that investment needs will remain at nearly the same level for the period 2016-2030, amounting to between 5.4 and 8.6% of GDP, depending on the projected pace of economic growth. It should be noted that this calculation presupposes maintenance of the investment pattern for the period analysed, i.e. continuing with the “business as usual” investment decisions with respect to technological alternatives for transportation and energy, among others. For this reason, the value is bound to change if, as ECLAC proposes, infrastructure investment decisions shift towards a more sustainable and inclusive pattern.

The latest measures of infrastructure investment in Latin America², from the 1990s through 2013, show that such investments have been low (at 2.2% of GDP) in relation to the values recommended by ECLAC, and in comparison with what is being invested in other economies such as China (8.5%), Japan (5%) and India (4.7%).

At the same time, in recent years (2008-2013), on average, eight countries (Colombia, Costa Rica, Honduras, Nicaragua, Panama, Paraguay, Peru, and Plurinational State of Bolivia,) made investments above the regional average (3.6%) observed in the 1980s. During that time, average public investment in six countries (Colombia, Costa Rica, Nicaragua, Panama, Paraguay and Plurinational State of Bolivia,) exceeded the regional average of 3.0% in the 1980s. Over the same period, private investment exceeded the 1990s regional average of 1.2%, again in six countries (Brazil, Chile, Honduras, Nicaragua, Panama and Peru). Meanwhile, in a greater number of countries the rate of private to public participation remains low. Taking the average rate of private to public participation during 2008-2013, countries can be classified into four groups: those where this ratio exceeds 100% (Brazil and Honduras), those where it is between 75% and 100% (Chile, Guatemala and Nicaragua), those where it is between 50% and 75% (El Salvador, Mexico, Panama and Peru), and those where it is 50% or less (Argentina, Plurinational State of Bolivia, Colombia, Costa Rica, Paraguay and Uruguay).

² For a more detailed analysis, see Lardé, 2016.

Figure 8
Latin America: infrastructure investment by sector, 1980-2013
 (Percentages of GDP)



Source: ECLAC, on the basis of ECLAC and INFRALATAM; Calderón, César and Luis Servén (1980-2006); World Bank (2010).

In light of the scope of the existing infrastructure gaps, a review of the investment plans of Latin American countries such as Brazil, Costa Rica, Mexico and Peru shows that this is increasingly a strategic and priority topic for countries. Programmed investments are higher than those executed in previous periods, as are long-term projections (to 2018 in the case of Mexico, to 2021 in Peru, and to 2030 in Brazil). Despite the increased importance of infrastructure in national plans, the amounts remain low in comparison with those considered by ECLAC and other international agencies (Lardé, 2016).

The challenge of infrastructure investment is rising in the region's current context, where the economic cycle is in its least dynamic phase, marked by weaker external demand, a downward trend in natural resource prices, financial market volatility, and slowing domestic demand, with lower levels of investment and consumption (ECLAC, 2016b). Historic trends in the region show that investment contractions in the downward phase of the cycle are more lasting and much more intense than the decline in GDP. According to data for the period 1990-2014, investment contraction averaged 30% more than that of GDP at the regional level. The scale of the investment contraction is on average four times greater than that of GDP. On the other hand, the duration of the expansionary phase of investment is shorter than that for GDP and, on average, its amplitude exceeds that of GDP by only 60% (ECLAC, 2015). More recent studies focusing on the relationship between public savings and total investment in infrastructure have confirmed that the increase in infrastructure investment at times of rising public savings is less than the decline in

economic infrastructure investment when public savings are shrinking (Serebrisky, Tomás and others, 2015).

In this context, it is essential to evaluate all the alternatives and combinations of financing sources and instruments, and to recognize that mobilizing financial resources for infrastructure development has a potentially decisive impact on regional physical integration, which presents advantages in this area, with outcomes greater than those that would be achieved at the domestic level, in particular those linked to reducing the economic infrastructure gap and cutting logistics costs.

The integration of economic infrastructure (transportation, energy and telecommunications) to provide subregional services would represent an alternative, lower-cost solution for reducing the gap, by taking advantage of economies of networking and of scale. This will require specialization and prioritization of infrastructure works intended to provide subregional services, in order to:

- Avoid the multiplicity of infrastructure undertakings that lack regional synergies and to focus investment on "missing links" that are one of the factors underlying the high logistics costs that the region now presents.
- Promote greater connectivity and reduce existing asymmetries between territories, allowing the same level of service in terms of coverage, quality, reliability, sustainability and resilience, with less investment and lower operating costs, thereby freeing up public resources for social spending or for other sectors of the national economy.

Consistent with these considerations, the integration of infrastructure constitutes a key theme for promoting growth and achieving greater levels of development in the region. Moreover, having the region function as an integrated space via an economic infrastructure that provides high-quality services is crucial not only for maintaining and enhancing competitiveness but also for reducing the costs of imported consumer products.

The various processes of regional integration are based on the quest for improvements that will boost economic complementarity, expand local markets, and improve international negotiating leverage, with the objective of gaining greater benefits than those that could be achieved individually (ECLAC, 2011). While economic and trade integration as well as political integration are perhaps the most widespread aspects of integration, the physical integration of infrastructure deserves special regional attention as the basis on which all the rest of integration architecture must rely. This is truly a "silent integration" that is maintained over time and, in general, is more immune to the political vagaries that can capture

political and economic integration (ECLAC, 2011). This makes it possible, in all clarity, to expand the economic vision of integration to cover all the remaining aspects, such as social, cultural and productive integration. The participation of local governments as well as the private sector in these processes means that, once the connection is achieved, the installed works can be used to broaden markets, promote tourism and increase intraregional trade among subregions that formerly engaged in little or no trade among themselves, for lack of high-quality, reliable, sustainable and resilient connectivity.

But together with the challenges of mobilizing financial resources and seizing the potential of regional integration, it is essential to face some of the fundamental shortcomings in infrastructure and logistic policies that prevent the infrastructure investments made by countries of the region from contributing to greater availability and quality of infrastructure.

B. The shortcomings and obsolescence of the region's infrastructure policies

The fundamental flaws in public policies as they relate to the development of infrastructure in Latin America and Caribbean countries merit the same level of concern as the failure to mobilize financial resources for infrastructure development.

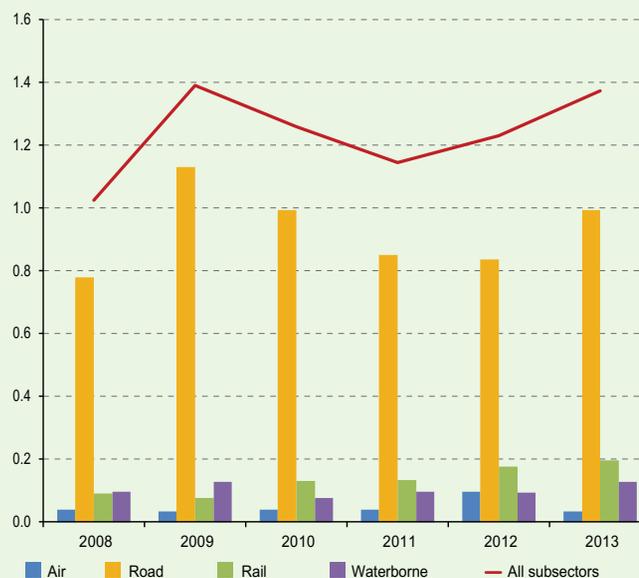
In its activities and collaboration with countries over the last decade (Jaimurzina, Pérez Salas and Sánchez, 2015; Cipoletta Tomassian, Pérez Salas and Sánchez, 2010) ECLAC has revealed the pressing situation that prevails in the majority of Latin American and Caribbean countries with respect to the failings of public policies as they relate to infrastructure development:

- Lack of sustainability criteria in infrastructure service policies, which has a direct impact on the region's capacity to implement the big environmental push and the Sustainable Development Agenda as a whole.
- The dispersal and multiplicity of public actions and decisions for infrastructure and its services, and the consequent absence of a comprehensive approach to the concept, design, implementation, monitoring, oversight and evaluation of policies.
- The presence of institutional and regulatory failings and problems, both in the conduct of policies and in the organization of markets.

The lack of sustainability criteria is especially evident in decisions on the development of economic infrastructure. A highly representative example can be found in investments in the transportation sector, which continue to favour road transport over other modes that, with an adequate policy, could boost the sustainability of

logistics and mobility in the region. As shown in figure 9, investment in other types of infrastructure beyond road transport, in most countries of the region, did not exceed 25% of total investment in transport infrastructure during the period 2008-2013.

Figure 9
Distribution of infrastructure investment
in the transport sector
(Percentages of GDP)



Source: ISU/ECLAC, on the basis of INFRALATAM data.

Note: The data include both the public and the private sector. The countries included are Bolivia (Plurinational State of), Brazil, Chile, Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru and Uruguay.

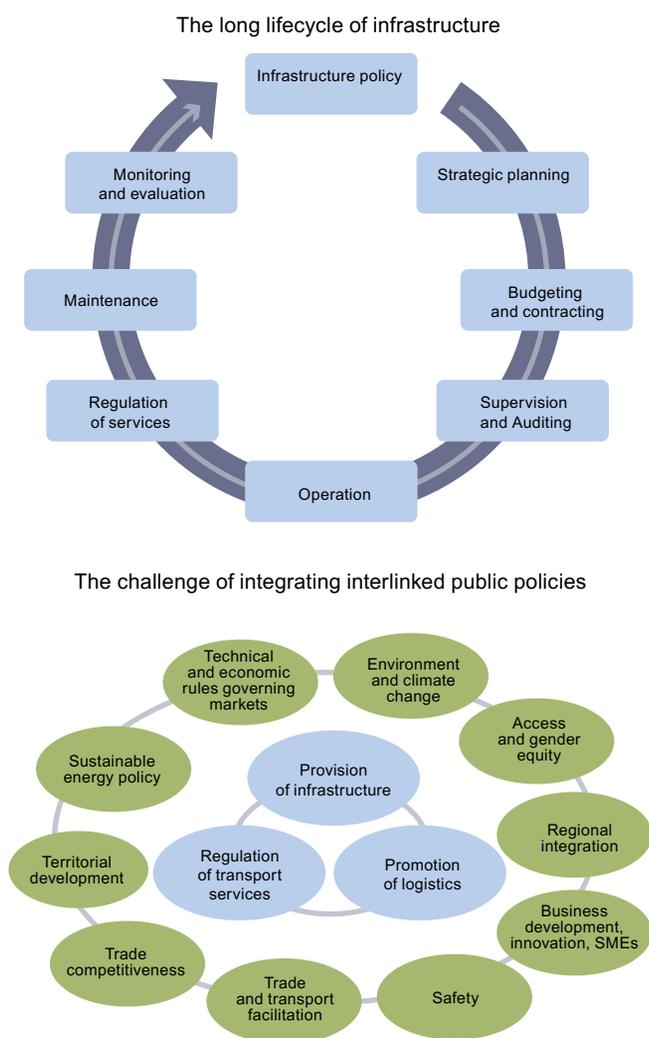
As to the dispersal and multiplicity of public actions and decisions and the various regulatory and institutional failings, technical assistance activities conducted by ECLAC on the quality of current infrastructure and transport policies in the region (Jaimurzina, Pérez Salas and Sánchez J., 2016) have identified a number of issues relating to these dimensions, including shortcomings caused by:

- A lack of political will for the effective implementation of strategic planning;
- Little continuity in policies;
- Lack of measurable indicators for monitoring and evaluating actions;
- Pressure, political lobbying and excessive championing of labour union interests;
- Multiple and uncoordinated jurisdictions involved within the same territory;
- Insufficient quality of training for technical personnel responsible for implementing sectoral policies; and
- Other weaknesses in the institutional environment.

Consequently, one of the main challenges facing countries of Latin America and the Caribbean is to align the concept, design, execution and monitoring, oversight and evaluation of policies for infrastructure services and the logistics sector with maximizing their effects on development.

One of the most significant problems in this area is to ensure that infrastructure policies offer solutions to the challenges that arise throughout the infrastructure lifecycle, as well as to keep all stakeholders actively involved, not only in the infrastructure sector itself but also in public policies related to it. See diagram 2.

Diagram 2
The challenges facing infrastructure policies



Source: Adapted from Jaimurzina, Pérez Salas and Sánchez, 2015.

The need to transform infrastructure policies has received growing attention from decision makers, from the private sector, and from civil society. In the transport sector, public policies increasingly seek to seize the advantages of logistical integration, which is seen as a tangible way of achieving significant progress in regional cooperation while reducing logistics costs and negative externalities.

ECLAC has promoted a regionally coordinated, integrated and sustainable policy for infrastructure, logistics and mobility that encourages cost-cutting measures for efficiency and productivity while at the same time reducing the impact of externalities on the population and the environment through the benefits of regional integration. ECLAC has detected and highlighted a series of challenges for moving forward with the paradigm shift that such policies require. An emerging policy of paradigm change must start with the adoption of the main principles underlying the policy. This proposal adopts two such principles: integration of vision and action, and sustainability in its broad sense. Those principles will serve as the starting point for moving forward systematically, respecting a certain order of priorities, and seeking to ensure that those fundamental principles are present and lend coherence to each of the successive components. That process will thus consider policy objectives, institutional arrangements and strategic planning, guidelines for sector policies in the area of logistics and mobility, such as modal policies, market regulation, price formation etc., in order to arrive at the stage of short, medium and long-term measures and actions through the various national programmes, plans and projects. The order of priority in this way constitutes a guarantee of coherence among all the steps that comprise a policy, from its key principles through to each of its programmes, plans or projects (Jaimurzina, Pérez Salas and Sánchez, 2015).

However, the integrated and sustainable policy approach presupposes a profound transformation in the way the State and its relationship to the private sector and civil society is articulated, in the specific area of infrastructure. In other words, the capacity to maximize the effects of infrastructure services on sustainable development is directly linked to the quality of the institutions and the public-private dialogue, including that with civil society, for achieving a vision and policy of the State that transcends the mandate of any particular government. In countries where governments and institutions are weak, infrastructure investment decisions may in fact be highly distorted, working to the disadvantage of the poorest population groups and generating negative externalities for society as a whole.

Therefore, as is the case in other key sectors of the region's economy, the governance of the infrastructure sector will have to be transformed. The initial proposal on the issue of governance of infrastructure in Latin America and the Caribbean is presented in the following section.

IV. Towards better governance of infrastructure in Latin America and the Caribbean

In Latin America and the Caribbean, governance is an increasingly pressing issue for public policies, particularly those dealing with the management of strategic sectors of the region's economy and society.

Likewise, regional dialogue on the use of natural resources for sustainable development purposes stresses the governance of natural resources, defined as the exercise of political, economic and administrative authority as needed to manage a country's affairs through a set of formal institutions (constitutional frameworks, laws, the fiscal and regulatory context, etc.), informal institutions (implicit rules of common practice) and political decisions. Governance includes all the sectors participating in an activity, directly or indirectly —government, industry, workers, communities, civil society and the natural environment (Altomonte and Sánchez, 2016).

Similarly, infrastructure governance can be defined as a set of processes, relating both to the taking of decisions in the area of infrastructure and to implementation of

those decisions, where there is interaction between the mechanisms, procedures and rules established formally and informally by institutions: this refers both to the conduct of suppliers in their respective markets for infrastructure services and to the vertical and horizontal structure of those markets.

The issue of infrastructure governance is not specific to Latin America and the Caribbean: discussions among OECD member countries have already highlighted the need for a general framework of infrastructure governance and supply, one that addresses the diversity of institutional problems, decision-making and involvement by interested parties. OECD is working actively on the issue of infrastructure governance, defined as the processes, tools and standards of interaction, decision-making and monitoring used by State institutions and their counterparts in the process of supplying infrastructure services to society (OECD, 2015).

To achieve the Sustainable Development Goals will require infrastructure governance of the kind that allows an integrated and sustainable approach to infrastructure and the flows of services it provides, in order to guarantee the progress and the well-being and quality of life of its end users, current and future, in the context of historic and new challenges such as climate change. It must address various challenges in the areas of planning, mechanisms for coordination and dialogue, human resources, measurement and evaluation and many others, as shown in table 1.

Table 1
Challenges in infrastructure governance

Principal area	Impact on infrastructure policies
Planning and strategic vision for infrastructure development	Insufficient planning and lack of a strategic vision can result in suboptimal or short-sighted decisions and inadequate prioritization of infrastructure projects
Involvement of interested parties	Lack of dialogue on infrastructure development with its end users, civil society and the private sector, has a negative impact on the quality of planning and project implementation.
Coordination of stakeholders at various levels of government	The lack of coordination among the sector stakeholders and various levels of government results in the failure of economically viable or socially justified projects.
Technical capacities of the public sector	Over the lifecycle of an infrastructure project there can be a change in the nature of the technical capacities required for its planning, implementation or evaluation, making it indispensable to acquire new capacities or skills, together with the maintenance of minimum technical knowledge and institutional memory.
Flows and sources of financing	Whatever the source of financing (public, private or mixed), infrastructure projects require major commitments with respect to financing flows or tariff regulation that entail a high degree of long-term uncertainty and are difficult to guarantee.
Administrative considerations [given the substantive scopes (mandates) or geographic scopes (territorial jurisdiction)] in the taking of decisions	Sector or geographic jurisdictions often do not correspond to the area of the project's socioeconomic or environmental impact, yet the decision-making process is fragmented among various institutions and is affected by the limitations of their respective mandates.
Measurement of performance in the provision of infrastructure services	The lack of reliable or relevant data and the scarce capacity for processing and analysing available data can complicate ex-ante or post facto evaluation, impeding the taking of decisions based on solid evidence.

Table 1 (concluded)

Principal area	Impact on infrastructure policies
Impact of the existing institutional or regulatory framework	Existing systems, with their historic baggage of past decisions (previous subsidies or investments), the prevalence of certain interest groups or the need to show results can produce important biases, resulting in suboptimal decisions for infrastructure development. Moreover, the instability or excessive complexity of the institutional framework increases vulnerability to arbitrary decisions and discourages investors.
Vulnerability to corruption	Given the amounts involved, various types of uncertainty inherent in infrastructure projects and complex processes leave the sector particularly vulnerable to the risks of corruption.
Impact of political and economic cycles	Decisions relating to infrastructure and their implementation are highly sensitive to political and economic cycles, with events such as elections or economic changes that have a direct impact on the sector.
Sharing of risk management between the public and private sectors	The distribution of risks in the financing and operation of infrastructure projects is a complex process that requires careful and honest consideration of the origins of risks and the responsibilities of each interested party. An inadequate allocation of risks results in disincentives for private participation and lost opportunities for infrastructure development.

Source: Adapted from OECD, 2015.

It is noteworthy that in the ports subsector, for example, which is more open and responsive to shocks to the world economy, owing to the need to redesign and seek new forms of collaboration and functioning for the various players involved, public and private stakeholders have already accepted the need to move towards a new port governance for addressing current and future challenges (Sanchez and others, 2015).

Better infrastructure governance, together with greater governmental capacity to design and implement sustainable infrastructure, will require changes in policies and regulations for better integration of policies, fostering enhanced coordination between government, the private sector and civil society.

The private sector has a key role to play in investment, operation and generation of value-added services, and in opening up these extractive enclaves to favour shared use of infrastructure, promote stronger value chains, and generate positive effects on social development and the environment. Greater citizen participation in decision-making concerning the location and features of infrastructure will make projects more sustainable and yield more benefits to society. There must be a sound institutional climate for carrying out infrastructure programmes successfully, and this success will in turn contribute to improving the institutional setting and governance.

Nevertheless, the transition to a new infrastructure governance is a long-term undertaking that is just beginning, and one in which ECLAC is already taking concrete steps with the encouragement of policy dialogue, the provision of technical assistance for institution building and, above all, through inputs that can act as catalysts of this change in the manner of designing, monitoring and implementing public policies on behalf of a new infrastructure governance that will support sustainable development and regional integration.

V. Infrastructure governance: a task for all with the support of ECLAC

ECLAC activities in the area of infrastructure have traditionally combined research, technical assistance, training courses and governmental meetings and technical workshops to support the integration of physical infrastructure. As demonstrated in Table 2, ECLAC has developed various tools for the use of member countries and other development players, geared to strengthening decision-making and to the formulation and monitoring of public policies.

These activities are part of a broader strategy that the Division of Natural Resources and Infrastructure is implementing with interagency committees and mechanisms, not only on infrastructure issues but also on energy and other economic infrastructure services. This promotes networking both with the senior governmental sector authorities (ministers, vice ministers and undersecretaries) and with middle-level management (directors, advisors and appointed officials) in ways that promote synergy. This scheme makes it possible to pursue policies, ongoing work, technical support and generation of institutional trust for implementation of ECLAC recommendations and feedback on them.

Similarly, the networking of experts (in the public sector as well as in the private sector and academia) has not only provided feedback on proposals but has also promoted training for future generations of decision-makers on behalf of more sustainable development in the region.

In this context, ministerial delegations from Argentina, Belize, Brazil, Chile, Colombia, Costa Rica, Cuba, the Dominican Republic, Ecuador, El Salvador, Guatemala,

Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, the Plurinational State of Bolivia, Suriname and Uruguay met in Santiago on a 8 November 2016 for a High-Level Regional Dialogue on Governance of Natural Resources and Infrastructure.

Table 2
ECLAC activities in the area of infrastructure services

	Activities	Outputs
Research	<ul style="list-style-type: none"> Databases covering all modes of transport (maritime, air and inland transportation) Publications on current issues of logistics and mobility in the region, highlighting the traditional issues and emerging aspects and challenges 	<ul style="list-style-type: none"> Maritime and logistics profile of ECLAC: http://perfil.cepal.org/en/start.html INFRALATAM (database on investments in economic infrastructure): http://infralatam.info/ Studies and reports on infrastructure development, logistics, energy efficiency, maritime transport, service regulations, public-private partnerships, gender and transportation.
Technical assistance	<ul style="list-style-type: none"> Assistance with diagnostic analysis at the national level. Training for public officials and private sector stakeholders in infrastructure services issues. National and regional workshops on logistics and mobility policies. 	Technical assistance to countries of the region relating to : <ul style="list-style-type: none"> Infrastructure policies. Logistics and mobility policies. Water transport. Port reforms. Energy efficiency and mobility. Drinking water and sanitation services. Road safety.
Support for regional integration	<ul style="list-style-type: none"> Initiatives and support for inclusion of an integrated and sustainable vision of logistics and mobility policies in the regional integration agenda and undertakings. Development of indicators of regional integration and its quality in terms of infrastructure services. Institutional support for regional bodies responsible for physical infrastructure integration. 	Joint meetings for preparation of strategic proposals for regional integration initiatives and transport sector associations <ul style="list-style-type: none"> UNASUR/COSIPLAN/IIRSA SIECA/COMITRAN Mesoamerica project Sector organizations: PIANC, DIRCAIBEA, CLAC, ALAF, CIP, ADERASA, among others

Source: ISU/ECLAC, 2016.

The countries formulated and agreed on the following fundamental recommendations for promoting a shared regional vision of better infrastructure governance for implementing Agenda 2030 for Sustainable Development in Latin America and the Caribbean, for consideration by governments and multilateral agencies alike:

- Establish a government strategy that promotes a shared long-term vision of infrastructure governance for sustainable development. In that context, strengthening institutional arrangements is key to promoting structural change in the region in order to reconcile the transformation of infrastructure services with the new development paradigm that the region must adopt for the future.

- Ensure the kind of governance that facilitates dialogue with and participation by public and private stakeholders, academia and civil society, who by working together can strengthen a democratic framework aligned with national development objectives.
- Adopt a new generation of infrastructure policies that meet three basic conditions: (i) they must be integrated and sustainable, (ii) they must lead to a greater and better endowment of infrastructure, and (iii) they must ensure that infrastructure is adequately designed and operated with a view to sustainable development.
- Seize the potential for integrating economic infrastructure in the region in order to offer more resilient and lower-cost subregional services resulting from economies of scale and networking.
- Establish strategic planning for investment in the sector. Greater investment of better quality is needed to generate resilience and positive externalities and to contribute to social progress. In the transport sector, promote and implement integrated and sustainable logistics and mobility policies as an essential step for maximizing the sector’s contribution to sustainable development. To achieve these changes and guarantee their effectiveness, policies must be cast within an infrastructure governance framework that allows for more integration of policies and fosters better coordination between government, the private sector and society.
- Promote systematic and regular regional dialogue as a mechanism to facilitate a shared vision on infrastructure governance. Recognize the importance of national dialogue among multiple stakeholders for adopting and reinforcing an institutional framework of governance.

The ministerial delegations asked ECLAC to design and implement a medium and long-term work plan that considers the following elements: (i) a research programme that facilitates substantive discussion, construction and application of policy instruments that incorporate the strategic and political vision of government in this area, with participation by the private sector and civil society; (ii) technical cooperation and strengthening of capacities in countries of the region; (iii) holding of systematic and regular regional dialogues on the governance of natural resources and infrastructure, based on the results and contributions of the technical research and cooperation programme.

The technical and political expertise of ECLAC in these issues will be devoted to providing countries with institutional and technical support for the transition to better infrastructure governance. That support will have three main themes:

- Strengthening evidence-based decision-making and policy formulation supported by monitoring indicators constructed with primary or secondary national data for purposes of monitoring national progress and of drawing subregional and regional comparisons of the economic infrastructure situation and its impact on efforts to achieve the Sustainable Development Goals.
- Strengthen inclusive, institutionalized, systematic and regular dialogue as an appropriate mechanism for fostering the paradigm shift in infrastructure policies, with a view to enhancing governance of the sector and

achieving greater integration of policies while enlisting new stakeholders from the public and private sectors to address the particular needs of economic development.

- Applied research and technical assistance on such issues as the characterization and prioritization of regional transport infrastructure networks, identifying missing strategic links and facilitating regulatory convergence around good practices within countries. The purpose here is to reduce operating times and costs as well as negative environmental and social externalities.

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