

# Planning and Prioritization in Infrastructure Development, and the Role of Public-Private-Partnerships

Seeking an Efficient Coordination of  
Investment, Budgeting and Financing  
Cycles in Latin America and the Caribbean

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Vicepresidency for Countries

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# Discussion Papers

## PPP Americas 2021

# Planning and Prioritization in Infrastructure Development, and the role of Public-Private Partnerships

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# Discussion Papers

The Discussion Papers - PPP Americas 2021 are a series of documents produced in preparation for the X Edition of PPP Americas, the main forum for Public-Private Partnerships (PPP) in Latin America and the Caribbean (LAC), organized every two years by the Inter-American Development Bank (IDB).

As part of the PPP Americas 2021 edition, eight groups of experts, professionals, consultants and academics directly involved in the planning, identification, structuring and management of PPP projects in the countries of the region met. Under the coordination of IDB specialists, the groups reviewed the main topics of interest and current affairs in the field of PPPs, in order to exchange experiences, discuss success stories and lessons learned in the ongoing projects in the region.

From an open call made in March 2020, to which more than 200 specialists, professionals and academics from the region applied, around 90 people from across the region were selected to be contributors. They actively participated in discussions on the following topics: reliability of State payments, project selection criteria and drivers of value for money, best practices in contract management, diversification of the capital structure, contract termination rules and their consequences for project viability, planning and prioritization in infrastructure development, fiscal impacts of the projects and the role of control bodies.

Each topic explored in the groups led to a Discussion Document, compiling the reflections shared by the specialists in their joint discussions between June 2020 and April 2021. In addition, in January 2021, each group of specialists shared their insights with the other groups, to encourage the development of a richer and deeper conversation, and to take advantage of synergies between the different areas.

This initiative aims to help consolidate an environment for the exchange of experiences and best practices in PPPs for the region. Its main purpose is to serve as an input for the discussions that will take place at PPP Americas 2021—where solutions will be proposed in all directions.

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# Planning and Prioritization in Infrastructure Development, and the role of Public-Private Partnerships

Seeking an efficient coordination of investment, budgeting and financing cycles in Latin America and the Caribbean.

*This document was prepared by Ancor Suárez Alemán (IDB) and María Pilar Castrosin (IDB), based on the results of a series of rounds of discussion and input by and between the following experts in the infrastructure project planning, prioritization, preparation and structuring processes in the context of Latin America and the Caribbean: Edgard Benozatti (State of São Paulo, Brazil), José Luis Bonifaz (Pacífico University, Peru), Marcia Campos (Monterrey Institute of Technology, Mexico), Juan E. Chackiel (Ministry of Public Works, Chile), Reinaldo Fioravanti (IDB), Pauline Debaeke (IDB sec. European Investment Bank), Mariana Silva (IDB), Scarlett Piantini (Consultant, Dominican Republic), and Adriana Valencia (IDB Invest). José Luis Bonifaz, Juan E. Chackiel and Pauline Debaeke were active contributors to the writing of specific sections. The team were supported by Clarissa Leão (Brazil), who produced minutes and input from the meetings, which were very useful for preparing this paper.*

*The purpose of this analysis is to present the main points discussed and best practice recommendations in the areas outlined in each section, in a structured manner, with an emphasis on a series of previously selected topics and questions. This document does not aim to provide a systematic or exhaustive review of the latest in infrastructure planning and prioritization.*

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# 1. Introduction: Infrastructure Planning and Prioritization

Economic and social infrastructure play a fundamental role in the levels of growth and equality of the economies of Latin America and the Caribbean. Although the region has made a massive investment effort in recent decades, the infrastructure gap continues to hinder development, and public infrastructure services do not meet the levels of provision, quality and competitiveness appropriate to the inhabitants of the region and its economies. Low-income families spend 15% of their income paying for services such as water and public transport, which is almost 5 percentage points of income more than in emerging Asia (IDB DIA 2020). If the region does not invest more and better in developing and maintaining infrastructure, it could lose up to 15% of potential GDP growth over the next 10 years. Therefore, closing the sustainable infrastructure gap in the region will require around USD 250 billion per year according to different estimates<sup>1</sup>.

More and better investment will be needed. In addition, public resources are finite and always have a high opportunity cost. Decision-making means that allocating resources to one project prevents others from being carried out. Therefore, it must be ensured that the public resources used generate the desired results.

The concepts of planning and prioritization have two essential things in common: order based on a given logic/criterion, and their sequential nature. Establishing criteria to enable infrastructure to be developed in an organized way is even more important, given the public nature of the resources, its high opportunity cost since it involves high levels of investment, and its temporal dimension, characterized by long development times with high expected long-term impacts.

How can we ensure a proper infrastructure planning and prioritization process? Answering this question involves addressing three other integral concepts: efficiency, sustainability, and transparency. These three pillars should govern all infrastructure asset development processes and the provision of associated services.

Latin America and the Caribbean has traditionally been inefficient in developing its infrastructure. IDB (2019) shows how one of every two dollars of public resources earmarked for infrastructure asset development is wasted—compared to the efficiency levels of advanced economies that, on average, manage to efficiently use 90 percent of their resources. Given the volumes required to invest in the sector, this wasted 50 percent represents a large amount of public resources that are always scarce—unfortunately, today more so than ever. Lack of proper planning reflected in poor maintenance, high-cost overruns, delays or renegotiations greatly affects the assets that are being developed and those that are not.

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<sup>1</sup> For more detail, see the IDB 2020 Flagship Report, From Structures to Services: The Path to Better Infrastructure in Latin America and the Caribbean



Moreover, as reported by IDB (2017, 2020), poor planning, reduced access to resources, lack of benefits for the community and lack of adequate consultancy have been the main sources of conflict throughout the last four decades of infrastructure development in the region. As such, planning is key to promoting sustainable infrastructure development, from an institutional, financial, social, fiscal and environmental perspective.

Finally, transparency itself is an input, a means and an end in infrastructure planning and prioritization. As reported by IDB (2019), attracting private participation to develop a well-prepared portfolio of bankable projects has been harder as a result of the corrupt processes uncovered in the last decade. Since then, the region has set about tackling poor practices, and imposing the principle of transparency and integrity, to regain confidence and restore promising infrastructure project portfolios for investors and, most importantly, to rebuild taxpayer confidence in the proper management of public resources. The principle of transparency should guide best practices in terms of how infrastructure development is planned and prioritized in the countries of the region.

This document, which reflects the result of regular discussions by a group of experts in infrastructure development in Latin America and the Caribbean, follows a sequential logic and uses some international examples identified as best practices. After addressing the need to develop multi-sectoral plans as appropriate tools for the development, maintenance, and rehabilitation of infrastructure, consistent with the provision of resources, the need to sequentially integrate the public investment process as a whole is analyzed, regardless of the bidding modality under which each specific project will be carried out. Section four addresses investment decisions, contract modality and financing. Section five reflects the need to systematically incorporate sustainability components throughout the planning and prioritization cycle. Section six reflects some discussions within the context of COVID-19, and how it will affect post-pandemic planning and prioritization. Finally, section seven outlines overall conclusions and recommendations.

## 2. Developing Multi-Sectoral Plans to Develop, Maintain and Rehabilitate Infrastructure.

Multi-sectoral infrastructure development plans are both a cause and a consequence of proper planning. They are a cause whenever they organize the development and operation of assets and the provision of infrastructure services within a country during a given period. Consequently, they must be the result “on paper” of a State’s comprehensive and multidimensional planning process. They should reflect States’ *long-term* vision, responding in a comprehensive and coordinated manner to the country’s development challenges and how infrastructure helps solve them. In turn, it is essential that these plans reflect the necessary balance between public demands (often referred to as “wish lists”) and the availability of resources to develop them. The scarcity of the latter—today even more pronounced due to the fiscal crisis resulting from the pandemic—means that investment decisions minimize the opportunity cost implicit in carrying out some projects instead of others. As stated in the IDB’s Infrastructure Strategy (Serebrisky, 2014), the determination of infrastructure investment needs should be the result of a planning process that generates a realistic and achievable country vision with the available fiscal resources and the population’s ability to pay.

This section presents a number of key issues for the successful development of infrastructure plans, and reflects the main findings of the discussion group:

### a. What are the foundations and ideal content to properly develop multi-sectoral infrastructure plans?

- ***Identifying needs/analyzing infrastructure and service provision gaps in the country.*** Infrastructure development planning should result from a thorough analysis of existing infrastructure conditions, identifying the main needs and bottlenecks for infrastructure development, considering not only desirable objectives, but also the scarcity of existing resources. Developing an efficient and sustainable plan will require comprehensive knowledge of the country’s infrastructure conditions and needs, so that it is possible to understand which part of the plan and resources should be directed towards rehabilitation, maintenance, construction of new infrastructure, and when it will be possible to recycle assets.
- ***Identifying/planning existing resources for their development and maintenance:*** Once the infrastructure needs have been defined, the technical options available to provide the necessary solutions should be studied. The technical solutions defined should generate benefits to society beyond the costs that must be incurred to develop, operate, and maintain them throughout the project’s useful life. To verify this, the projects to be developed must undergo a cost-benefit analysis and obtain a positive result. Only projects defined within the plan and for which a positive impact on society has been demonstrated

may be developed. In addition to a thorough knowledge of infrastructure conditions and needs, it is also essential to know which short-, medium- and long-term public resources are available to develop, maintain and rehabilitate infrastructure. Infrastructure planning must be related to public budgets, and short-, medium- and long-term resources must be related to each other, to promote a multiannual vision ensuring the necessary resources to efficiently maintain infrastructure. This will prevent incurring unnecessary future rehabilitation costs due to inadequate routine maintenance, or simply the deterioration of the developed infrastructure and, therefore, the quality of services it provides.

- ***Establishing multi-sectoral prioritization criteria linking needs and resources:*** Considering that public resources are scarce and that there are many public needs, it is essential that governments design a prioritization mechanism allowing them to evaluate various dimensions of the projects underway and to establish the order in which they will be carried out. A prioritization tool should take into account elements such as the projects' degree of technical maturity, their interrelationship with other projects, the risks involved and whether these are easily mitigated, the budget requirements, the project's capacity to generate income, the impact on employment, the need to develop or amend specific regulations, which could lead to a delay, society's acceptance of the project, among other considerations. This list of factors and the consideration given to each one may change over time depending on the objectives pursued by the country through the development of its infrastructure. Section 4 sets out the issues to be considered during prioritization exercises, as well as best practices.
- ***Regulation and existing institutional arrangement and identifying relevant institutions to address the life cycle of comprehensive infrastructure development.*** The importance of involving key institutions in infrastructure development must be considered. This will afford the plan more technicality and legitimacy while at the same time contributing to its long-term fulfillment. In addition to institutions with the technical capacity to develop projects, there is usually a unit in charge of coordinating public investment. Their role is to develop the necessary regulations to carry out project evaluation and ensure their correct application. The ministries in charge of budget and finance, in turn, will have to estimate the resources available for the entire project life cycle, whether they come from taxation or other alternatives. Among the package of options available to governments is attracting private capital to infrastructure development through Public-Private Partnership (PPP) schemes. However, given that not all projects will be suitable for development through PPPs, a comparative analysis between this option and Traditional Public Works (TPW) should be carried out, to determine which scheme generates greater value for money (VFM).

## b. What are the main practical issues when developing an infrastructure plan?

- ***Time scope/defining long term during plan development:*** Developing long-term plans enables a more predictable infrastructure development process; among other things, this helps to efficiently attract private participation. In that case, how do we define long term as regards the plan? Ultimately, as a relationship between the plan's expected achievable objectives and the predictability of the resources to accomplish them.
- ***Tools to reduce the impact of political time and cycles.*** To make this process rational and predictable, a logical and clear sequence must be adopted, including: i) establishing a clear regulatory framework; ii) defining a competent and responsible agent for its implementation; iii) defining a competent and responsible agent for its monitoring and inspection. A planning process with transparent interlinked procedures and clear responsibilities between the institutions involved is an important tool for developing a long-term infrastructure plan, as it facilitates accountability and allows participants to accompany, understand, participate in and monitor its follow-up. The tools typically used are long-term infrastructure plans that last longer than, and are independent of, government terms. These infrastructure plans are defined in terms of long-term objectives proposed by the country, on the basis of which the projects to be developed are defined. These projects will be registered in a Bank of investment projects and will be structured according to technical regulations established by the competent authority. When preparing multiannual budgets, the projects to be developed in the reference period should be taken into account, in addition to regular monitoring of possible changes that may lead to changes to the required budget. The budget allocated to these projects must consider the complete project life cycle, i.e., not only the resources needed to develop them, but also those needed to operate, maintain, and rehabilitate them throughout their useful life.

- **Box 1: The Australian experience - Plan timing and cycle**

In Australia, the infrastructure planning process is based on assessments that allow for short-, medium- and long-term planning. The plans are developed by the same institution—*Infrastructure Australia*—which ensures the exchange of information between the plans and their long-term follow-up.

The documents enabling a constant planning and monitoring process with regard to infrastructure conditions and needs are:

- i) Australian Infrastructure Audit (“AIA”): analysis presenting a forward-looking view of Australia’s infrastructure needs. In this audit, 15-year mobile infrastructure plans are also developed, with national and state-level priorities defined;
- ii) Australian Infrastructure Plan: where policy responses to the country’s infrastructure needs are established, based on the AIA. In the latest edition of the plan, the user was defined as a priority. The plans are developed every five years; the last one was issued in 2016 and the next one is due in 2021;
- iii) Infrastructure Priority List: a guide indicating priority infrastructure investments based on sustainability criteria. The 2020 list identifies 147 national-level infrastructure proposals with short-, medium- and long-term opportunities, and distinguishes projects as: i) high priority projects (6), ii) priority projects (17), iii) high priority initiatives (36) and; iv) priority initiatives (88). The difference between a project and an initiative is associated with the level of structuring. Initiatives, in general, are an initial stage of the project; they are proposed solutions to possible problems. Projects are solutions to specific problems, which have been positively evaluated by IA.

- ***Institutional arrangement for developing, implementing, monitoring and supervising the plan***: Multi-sectoral plans are generally conducted by an entity with competencies primarily related to infrastructure and planning. Institutions with the technical capacity to develop them are essential. However, it is necessary to bear in mind that these agents with competencies in infrastructure development and medium-/long-term vision, need information input on available public budgets and priority needs. For this reason, it is necessary to involve other entities to guarantee the plan’s implementation and viability, such as finance ministries, courts of audit, regulatory and control agencies; inter-institutional coordination is required to develop the planned infrastructure. It is important for the competent institution to have the technical and institutional capacity to perform follow up.<sup>2</sup>

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<sup>2</sup> An example of suboptimal practice is the case of water supply in Brazil. In 2013, the country created the National Basic Sanitation Plan (PLANSAB, Plan Nacional de Saneamiento Básico) at the federal level. It planned a 20-year infrastructure to universalize basic sanitation services in the country, with guidelines to the municipalities—the competent entities for basic sanitation. However, despite the fact that PLANSAB establishes objectives and guidelines, and that it should determine their adaptation to sub-national spheres through the development of municipal plans, this did not happen. The low institutional capacity and the lack of properly established coordination tools between the Federal Government and the municipalities resulted in plans being created for only 42% of Brazilian municipalities. In order to improve inter-federal coordination,

Chile and Peru represent the regional experiences with the clearest coordination between the institutions involved in infrastructure development, although there is room for improvement.

In Chile, legal reform in 2017 created the General Directorate of Concessions (DGC, *Dirección General de Concesiones*).<sup>3</sup> Its duties include: i) submitting proposals for the execution, repair, maintenance, upkeep or operation of public works for approval by the Minister for Public Works, to be submitted to the President of the Republic following a report from the Ministry of Finance; ii) submitting, in the first quarter of each year, a Concession Plan with a projection for the next five years for approval by the Ministry of Public Works. This plan should be submitted to the Concessions Council for consultation, and subsequently sent to the National Congress. The reform ordered that the plan adopt a territorial approach, considering the necessary infrastructures for all regions of the country and the harmonious development between them. In view of the governance structure attributed to planning implemented in 2017, the constant updating and monitoring of the plan by several authorities give it a stronger institutional framework. Coordination between the Ministry of Public Works (MOP, *Ministerio de Obras Públicas*) and the Ministry of Finance (MH, *Ministerio de Hacienda*) is ensured in two ways: (i) proposals for the execution, repair, maintenance, upkeep or operation of public works prepared by the General Director of Concessions are subject to approval by the Ministry of Public Works and subsequently by the Ministry of Finance; (ii) joint selection between the MOP and MH of the members of the Concessions Council, an advisory body whose function is to express an opinion on the five-year concession plans; the MH and MOP jointly appoint the Director of the Concessions Council, and the MH alone nominates two other directors. It should also be noted that the planning of concessions in the country requires the inter-institutional coordination of several public agents, in particular, four in addition to the MOP, which are permanently involved in the process. This is notwithstanding the participation of other ministries, services or regional and local authorities in the case of specific sectors or territories.

The aforementioned Ministry of Finance is present by means of allocating the annual budget to the General Directorate of Concessions and approving the financial aspects of the projects, i.e. determining the subsidy amount when applicable, contingent guarantees, as well as future contract amendments that may be required. Therefore, all concession contracts must be signed by the Minister of Finance, making it a necessary institutional counterweight to reduce risks from a fiscal responsibility perspective.

The Ministry of Social Development and Family (MDS, *Ministerio de Desarrollo Social y Familia*) is the institution that produces the methodologies for evaluating projects and is responsible for

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the National Executive Branch proposed empowering the National Water Agency to issue reference standards, to guide and support Brazilian municipalities in planning and implementing basic sanitation. The proposal is still under discussion in the Brazilian legislature.

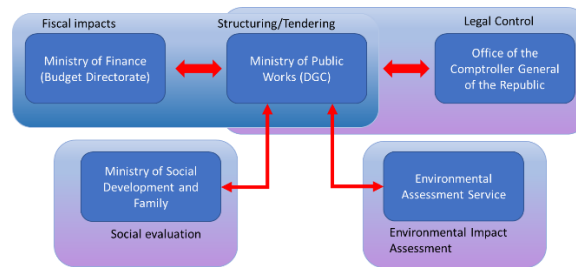
<sup>3</sup> The DGC is the continuation of the former Coordination of Public Works Concessions (CCOP, *Coordinación de Concesiones de Obras Públicas*). Primarily, the reform granted a more formal and permanent administrative status to the former CCOP, which had existed since 1996 and was functionally dependent on the MOP General Directorate of Public Works.

verifying the social profitability of those presented; in this regard, it also helps to prevent works of an excessive size or those with insufficient social impact.

Meanwhile, the Environmental Assessment Service, also present, is in charge of the Environmental Impact Assessment procedure, in accordance with the provisions of Environmental Framework Law No. 19.300. Based on an Environmental Impact Assessment or Statement, it determines whether the environmental impact of an activity or project complies with current regulations. Once the stages have been completed in the aforementioned institutions the approval of the President of the Republic is required, in the case of supreme decrees.

Finally, the Office of the Comptroller General of the Republic participates in the review and approval of the Bidding Terms and Conditions, and also of the relevant decrees, by means of “legal control”. This is the preventive control procedure to verify the constitutionality and legality of decrees and resolutions, and it therefore services to control the legality of the instruments being examined. The aforementioned process, in essence, can be summarized as follows:

- **Figure 1: Chilean Institutional Arrangement for Infrastructure Planning**



Source: General Directorate of Concessions

Peru presents another model where dialogue is permitted between the different agents involved in developing the infrastructure plan. It also provides coordination at different levels of government, through the preparation of “Multiannual Public-Private Partnership Investment Reports” (IMIAPP, *Informes Multianuales de Inversiones en Asociaciones Público-Privadas*), which support the National Infrastructure Plan (PNI, *Plan Nacional de Infraestructura*). The IMIAPP is part of the PPP project planning and programming process, which is conducted at the local and regional level by Private Investment Promotion Committees set up for that purpose and at the national level by Proinversión [Peru’s Private Investment Promotion Agency] or the Ministries.<sup>4</sup> The IMIAPP prepared at the local and regional level is sent to the Peruvian Ministry of Economy and

<sup>4</sup> Legislative Decree 1362.

“Article 8. Private Investment Promotion Organizations

8.1 Private Investment Promotion Organizations are in charge of designing, conducting and concluding the private investment promotion process through the Public-Private Partnership and Asset Project modalities, within the scope of their competence.

8.2 In the case of the National Government, Private Investment Promotion Organizations are Proinversión or the Ministries, via the Private Investment Promotion Committee, according to the criteria established in the Regulations.

Finance for the issuance of an opinion, which will be binding. The Ministry uses the IMIAPP—as well as the Multiannual Sector Investment Program—as the basis for preparing the PNI. However, to make the tool truly inclusive, the technical capacities of regional and local governments should be strengthened.

- **Box 2: Inter-institutional Coordination throughout the cycle**

A model of good practice is Infrastructure Australia (“IA”), an Australian state institution, established in 2008, which acts as an independent infrastructure advisor and prepares documents that support infrastructure planning and prioritization, such as the Australian Infrastructure Plan, the Infrastructure Priority List, the Australian Infrastructure Audit and the Reform Series. IA operates under the management of a board of 12 members, one of whom is the chair, all of whom are experts and independent, with three-year terms.

Another interesting initiative in this regard was structured in 2019 in New Zealand, with the creation of the Infrastructure Commission (“InfraCom”). Created in September 2019, through the Te Wai-hanga Act, the commission is an autonomous entity with an independent board that must include between three and seven experts. InfraCom has the competence to act at the sector’s strategic planning level to generate more well-being and economic development in the long term. To do this, InfraCom must work with all levels of government, with the public sector and key stakeholders, to develop New Zealand’s 30-year infrastructure plan, to be presented in 2021 and every five years (the last one was presented in 2015). InfraCom is also responsible for developing a portfolio of priority infrastructure projects and for jointly coordinating New Zealand’s PPP program.

- **Independence from political cycles, to ensure compliance and achievement of the planned objectives:** Developing quality infrastructure takes time and often requires efforts and investments that cut across political cycles. New governments often create long-term infrastructure development plans as a proposal to the nation. In these situations, it is common for monitoring of the plan to end once the government’s term of office is over, even if the plan is scheduled to last for a longer time period. This highlights the importance of the plan’s institutional framework and its management by an entity that has the technical competence and independence to ensure its compliance regardless of its duration. Allocating this responsibility to an independent entity also guarantees the plan’s survival through political cycles.
- **Relationship with subnational governments:** Subnational governments must be taken into account when preparing national investment plans through which the stipulated development goals will be met. They, along with the sectoral ministries, usually have the best information on the actual infrastructure development needs in their constituencies. De-

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8.3 In the case of Regional Governments and Local Governments, the powers of Private Investment Promotion Organizations are exercised via the Private Investment Promotion Committee. The highest body of these Private Investment Promotion Organizations is the Regional Council or the Municipal Council, respectively.”



pending on the particularities of each country and the corresponding legislation, the development of infrastructure in a given sector may depend on the national government or on subnational governments. However, all government units should coordinate their objectives in a single development plan. Therefore, when establishing an investment plan, this must be taken into account and the existence of sufficient resources must be verified so that, if necessary, subnational governments can carry them out.

- **Public consultations and other mechanisms to ensure social consensus:** Public participation in the planning process can add further consensus and legitimacy to plans. Public consultations allow more information to be obtained about the user public and their real needs. Analyzing existing conditions and problems, in a constant process of communication with the population, not only enables the preparation of a consensual and pragmatic plan of infrastructure needs, but also allows society to participate in choosing the technical and procurement solution that will provide the greatest benefits. This prevents social rejection of certain projects or ways of carrying them out that could be perceived as harmful by the population. This can occur, for example, when attempts are made to incorporate private sector participation in non-traditional sectors such as the social sector. It is also crucial to consider possible social dissatisfaction with the provision of services, and how to transfer the benefits of the different contract modalities to the public as a whole. In this regard, an institutional framework must be created for a transparent and constant process of accountability, enabling society to be present throughout the project life cycle. For example, mechanisms such as social development funds—with clear and well-structured rules—could be explored, running alongside contracts and helping to create more space for the community to become more involved in infrastructure development (see Table 3).

- **Box 3. The Chilean experience of the compensation fund from the New Araucanía Airport Concession Contract**

*The private sector's role in generating quality and efficient public services, such as through traditional public works or PPPs, is facing increasingly demanding scrutiny from the public regarding whether and how it meets its pre-established objectives. In part, this is due to the prevailing view that concession companies cannot be conceived solely as "infrastructure providers" to the State.*

*It is becoming increasingly necessary to "revitalize" the alliance between both sectors, within the framework of a renewed and strategic view of how projects are linked to the territories and communities where they are located. This means thinking creatively about objectives and formulas going beyond those that usually form part of the public consultations that every project develops during its life cycle. By understanding that developing infrastructure through PPPs does not make sense only as a safe profit option for the State and a concession company in the field of building and operating public infrastructure, but as a public policy, the foregoing must always seek and maintain social legitimacy, a task that should be shared by both sectors.*

*Citizens must be a visible and permanent partner in this alliance. It is necessary to create bridges and mechanisms enabling their constructive participation, since the objectives and expectations that the State has for a project do not necessarily have to match those of the communities in the territory where it is located.*

*In this context, it is relevant to learn about the Chilean experience of a community development fund in the concession contract, used to generate a link between the people living in the project's territory and the agents in charge of implementing it. We are referring to the Compensation Fund in the Area of Indirect Influence of the New Araucanía Airport (FCAII, Fondo de Compensación en el Área de Influencia Indirecta), a site whose concession contract began in 2010.*

The new Araucanía Airport was developed in an area where indigenous communities from the Mapuche ethnic group are located. Therefore, within the framework of the Environmental Qualification process approving the project, a Compensation Fund was discussed and considered to mitigate, repair and/or compensate for possible impacts in the area of indirect influence of the airport site. This is located specifically in the Freire Commune. The first step of the aforementioned process was to gauge and formalize the interests and objectives of the communities belonging to the area of indirect influence through two agreements, which materialized after a process of dialogue and joint work between them and the authorities involved.

As such, the FCAII was geared towards funding initiatives promoting the sustainable development of the communities indirectly affected by the project, mainly in socio-cultural, associative, productive and entrepreneurial matters. This involved the use of competitive mechanisms. Its implementation involved the creation of a Board of Directors whose mission was to formulate the regulations, organize a Technical Secretariat, and subsequently receive project applications, evaluate their technical quality and impact, and approve those that met the regulatory requirements. This body is made up of six public service representatives of the Araucanía Region, one representative from the Municipality of Freire and five representatives from the area's indigenous communities.

Thus, 11 tenders have been held between 2012 and 2020 (scheduled and extraordinary<sup>5</sup>), with a total contribution of approximately 5.4 million dollars.<sup>6</sup> The FCAII has received resources from both the concession company that manages the airport and the Ministry of Public Works.

In the period indicated, five tenders were held for the application of productive, socio-cultural, associative and entrepreneurial projects, which funded a total of 2,969 initiatives. Moreover, there have been three extraordinary tenders funding savings for housing, one extraordinary tender to provide computer equipment (which funded 1,060 computers and

<sup>5</sup> Extraordinary tenders were held by using unspent funds from regular tenders.

<sup>6</sup> The average 2012-2020 exchange rate was used for the conversion of Chilean pesos to dollars.

37 printers) and two extraordinary tenders for student vouchers, which benefited 607 children from 45 indigenous communities in the area. The regular tenders have reflected a wide variety of interests: socio-cultural matters, for example, strengthening education and promoting Mapuche culture, as well as improving ceremonial sites and community centers; productive matters, by providing tools, supplies or technical assistance; in addition, promoting individual and associative enterprises, with the support of different public services in the Araucanía Region.

Within the framework of the active Concession Plan for the coming years in Chile, the FCAI experience acts as a precedent to consider in future projects submitted to the Environmental Impact Assessment System (SEIA, *Sistema de Evaluación de Impacto Ambiental*). In particular, it must be considered in projects where addressing the impact requires close collaborative work between the State, the company undertaking the concession and the surrounding communities, with a view to the future development of these communities in harmony with the PPP project.

Source: Juan Chackiel Torres (MOP, Chile, 2021).

- ***Incorporating the vision of the private sector to align incentives and leverage resources for the development of public infrastructure:*** plans should be designed in such a way as to indicate the State's vision and commitment to undertaking long-term projects. However, they should also be designed in such a way as to allow for flexibility, particularly when it comes to introducing innovation that, for example, may come from private initiatives. To this end, it is important that plans and projects establish the achievement of results as their objectives, rather than the use of specific inputs that can quickly become outdated (i.e. think about providing quality, efficient and sustainable urban public transport services, rather than reflecting the purchase of a certain type of bus with a certain technology). This type of openness allows the authorities to benefit from the innovation and technology that private agents can provide. However, such a process must have transparent and well-structured mechanisms, capable of balancing incentives and competitiveness, ensuring that the public objective is achieved in the most efficient way. The expression of interest by governments in terms of areas of work and not specific projects may be a natural space in which to consider these types of initiatives. They may also have a place in plans developed under properly structured flexible frameworks, potentially enhancing the advantages in terms of innovation. Table 7 introduces lessons from the Chilean and Peruvian experiences in this regard.

### **c. The role of project prioritization, and the need to develop tools for its proper management**

It is difficult to achieve a balance between a long list of investment needs in different infrastructure projects, on the one hand, and the provision of limited financial resources with which to develop

them, on the other. In the unlikely event that all of the projects identified prove to be socio-economically profitable and the best viable alternative to solving the identified social need, the State will be faced with the impossible task of carrying them all forward, with a fixed amount of resources at a given moment in time. Infrastructure development also means the development of treatment plants, renewable energy sources, urban transport, ports, hospitals, airports and schools, among others. The multi-sectoral nature of infrastructure also means that its planning has to address different needs which are often difficult to compare. However, the existence of a single public sector budget with which to solve these different needs inescapably involves the difficult task of decision-making, putting some projects before others. This is where the need arises to develop criteria that allow for prioritization, making efficient and transparent use of scarce resources.

Any infrastructure planning process is incomplete if it is not accompanied by a prioritization strategy enabling an orderly list of projects to be established based on objective criteria. This in turn optimizes the way in which the public sector responds to the infrastructure and associated service needs of its taxpayers. The relationship between needs and the resources to meet them also requires both the planning and finance departments to be perfectly coordinated at the institutional level.

What prioritization criteria should be used? There is no single answer to this question. The prioritization process is closely linked to the objectives that the public sector aims to achieve with its infrastructure vision. As such, it is one of the essential elements of any infrastructure plan that aims to be efficient and sustainable. Some of the questions (non-exhaustive list) that may guide a central planner when developing prioritization criteria to enable them to order their infrastructure strategy are as follows:

- Does the project meet any of the central objectives of the country's infrastructure policy (and to what extent)?
- Does the project belong to any priority sector within the country's vision?
- Does the project improve the living conditions of vulnerable populations? Does the project have a capacity to generate jobs or improve access to employment (and to what degree)?
- Does the project have the capacity to generate income for the State that will enable the development of more and better infrastructure?
- Does the project have the potential for leverage over other investments, or a network effect?
- Does the project have the capacity to attract additional financing?
- Does the project close infrastructure gaps?
- Does the project have a high chance of obtaining the social license to operate?
- Is the project consistent with and contributing to established long-term sustainability goals?
- Does the project address any urgent need or emergency in the country, be it (for example, given the current context) a health emergency such as COVID-19 or a natural disaster?

In any case, the example questions here may be more or less valid depending on the conditions and vision of each particular economy, and the objectives it pursues with its infrastructure policy. In this context, it is important to highlight the benefit of incorporating network analysis into prioritization, enabling the effect of each project to be incorporated into the whole, in a sectoral manner. The main message here is that the best infrastructure plan can easily become a haphazard wish

list if it is not associated with a multi-sectoral project prioritization strategy, promoting optimal use of resources in line with the country's development objectives.

#### **d. Infrastructure planning beyond asset development: optimal maintenance and rehabilitation for the provision of quality infrastructure services**

Providing quality infrastructure services to the population is the main motivation for developing multi-sectoral infrastructure plans. With this in mind during plan development, the structuring thereof can consider the entire stock of existing assets in the country, in order to understand not only which projects are necessary and a priority, but also how existing assets and those to be developed should be handled, in terms of maintenance, rehabilitation or recycling, so that the plan produces the desired effects of economic development, equality, territorial integration and competitiveness.

In this regard, forecasting the maintenance and rehabilitation of existing assets is as important as identifying new priority projects. An example of the essential nature of maintenance is the case of Peruvian roads between the 1990s and 2000s. During this period, due to lack of planning, there was no investment in road maintenance. Abandonment of these infrastructures led to the need for their rehabilitation, which cost seven times more than it would have cost if proper maintenance had been carried out (IDB, 2020).

Therefore, it is necessary to prepare long-term maintenance and rehabilitation plans that include existing and planned infrastructure, regardless of the type of bidding model through which they are carried out. These plans should cover the full life cycle of the assets and indicate the annual resource requirements involved, not only for routine maintenance but also for major maintenance (rehabilitation). This will result in regular and ongoing expenditures for infrastructure maintenance, which are lower when dealt with on a routine basis and, therefore, ensure a certain degree of predictability. The result will be assets that provide a continuous service at a certain level of quality, and an optimization of future needs to incur large capital expenditures.

Once again, it should be emphasized that these plans will not be successful if they are not properly included in the State's multiannual budgets. This requires coordination between the institutions in charge of Public Investment, its planning and the budget. As well as the aforementioned benefits, this coordination will mean greater predictability in terms of public spending on infrastructure. However, as maintenance expenditure is considered a current expenditure in many countries, it may be liable to reductions when the budget is limited due to negative economic events. In these cases, protection mechanisms, such as trusts or intangible funds, that safeguard these resources can be used.

In-depth knowledge of the state of a country's infrastructure at the time of planning also enables asset recycling to be assessed. As Villalobos (2018) states, *"a nation's infrastructure and built asset stock is worth approximately three times its GDP. This figure should make us consider the State's opportunity to bolster the numerous properties and assets it has throughout the national*

territory. In this regard, asset recycling consists of structuring a PPP contract for an existing public asset where the private sector assumes the risks and responsibility for operation and maintenance, but at the same time grants the State a significant initial or regular compensation for the right to use the asset. This provides fresh resources for new projects and ensures proper long-term management, which reduces the long-term fiscal impact of limited and inadequate maintenance." Asset recycling therefore involves considering a country's infrastructure provision as a whole, and optimizing its use for the benefit of users' quality of life and economic competitiveness. In this way, the State can monetize certain infrastructures that are of interest to the private sector (e.g. a toll road) to develop new priority infrastructures (e.g. a hospital). The rotating nature of these initiatives enables the State to make optimal use of the resources at its disposal to provide societies with the infrastructures they need for growth and equality. Existing experience in these types of schemes indicates how essential it is to ensure that the resources obtained are directed towards the development of new infrastructure (capital expenditure) and not to other types of (current) expenditure that end up decapitalizing the economies. One example is the *Australian Government's Asset Recycling Initiative*,<sup>7</sup> whose purpose is to ensure greater sustainability in infrastructure planning, enabling a virtuous cycle of investments. Under the Australian model, the central government creates incentives for regional governments to sell mature infrastructure assets to develop new priority infrastructure, as can be seen in the province of New South Wales, which, in June 2017, estimated that around \$24.8 billion could be invested in public transport, roads, schools and water safety with asset recycling.

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<sup>7</sup> In order to obtain resources to develop new infrastructure and improve the performance of existing infrastructure, and based on the experience of the regional government of New South Wales, the Australian government developed the ARI program. One of the existing conditions was that the resources generated should be reinvested entirely in new infrastructure (avoiding a decapitalization of the economies), or up to a maximum of 50% of the debt of other projects, with the remaining amount allocated to new infrastructure. To be eligible for the scheme, new projects should present a positive socio-economic analysis, improve the long-term productive capacity of the economy, and attract private investment in infrastructure (GIF, 2016).

### 3. Integration between Investment and Budget Cycles – Coordination between National Public Investment Systems and PPP Units

Investment and budget cycles are two sides of the same coin: the use of resources, and obtaining them. Optimizing and coordinating both cycles is vital to making efficient use of public resources. It is also essential to ensure that the whole public investment process is integrated throughout its different phases, from the time a project is planned, prioritized and determined to be socio-economically profitable, until the most efficient contract modality with which to develop it is analyzed and selected.

Therefore, public investment planning is a sequential process that begins before making the decision on how it will be provided, i.e. whether to opt for traditional public works or PPPs, as discussed in the previous section. On the one hand, during the planning process, it is essential that the public manager is fully aware of the infrastructure conditions and needs, and of the public resources available to develop and maintain said infrastructure throughout the asset's life cycle. On the other hand, it is also essential for the different units and ministries involved in the public investment process to be coordinated, which of course includes PPP Units. Infrastructure projects must follow the same structuring process and, therefore, be analyzed with the same scrutiny and using the same criteria established by the competent authority in the matter, regardless of whether they are later developed through TPW or PPPs.

By considering the foregoing, it will be more feasible to turn the “wish list” into quality, efficient and sustainable infrastructure development. Therefore, this section aims to understand how to ensure the allocation of budget resources for the entire project life cycle by coordinating investment and budget cycles, as well as the institutional arrangements needed to achieve coordination between the organizations in charge of public investment planning (national public investment systems) and PPP units.

#### a. What regulatory, institutional and policy arrangement can ensure coordination between different infrastructure investment decision-makers?

- **Optimal integration schemes.** Having an orderly and coordinated institutional system, capable of establishing sustainable and tangible commitments to infrastructure development, is very important to ensuring its success. Within this organization, there must be a clear procedural flow on how infrastructure project structuring works, from identification of needs by specialized organizations in the sector, to project execution through the selected bidding process, and its subsequent long-term operation and maintenance. Ideally, project

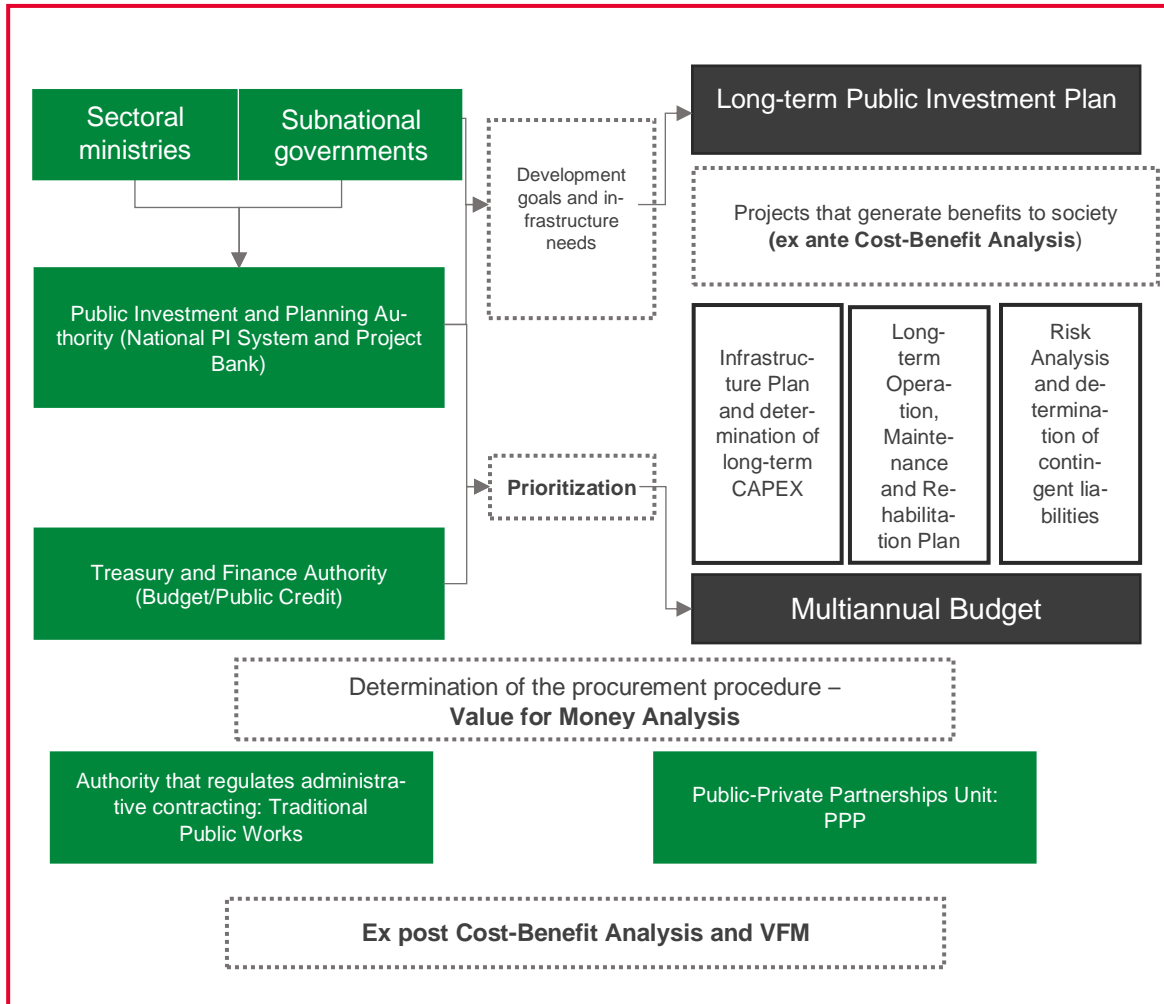
structuring should be guided by standards developed by the National Public Investment Systems, or the competent authority in the matter, and socially profitable projects should be registered in an Investment Project Bank. Based on the projects registered in this bank, it is recommended that a long-term Infrastructure Plan (for example, a 10-year plan) be developed that is independent and longer-lasting than political cycles, including the projects to be developed in order of priority. A preliminary assessment should then be made as to how best to carry out these projects to generate the most value for money. Once the public resources needed to develop the projects included in the long-term Infrastructure Plan have been established, the availability of long-term resources to address these projects should be coordinated with the institutions in charge of budget and finance. Throughout this process, coordination is needed between the organizations responsible for public investment, the organizations in charge of developing traditional public works and PPPs, and the institutions in charge of the public budget. Finally, this sequential process must be monitored by the control bodies, whose function will be to review the correlation between what was planned and what was executed. In addition, they will check that the evaluation, prioritization and procurement procedures are carried out in accordance with the rules. Oversight of these infrastructure project planning and contracting processes should be made available to the public, who should have the means to report their dissatisfaction with the actions of public officials, if applicable. These complaints or suggestions should be properly addressed in a timely manner, with a constant aim to provide a quality service to society. The case of Australia is an example of good practice in integration schemes (see Table 1 **Error! Reference source not found.**).

- ***Coordination with sectoral ministries and multi-sectoral budget coordination:*** As mentioned in the previous section, it is first important to define a country's long-term development objectives in order of priority, to determine the infrastructure projects to be developed and each one's priority when it comes to obtaining resources. Once this is defined, it will be easier for the public investment authority to coordinate the demands of each sector and link their needs with the available resources. One possible integration option may be multi-sectoral planning, to establish a country's strategic and priority projects. This is the case in Australia (see Table 1), where there is a joint effort to select priority projects on which to concentrate budgetary efforts. A similar approach is adopted in Peru, with the Multiannual Investment Reports on Public-Private Partnerships (see Table 2). On the contrary, in Chile, according to the National Productivity Commission report, there is still room for improvement in terms of planning and coordination between the various authorities involved in the process. Entities have different planning horizons and there is a lack of criteria for deciding on a project's contract modality. This is reflected, for example, in the fact that around 30% of projects approved in the National Investment System did not proceed with the request for budgetary resources.

The following table includes the set of agents involved in the sequential processes governing proper infrastructure development, as well as the steps required for this.



• **Figure 2: Set of agents involved in sequential processes for infrastructure development**



**CONTROL BODIES (Comptroller’s Office, Court of Audit, Special Commissions in the Legislative Branch, etc.)**

Their function is to review the correlation between what was planned and what was executed. In addition, they will verify that the evaluation, prioritization and procurement procedures are carried out in accordance with the rules.

- **Box 4: Paraguay—clear and coordinated institutional design.**

Paraguay promotes private participation in public works and services through the Public-Private Partnerships (PPP) Law and Law 5074.

In Paraguay, Law 4.394/11, which created the Public Investment System Directorate (DSIP, *Dirección de Sistema de Inversión Pública*), implemented the national public investment system (SNIP, *Sistema Nacional de Inversión Pública*), based on an agreement between the Ministry of Finance and the Technical Secretariat for Planning and Development (STP, *Secretaría Técnica de Planificación y Desarrollo*). The initiative aims to optimize the financing of resources for public investment projects by integrating them into the National General Expenditure Budget.

The SNIP is a regulatory system that aims to “*order the process of Public Investment, to optimize the use of resources in financing investment projects that are more profitable from a socio-economic and environmental point of view*” (SNIP, 2017). Both this system and the Project Bank are managed by the DSIP, which develops technical standards, project formulation and evaluation methodologies, and procedures for submitting investment projects to the National Public Investment System (SNIP), including concessions and PPPs. Other notable functions are those performed by the Ministry of Finance, which evaluates, allocates and keeps track of the fiscal impacts of projects, as well as the Contracting Administration, which is responsible for the structuring, selection, awarding and execution of the PPP contract (Government of Paraguay, 2019).

Among the four main components of the SNIP, the systematic use of the “Project formulation and evaluation methodologies” to ensure the profitability of projects and the establishment of clear rules and instructions with the competencies of the entities involved demonstrates the logical sequence created in the country. This lends legal certainty to the medium- and long-term infrastructure planning process, as regards both traditional public works and PPPs.

Put simply, this logical sequence can be summarized as follows:

- i) A **State Body/Entity (OEE, Organismo/Entidad del Estado)** submits the public investment project to the Single Window of the **Technical Secretariat for Planning (STP)**;
- ii) the STP analyzes the formulation of the project and ensures that it is in line with the strategic priorities and objectives of the Government Plan - “admissibility opinion”;
- iii) If the project is considered admissible, it is submitted to the **General Directorate of Public Investment (DGIP, Dirección General de Inversión Pública)**;
- iv) **DGIP carries out the** economic-financial evaluation and ensures that it has a social return – “feasibility report”
- v) **If the project is considered feasible, the project is** assigned the SNIP CODE.

However, there are still areas for improvement. According to the 2019 Infrascopes, Paraguay ranks 17th among 21 LAC countries in facilitating an environment for carrying out projects under the PPP modality (EIU, 2019). Several projects considered as PPPs under Law 5074 have not progressed as planned. It is crucial to strengthen the processes for properly structuring contracts and finding the right risk-sharing balance to efficiently attract the private sector.

**b. How can the public budget be made compatible with long-term infrastructure development, considering its construction, maintenance and rehabilitation and the duality between current and capital expenditures?**

- **Long-term budget cycles and continuity of capital expenditures:** empirical evidence in Latin America and the Caribbean shows that, in crisis situations, governments cut capital expenditures in order to cope with the growing demand for current spending. After a crisis, investment levels do not usually return to previous levels, which has an impact on economic growth and inequality (IDB, 2016). Likewise, disinvesting or failing to adequately maintain infrastructure has a tremendously negative impact on the regional economies, reaching up to 15% of GDP over a ten-year period, and affecting the poorest to a greater extent (IDB, 2019). Given this reality, it is crucial that countries have multiannual budgets that reflect committed capital expenditures in line with their long-term infrastructure plans, ensuring ongoing investment in maintenance to prevent negative consequences for growth and equality.
- **How can it be ensured that budget design and allocation rules consider the fiscal demands of long-term maintenance and operation of the asset life cycle?** The first step to ensuring this is to have a budget design policy in line with international best practice, indicating how a multiannual budget should be prepared and how to incorporate budget items reflecting the resource requirements for the operation and maintenance of assets throughout their life cycle. It is also important for budget-related policies to be coordinated with the regulatory framework governing the public investment process, as well as to have institutions with the necessary capacities to carry out these functions. Furthermore, it is important to develop long-term maintenance and rehabilitation plans that enable the assets to provide a quality level of service throughout their useful life. Some countries often adopt infrastructure maintenance funds to make these plans effective.
  - **Box 5: The region's experience with maintenance and/or rehabilitation funds, and their relationship with the budget**

**Mexico**

In Mexico, there is an initiative to guarantee resource allocation for infrastructure rehabilitation, specifically resulting from the destruction caused by natural disasters. Faced with successive pressures on the public budget resulting from recurring natural disasters, in the 1990s, the Mexican Government implemented the so-called Natural Disaster Fund (FONDEN, *Fondo de Desastres Naturales*), as a mechanism to support the rehabilitation of affected federal and state infrastructure. The Fund's resources are mainly allocated to the government and low-income populations, for rehabilitation and reconstruction of (i) federal, state and municipal public infrastructure; (ii) social housing; (iii) components of natural areas.

Under the terms of Article 37 of the Federal Law on Budget and Fiscal Responsibility (LFPRH, *Ley Federal de Presupuesto y Responsabilidad Hacendaria*), the country's annual budget must include resources to carry out actions to prevent and address damage caused by natural phenomena. Article 19 of the Law establishes a minimum percentage of 0.4% for the transfer of budgetary resources to FONDEN; of this transfer, 97% of resources are reallocated to the reconstruction program and 3% to the prevention program.

In August 2020, there was a Legislative Branch proposal to amend the Law to provide for FONDEN in the Mexican Constitution, by reforming Article 29 of the Constitution, so that the Fund would not be subject to arbitrary decisions by each government.

#### Peru

In Peru, there was also an initiative aimed at securing resources for airport expansion in less profitable areas, using the economic attraction of Lima airport. With Supreme Decree No. 137-2006-EF, the Peruvian government established that part of the proceeds from the concession of the “Jorge Chávez” International Airport in Lima should be used for the acquisition and/or expropriation of the land necessary to expand the airport and for State funding to expand less profitable (provincial) airports.

Therefore, the Ministry of Transport and Communications set up a trust fund into which the Jorge Chávez Airport concession holder must contribute resources, to establish funds for expanding the airport itself as well as funding other provincial airports. According to the Lima Airport concession holder, between 2001-2019, \$2.685 million dollars were contributed to the trust, equivalent to 46.51% of the airport's total gross income.

#### Chile

In 2001, Chilean fiscal policy began to be guided by a Central Government rule called structural balance (or cyclically adjusted balance—“CAB”). According to this rule, the fiscal situation is based on a medium-term perspective. In 2006, the initiative became Law No. 20.128 (Fiscal Responsibility Law), which institutionalized the structural surplus and fiscal policy aspects.

The CAB seeks to isolate the “cyclical effect of three macroeconomic variables influencing the determination of Central Government income: economic activity, the price of copper, and the price of molybdenum” (DIPRES (*Dirección de Presupuestos* [Budget Office]), 2007). Calculating this cyclically adjusted balance generates a framework of expenditure possibilities to which certain and contingent fiscal commitments must be adjusted.

The contingent commitments are outlined in the budget year and in the structural balance sheet. Therefore, this combination of budget availability resulting from structural balance and current and future commitments—both certain and uncertain—generates a profile of resources that can be committed to the PPP system.

- **How can contingency lines for fiscal risks be reflected in infrastructure projects?** Risk analysis should be carried out for all projects during the pre-investment stage. Based on this, the contingent liabilities that arise from the materialization of these risks and could imply an expense for the State must be determined. To develop this analysis, the authority responsible for public investment, in coordination with the authority responsible for budget and public credit, must develop a methodology defining parameters of the likelihood of these risks occurring and the expected impact for each type of risk. These contingent

liabilities must then be taken into account when preparing the public budget. Table 6 shows how Colombia established special funds to deal with these contingencies.

- **Box 6: Contingency fund in Colombia**

In Colombia, the State Entities Contingency Fund was created by Law 448 of 1998, to prevent the significant budget volatility generated by contingent liabilities and their consequent impact on debt planning. This fund is a special account without legal status managed by Fiduprevisora, into which State Entities must deposit their contributions. Fiduprevisora is an indirect, national, mixed-capital company, subject to the Industrial and Commercial State Company regime, linked to the Ministry of Finance and Public Credit, supervised by the Financial Superintendence of Colombia and with fiscal control regulated by the Comptroller General of the Republic.

Contingencies for projects developed by PPPs are those under which a State Entity contractually stipulates, in favor of a contractor, a pecuniary obligation for the occurrence of a future and uncertain event, in which the contractor is compensated by means of extensions to the contract duration or the payment of a sum of money, determined or determinable from identified factors. The contribution plan is calculated as the present value of each contingency, distributed over the period in which the risk may materialize. A Schedule of contributions to be made by the Entity is established through this plan, with the aim of having sufficient resources in the event that the risk materializes.

The main objective of the Fund is to administer and manage the resources contributed by the State Entities to address the contingent obligations acquired by them. These obligations must be valued by applying the methodologies of the General Directorate of Public Credit of the Ministry of Finance and Public Credit, since this is the entity responsible for approving methodologies for the valuation of contingent liabilities. However, in the absence of methodologies or on their own initiative, state entities may submit their valuation methodology proposals for the project in question, which must be approved by the General Directorate of Public Credit and the National Treasury. The foregoing is intended to achieve optimal management of the resources contributed to this fund, as well as their availability to meet the payment of contingent obligations in the event that the risk materializes.

- **Are contingent liabilities accounted for differently according to the contract modality?** Most PPP regulations in the region require accounting for contingent liabilities. However, as previously mentioned, the existence of contingent liabilities is not exclusive to PPP projects. Conservative estimates show how [inefficiencies in public investment in infrastructure would account for more than 1% of regional GDP](#). Added to this is the consequent (and underestimated) impact in terms of public procurement contingent liabilities: given the figures for public investment in infrastructure in the [region \(2.2% of GDP, on average\)](#) in the last decade) and the average level of cost overruns, a quick calculation places these contingent liabilities at amounts over 1% of the region's GDP; this figure does not even consider the increase for unforeseen additional asset maintenance and rehabilitation in public budgets. Since private participation in regional infrastructure has been below 1% of GDP, the contingent liabilities generated to date by PPPs would not exceed 0.3% of GDP, if we take the [Chilean experience](#) as an example. Given this reality, it is

essential that the rules governing the public budget require the recording of contingent liabilities for all public investment regardless of its contract modality, following identical standards based on calculation methodologies determined by the ministries of finance and the treasury in coordination with the authorities responsible for public investment.

- **Box 7: The Peruvian experience in handling direct and contingent liabilities**

Since 2018, in Peru, the handling of direct and contingent liabilities in PPP Units has been regulated through Legislative Decree No. 1362. This regulation establishes that *“the accumulated stock of direct and contingent quantifiable commitments, net income, assumed by the Non-Financial Public Sector in Public-Private Partnership contracts, calculated at present value, may not exceed 12% of the gross domestic product”* (Article 27.1).

In addition, it clearly establishes the difference between direct and contingent liabilities:

- The direct commitment is a commitment to pay an agreed amount, which the Grantor (the Public Entity) must make to the private entity to repay the investment and/or operating and maintenance costs of the PPP.
- The contingent commitment is a payment commitment that is activated under certain conditions established in the contract, which, in general, respond to unforeseen reductions in demand for the public service and, therefore, is potential in nature.

It is necessary to take these commitments into account during the PPP project planning and programming phase. This should be reflected in the Multiannual Investment Programming, which will then be formalized in the Multiannual Report on Investments in Public-Private Partnerships. According to this law, this control of direct and contingent commitments should also be reflected in the Multiannual Macroeconomic Framework.

With regard to contingencies arising from PPP Contingent Commitments, the maximum exposure associated with demand and income risk in 12 PPP projects, at nominal value, is USD 3.442 billion (1.53% of GDP), of which more than 50% of the total is due to transport projects (roads and ports). It should be noted that, for the period 2019-2037, the expected materialization of contingent commitments, at nominal value, would amount to USD 2.46 million (0.0011% of GDP). Likewise, in the case of projects with risks associated with costs, such as geological events or emergency maintenance, the estimated amounts per project and per sector, at nominal value, amount to USD 205 million, representing 0.09% of the GDP.

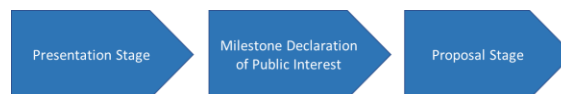
As can be seen, direct and contingent commitments generated by PPPs are fully monitored through the Multiannual Macroeconomic Framework. However, as is known, the same investment project can be executed directly by the government (TPW) funded through public debt or through a PPP. In both cases, the operation implies an increase in the government’s payable obligations; however, only in the first case, these obligations are usually classified as part of public debt. In other words, in the case of TPW, there is no specific monitoring as with PPPs. This may lead to an “adverse selection” problem in government, since the cost overruns caused by TPW could be hidden in the total public debt.

- **Box 8: On private initiatives and the need to coordinate with public infrastructure planning as a whole (by Juan Eduardo Chackiel and José Luis Bonifaz)**

Chile and Peru represent two of the best performing economies in the region in the area of infrastructure development and have greater experience in terms of the relationship with the private sector in the operation and provision of services. The following is a summary of the experience of both countries in dealing with private initiatives.

- **Private initiatives in Chile:** Chile’s public infrastructure concession system is developed under the auspices of the Ministry of Public Works (MOP), through Law 19.068 of 1991 and its subsequent amendments.<sup>8</sup> In this context, for a project to be awarded, it can come directly from a public entity or be developed within the framework of a Private Initiative (PI). Therefore, in accordance with the Concessions Law and its Regulations, any natural or legal person may apply to the MOP, as a private initiative, for the execution of public works through this system. Accordingly, PIs become an opportunity for the private sector to contribute creative solutions, experience and innovation, as well as economic resources, to meet the country’s latent needs in the field of public infrastructure. This is possible to the extent that, in the partnership that is formed with the State, the latter makes available contractual schemes with instruments facilitating project financing and a legal framework providing legal certainty to investors, enabling them to sustain a long-term relationship.
- **Summary of the Chilean procedure:** In Chile, the regulations enable a public infrastructure concession to be executed through two types of projects, according to their origin: those of public origin and those of private origin (PI). However, this does not preclude the fact that both must meet social profitability criteria, in addition to being economically viable from the perspective of the private agent. Also, within the framework of the Regulations of the Public Works Concessions Law, the proponent will have the possibility of obtaining reimbursement for all or part of the costs of the studies that it had to carry out for its proposal, and will receive a premium in the evaluation of its economic offer in the event that the initiative is called to tender for its execution. Specifically, the process that PIs follow involves a presentation stage and a proposal stage, which can be illustrated as follows:

• **Figure 3: Stages of the Private Initiative process**



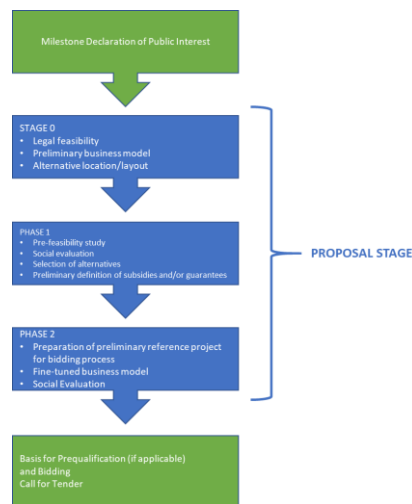
Source: General Directorate of Concessions

In the first stage, a preliminary profile is presented to the DGC, which evaluates whether it meets a set of requirements. If so, the initiative continues to the presentation stage itself before a body

<sup>8</sup> In any case, the foregoing does not mean that the country can only develop concession projects under this legal framework; in fact, they exist under other regulations, as is the case in the port, health and rail sectors.

known as the Concessions Council.<sup>9</sup> This means that, after gathering the corresponding background information, it is submitted to the Council for consideration of “public interest” and the Council issues a recommendation (the Declaration of Public Interest, DIP), as established by current legislation. Once this recommendation has been made and formally ratified by the MOP, the projects enter the proposal stage (Figure 2). This is equivalent to a more complete study phase, which progresses from pre-feasibility to finally become a reference draft project. The latter will serve as the basis for starting the bidding process.

• **Figure 4: Proposal Stage: phases, objectives, and scope**



Source: General Directorate of Concessions

- **Results to date:** The PI system in Chile accounts for 481 proposals submitted, from 1992 to July 2020. The annual average was highest in the 1990s and in the five-year period 2005-2009. The decline in the interim period, 2000-2004, may have been associated with the Asian Crisis, which led to a decline in the growth of the Chilean economy and in the availability of funding sources in the late 1990s and early 2000s. Another factor was an adjustment in the award level, which was initially 10% for all types of initiatives. An analysis by sector shows that 45% is linked to the road sector, followed by other modes of transport such as trains, trams and cable cars

<sup>9</sup> This organization was created from a legal amendment in 2010, which also included other improvements to the concessions system, and was reformed in 2017, within the framework of the law that created the General Directorate of Concessions. It is chaired by an advisor who is freely appointed and can be jointly removed by the Ministers for Public Works and Finance, and also include the Minister of Public Works and four other professionals: two advisors appointed by the Minister for Finance (one academic belonging to a faculty of Economics and/or Administration and the second belonging to a faculty of Legal and/or Social Sciences); and two advisors appointed by the Minister for Public Works (one academic belonging to a faculty of Civil Engineering and the second belonging to a faculty of Architecture). The Council is advisory in nature (its opinion is equivalent to recommendations), and is responsible for reporting on several matters including the proposed infrastructure concession plans to be developed, as well as on projects and modalities of the concession regime (particularly in the case of PI). In addition, the regulation more broadly establishes a set of matters in which the DGC must request a prior report from the Concessions Council, before making a decision, and others in which it will be optional.



(15%), public buildings (12%), water resources (6%) and air transport (5%). In addition, of the total number of PIs submitted, the Declaration of Public Interest (DIP) has been granted on 63 occasions, equivalent to 13% of cases. It is important to note here that not all of the PIs failing to obtain a DIP recommendation were rejected, as 42 currently have studies under development in different phases. Some of these may later obtain the DIP. Meanwhile, within the group of PIs that obtained the DIP, projects in sectors such as roads and airports have greater relative success in terms of finally reaching a bidding process. This is because their presence in the set of PIs that were successfully tendered is stronger than in the set of PIs initially submitted. In the specific case of road PIs, it is also worth considering that they may be more attractive because they have a higher investment volume compared to the rest of the sectors.

- **Proposals for improvement:** The PI system is currently under review, with the aim of strengthening aspects that could increase interest in the tool and provide it with greater certainty in some areas. In this regard, the main guidelines for a change in the Regulations would be as follows: a) Simplifying the admissibility process and reviewing deadlines; b) Establishing a fixed and certain percentage of reimbursement linked to studies; c) Improving the award scheme, as a real incentive to submit proposals, without restricting competition.

- **Results of the Peruvian experience with Private Initiatives:** In Peru, the private initiative (PI) is the mechanism through which the private sector presents PPP development projects. These private initiatives can be self-funded (SPI) or co-funded by the State (CPI). In recent years, with the regulations in force until then, a so-called “window of opportunity” was opened for the government to receive PIs. Therefore, in 2014 and part of 2015, 237 CPI projects were received. In other words, there was an overwhelming reaction from the private sector to invest in infrastructure. Then, in 2016 and 2017, a few more projects were submitted. However, as of 2019, only 29 projects remained under evaluation. The others were rejected or not admitted for processing. Analysis of these CPIs has been complex and many are in sectors in which this is the first time they have been submitted. In many cases, as the project has developed, gaps or unplanned issues have been found. Moreover, neither PROINVERSIÓN nor the sectors had the capacity to evaluate so many projects simultaneously in a timely manner.

In addition, since they are projects requiring funding from the State, the regulations established that projects should be formulated within the framework of the National Public Investment System (SNIP); as such, a new pre-investment study formulation unit had to be created in PROINVERSIÓN. However, although PROINVERSIÓN knows how to structure projects as a Public-Private Partnership (PPP) and promote projects in the market to attract companies' interest, it does not necessarily have the technical or budgetary capacity to formulate the projects declared of interest adequately and on time.

Therefore, only one of these CPIs, submitted on May 28, 2014, called “Wastewater Treatment System for the Lake Titicaca Basin” (PTAR Titicaca), was awarded by PROINVERSIÓN on April 29, 2019 to the Fypasa consortium, from Mexico.

- **From the entry into force of the new PPP Law.** However, the new PPP Law, DL 1362, establishes that now, CPI projects that are fully or partially funded by the National Government must be presented at the time and on the matters determined by the latter. Therefore, the sectors included must publish in a Supreme Decree the need for intervention in infrastructure and public

services, related services, applied research and/or technological innovation, as well as the maximum budgetary capacity they have to assume these commitments. In other words, the presentation of PIs is restricted to the time, sectors and amounts decided by the National Government in a Supreme Decree. Likewise, PIs at the national level, as well as CPIs at all levels of government, are submitted to PROINVERSIÓN, which assumes full responsibility for them. On the other hand, regional or local SPIs are submitted to the Regional or Local Governments, as appropriate. The mechanism is attractive for private investment, since the CPI proponent has the advantage of reimbursing the expenses incurred in the event that it is not awarded the project. It has the right to direct award if there are no third parties interested in the project and to match the best offer in the event that any interested party makes a better offer. Finally, it has the right to keep the information confidential until the declaration of interest. However, this modality must be properly regulated and the proposals submitted by the private sector must be brought into line with the wishes of the State and in coordination with sectoral and national infrastructure plans.

*Source: Juan Eduardo Chackiel (2020) for the Chilean case; José Luis Bonifaz (2020) for the Peruvian case.*

## 4. Project Evaluation: Investment and Procurement Decisions

Project evaluation is a critical step in ensuring the effectiveness of infrastructure investments and procurement. Standardizing project evaluation methodologies and systematically implementing them allows for a consistent prioritization of projects throughout political and economic cycles, which enables them to be properly developed in the long term.

In addition, systematic project evaluations before and after implementation enable the parameters and methods that work to be measured and replicated, making it possible to create an intelligent system that learns and improves—a feedback system—in the delivery of quality public infrastructure services.

### a. How can sequential decisions be coordinated? Ex ante, during, and ex post.

As discussed in previous sections, the ultimate goal of infrastructure project development is to provide ongoing quality, efficient and sustainable services to society. To that end, all projects must go through a sequential decision-making process to determine whether they will generate benefits for the affected population and whether public resources are being used in the best possible way.

Best practice suggests that the first step is to conduct a socio-economic analysis to compare the costs and benefits generated by the project from a social perspective. This requires methodologies that include social pricing and one or more appropriate social discount rates. It is recommended that these methodologies come from the country's public investment regulatory authorities and be applied to all projects to be developed. Only projects that contribute to the welfare of society should be developed.

- **Box 9: Cost-Benefit Analysis**

This is based on identifying and defining the monetary value of the positive and negative contributions that each project makes to society. These contributions are standardized and updated by means of the net present social value (NPSV), in other words, a numerical value that summarizes the project characteristics and provides an efficiency criterion on which to base the investment decision ex ante. This indicator is constructed by valuing costs and benefits at social prices and discounting them at a social discount rate. The choice of methodology may vary from country to country and also according to sector, although Cost-Benefit Analysis (CBA) is often the best practice.<sup>10</sup> Whatever the methodology used by the public administration, it is essential that it is implemented in a transparent and clear manner, allowing the different agents involved to understand how, from a socio-economic perspective, the benefits outweigh the expected costs.

<sup>10</sup> For an in-depth analysis of the methodology, see De Rus (2010).

At the same time, it is important to consider that these evaluation methods will take into account both the direct and indirect benefits of the project. The latter are often more complex to measure (e.g., visual impact of an asset, or the value of life or accident rate).

When performing the CBA, it should be taken into account that market prices do not reflect the true value of resources to society; therefore, it is necessary to construct social prices. These are calculated by the national authorities in charge of public investment and/or planning. Their calculation makes it possible to take into account the effects of a project on consumers and producers. It also includes the presence of distortions (such as taxes and/or subsidies), the existence of monopolies, monopsonies, spillovers and positive and negative externalities. The usual practice is to calculate annually a set of basic social prices that includes the price of capital (social discount rate), foreign exchange and labor (Contreras, 2004).

Choosing a social discount rate (SDR) is one of the critical elements in public project evaluation processes and, in particular, in the cost-benefit analysis. There is some agreement that this rate should reflect the opportunity cost that society attributes to the resources invested in a project in relation to its possible alternative uses, although there is no single way of calculating this cost and applying it to the evaluation (Campos et al., 2016). Standardizing an SDR enables the comparison of infrastructure projects and is a relevant tool for creating an investment portfolio.

An example of best practice in this area is the United Kingdom, which has the *Green Book: Central Government Guidance on Appraisal and Evaluation*. It was prepared by the Treasury and contains recommendations regarding the assessment, evaluation and monitoring of projects, programs and policies before, during and after their implementation. This book is part of a set of guides that complement and reinforce it:

- *Managing Public Money*: which provides guidance on the responsible use of public resources;
- *Business Case Guidance for Strategic Portfolios*: which provides guidance on the development of strategic portfolios for the realization and management of policies through programs and projects;
- *The Business Case Guidance for Programmes* and *The Business Case Guidance for Projects*: which provides detailed guidance on the development and approval of capital expenditure on programs and projects respectively;
- *The Aqua Book*: which provides standards for analytical modeling and assurance;
- *The Magenta Book*: which provides detailed guidance on evaluation methods.

With regard to CBA, this book indicates that a Social Cost-Benefit Analysis or a Social Cost-Effectiveness Analysis should be carried out, to determine whether the benefits produced by the project outweigh the costs. The second option may be more appropriate when the main costs or benefits remain unchanged, or when they are difficult to measure.

The book presents the main categories of costs and benefits that should be taken into account and how to estimate them, the procedure for adjusting for inflation, the procedure for applying the social discount rate, how to include undesirable effects in the evaluation, as well as optimism bias and risks. Finally, it recommends conducting a sensitivity analysis of the intervention outcome to potential impacts on key variables. This helps to determine how sensitive the social NPV outcome is to changes in key variables.

The next step is to carry out a comparative analysis between the different available options through which a project could be carried out, i.e. traditional public works versus an appropriate

public-private participation scheme. Through an exercise known as the PublicSector Comparator (PSC), the risk-adjusted costs of developing the project through public works are compared with those of developing it through PPPs, taking into account that both schemes provide the same level of service with the same quality. To carry out this analysis, the project's risk-sharing scheme and the economic-financial model for each contracting alternative must be clear. The project should be developed using the option that provides the best value for money to society. Prior to the Public Sector Comparator, most of the countries in the region also carry out a qualitative eligibility analysis<sup>11</sup> to evaluate whether the project is suitable for development through PPPs in early stages. Likewise, some countries in the region, such as Colombia and Paraguay, add a final qualitative analysis regardless of the result of the Public Sector Comparator. It is a Multicriteria Analysis that, based on different tools and procedures, can reinforce or contradict the PSC result, since it is understood that the simple calculation of the risk-adjusted cost differential may not fully cover the complexity of a project suitability analysis. This type of analysis requires special care to prevent discretionary decision-making.

In addition, international experience indicates that it is good practice to carry out a project Affordability Analysis. This is to determine whether the public sector has the necessary resources to deal with the project throughout its life cycle. In this way, projects that generate benefits for society should be carried out through the option that makes the best use of public resources; however, it is also necessary to evaluate the availability of these resources.

Developing an effective project risk analysis and economic-financial model (basic input for carrying out the aforementioned analysis) is essential. It is important that local governments have the resources and capacity to carry out a rigorous analysis of the business and financial model, since the commercial viability of the projects largely depends on this. Given this, Multilateral Development Banks can provide expertise and resources to strengthen the specific capacities needed, both by supporting structuring and by strengthening public sector capacities.

Once all the ex ante analyses necessary for proper project preparation have been carried out, the tender process must be planned. This should combine stakeholder analysis and market research that will help define the type of tender to be carried out, the preparation of specifications and contracts, as well as an institutional and legal framework with preventive measures in terms of transparency and integrity, with adequate regulatory and sanctioning mechanisms to address possible acts of corruption. The control bodies must comprehensively monitor and control the whole process within this framework.

The United Kingdom has a document entitled "Guide to Developing the Project Business Case", which, as indicated above, is part of a set of guides that authorities use to assess, evaluate and

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<sup>11</sup> To carry out this eligibility analysis, a tool is available that, through the formulation of a series of questions and specifically defined criteria, enables the projects with the greatest potential to be developed through PPPs to be identified, selected and ranked in the early stages of formulation. This analysis also makes it possible to identify project strengths and weaknesses and establish an action plan to improve the chances of some projects being developed by PPPs. The following countries are among the LAC countries that apply this analysis: Mexico, Colombia, Peru, Uruguay, Paraguay, among others.

monitor the projects they develop. This guide specifically presents the so-called *Five Case Model* for the preparation of business cases. It comprises:

- 1- *The strategic case*: this demonstrates the consistency of the project under analysis and its objectives with the remaining projects or programs and with the objectives at the local, regional, and national levels. In addition, at this stage, the current state of affairs, current and future needs, potential scope and service requirements, major benefits, risks and constraints should be identified.
- 2- *The economic case*: this aims to identify the proposal that generates the most value for money for society, and includes both the social and environmental impact of the proposal. The project proposals to be analyzed must have previously passed the cost-benefit analysis.
- 3- *The business case*: this aims to demonstrate that the option chosen in the previous step can be viable from a procurement point of view and that it will allow for a win-win deal for the public and private sector. At this stage, the procurement option, the desired level and quality of services and products, risk allocation, payment mechanisms, main contractual clauses, staffing requirements, accounting treatment, etc. must be defined.
- 4- *The financial case*: this aims to define the affordability and funding capacity of the selected option. To verify this, a full understanding of the capital, income and cost requirements throughout the project life cycle and how this will impact government accounts is needed.
- 5- *The management case*: this aims to demonstrate that robust arrangements are in place for the implementation, monitoring and evaluation of the plan, including feedback into the organization's strategic planning cycle. This requires a project governance plan, contract change management plan, risk and contingency management plan, post-implementation action plan and project evaluation plan.

## **b. How can adequate monitoring and supervision be carried out throughout the life of the asset?**

*This section adapts and summarizes the content of the document "Allocation of responsibilities, optimal monitoring processes and tools for adequate performance and transparency" prepared by Deloitte Consulting, S.L.U. for the Network of Analysis and Best Practices in Public-Private Partnerships. For further details, see the following [link](#)*

Monitoring a PPP Contract consists of the Public Party verifying and ensuring that the private counterparty complies with the specific obligations in the PPP Contract. One of the main tasks is to monitor the level of service performance, which means compliance with certain levels of quality and service indicators. In the event that the private counterparty fails to meet the obligations established in the PPP Contract, payment deductions or penalties will be applied to encourage compliance with the required performance levels. If the breach persists over time, early termination of the contract may even be triggered.

Proper monitoring is essential for a PPP project to achieve the expected socio-economic value and to ensure that the value contribution of this contract modality is fulfilled. PPPs provide clarity on the obligations assigned to the private and public counterparties and raise the level of scrutiny with regard to the private party's compliance, to ensure that the project's socio-economic objectives are achieved. In addition, monitoring with the expertise and knowledge of the private counterparty increases efficiency, saves costs, and ensures the project's Value for Money. Furthermore, the obligations of information reporting, communication and monitoring the performance level of the private counterparty itself make PPPs a perfect vessel for ensuring transparency throughout all phases of the PPP Contract.

Normally, the Public Administration carries out the monitoring tasks through a Contract Management Team appointed by the granting authority; this may be a sector unit with a team specialized in contract monitoring, or the service may be subcontracted to a private sector entity. Likewise, and depending on the country, supervisory or control bodies oversee the granting authorities to check that they are applying monitoring tasks in accordance with the relevant regulations.

Depending on the stage of the PPP Contract, the monitoring tasks and intensity vary, for both the Public and Private Counterparty.

In the Contract structuring phase, the minimum monitoring requirements established for the project are defined. Monitoring tasks do not begin until the start of the design and construction phase of the project.

At the beginning of the works design phase, the Contract Management Team's task intensity is high, as it has to approve the final design of the works, verify that all permits, licenses and insurance are in order and supervise the start of the works. At this stage, it must be verified that the Private Counterparty has the appropriate management mechanisms in accordance with the terms of the bidding documents. For example, the information system or the works progress plan during the construction phase.

When construction activities begin, monitoring consists of supervising compliance with the technical specifications established in the PPP Contract. The Public Counterparty usually contracts independent interim audits to monitor construction milestones. In addition, the Public Counterparty must monitor other aspects such as proper risk transfer and compliance with the environmental impact study. The Private Counterparty must provide interim monitoring reports describing the progress of the works, action plans in the event of delays to the work plan or relevant incidents, among other information.

During the transition phase (the phase from the end of the works to the start of operation), the monitoring tasks are increased to ensure that the service is correctly initiated. At this stage, the construction works should have been completed with the exception of some minor defects, which are usually included in a to-do list or *punch list*, generally drawn up by the Private Counterparty.

During the operation and maintenance phase, the Public Counterparty must ensure that the Private Counterparty complies with the service levels established in the PPP Contract. This task is

performed with the help of reports (annual, quarterly, monthly or daily). To a large extent, the intensity of tasks is reduced as some of the monitoring processes can be automated and *self-monitoring* can be delegated to the Private Counterparty. The Public Counterparty must periodically verify the accuracy of the data provided by the Private Counterparty; in order to do so it usually uses an independent third party (interim audits). In addition, during this phase, there are often expansion, major maintenance or replacement interventions that require more intensive monitoring tasks to supervise these works.

At the end of the operation and maintenance phase, the return phase begins. During this phase, the intensity of monitoring tasks further increases to ensure that the infrastructure is returned to the Granting Authority in the conditions established in the PPP Contract.

The main monitoring tasks of the Public Counterparty are summarized in the table below:

Phase	Activities
After signing the Contract and during the design phase	<ul style="list-style-type: none"> <li>• Approval of the final design of the works.</li> <li>• Supervision of obtaining permits and licenses.</li> <li>• Approval of the insurance plan.</li> <li>• Document management.</li> </ul>
Construction	<ul style="list-style-type: none"> <li>• Review of monitoring reports.</li> <li>• Approval of the work milestone completion certificates.</li> <li>• Application of penalties and/or payments to the Private Counterparty.</li> <li>• Execution of interim audits.</li> <li>• Supervision of the construction quality and environmental impact plan.</li> <li>• Supervision of the risk management plan.</li> <li>• Supervision of the infrastructure testing and control programs.</li> <li>• Document management.</li> </ul>
Transition	<ul style="list-style-type: none"> <li>• Verify that the infrastructure complies with the provisions of the PPP Contract and that the service complies with the performance indicators.</li> <li>• Supervision of the infrastructure testing and control programs.</li> </ul>
Operation	<ul style="list-style-type: none"> <li>• Direct monitoring of some of the performance indicators and periodic verification of others.</li> <li>• Execution of interim audits (e.g. to corroborate the accuracy of the data provided by the Private Counterparty).</li> <li>• Independent calibration of the measuring equipment used in the service provision.</li> <li>• Monitoring of risks retained by the Public Counterparty.</li> <li>• Negotiate with the Private Counterparty during the ordinary and extraordinary reviews of the Contract, regarding amendments to improve the monitoring processes (e.g. Changes in the methodology for assessing performance indicators).</li> <li>• Document management.</li> </ul>



Reversion	<ul style="list-style-type: none"> <li>• Verification of the state of the infrastructure.</li> <li>• Supervision of tax contingencies.</li> <li>• Monitoring of company accounts.</li> <li>• Document management.</li> </ul>
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The system of indicators is necessary to effectively regulate the transfer of availability and/or quality of service risks to the Private Counterparty. The outcome of these performance indicators is linked to the payment mechanism, which incentivizes the Private Counterparty to meet the requirements defined in the PPP Contract. For this reason, it is essential to correctly design the performance indicators; in this regard, a series of requirements that these indicators must include in order to be effective have been identified.

One of the most commonly used principles when designing indicators is to follow the SMART (*specific, measurable, achievable, relevant, time-bound*) methodology, which mainly consists of creating specific indicators that leave no room for error; they must be reliable, that is, the result that this indicator yields must be the same over successive measurements; they must provide relevant information on the objective to be measured; furthermore, a balance must be struck between the cost of making the indicator available and the information it generates.

On the other hand, both parties are concerned how these results are captured, and whether they show an indisputable picture of the quality of the service, so that the remuneration is correct. In this regard, the data can be automatic or non-automatic, depending on how they are captured. Automatic indicators are objectively measurable through equipment and applications or software that are automatically stored in databases; in contrast, non-automatic indicators do not always require instruments to be measured and may, therefore, be subject to subjective measurements. Where possible, it is advisable for an independent third party to measure the non-automatic indicators to avoid disputes between the parties over interpretation.

The monitoring report prepared by the Private Counterparty is one of the main contract supervision tools in which the results of the indicators are collected. Reporting during the construction phase is linked to the achievement of milestones, while reporting during the operation phase is linked to the achievement of performance parameters, which, in turn, are related to the project payment mechanism. It is common for the monitoring report to be divided into sections with different reporting frequencies, depending on how often the indicator is measured.

Due to the complexity and duration of PPP projects, it can be difficult to manage all the available information. Therefore, in the PPP Contract, it is common for the Public Counterparty to include the need for the Private Counterparty to implement an Information Management System, consisting of an electronic tool with which to record the operations and documents generated by the project. This system allows a large number of procedures to be automated and, therefore, increases project efficiency and provides security to both parties by providing objective information. The latter is combined with one of the principles of PPP contracts, that of transparency, which is

regarded as the extent to which users have access to project information. The principles of transparency and integrity must be present throughout the project life cycle, not only because of their effect on project bankability, but also because of their impact on asset performance. Making all this information available to users allows them to become involved in the performance monitoring and control process, and to detect deviations that could affect the quality of the service provided.

### **c. How can we get the best out of the evaluation process?**

#### **Ex-post evaluation procedures and interim evaluations:**

Ex post evaluation is crucial, both of the exercises that determined project suitability (CBA) and of the bidding scheme under which it was carried out (VFM). At the end of the investment cycle, it will be possible to obtain concrete evidence on the performance of public investment projects to understand whether the investment was successful, and why. Therefore, at the end of investment cycles, it is essential to provide evaluations capable of measuring efficiency in the use of public resources to generate well-being for society, and to exclude inefficiencies in future processes. This would enable the creation of a bank of results to help establish the optimal framework for future projects, which is one of the main recommendations of this chapter.

**Box 10: “Green” and “Magenta Book” in the United Kingdom and the Mexican experience**

In the United Kingdom, *HM Treasury* produces the *Green Book*, a guide containing guidelines for public policy evaluations, and the *Magenta Book*, which explains evaluation methods. The *Green Book* was created in 2003 and is updated to include refined guidelines taking into account the learning process over the years. This book emphasizes the importance of evaluations such as cost-benefit analysis, impact assessment after public policy implementation, as well as accountability and transparency tools<sup>1</sup>, which should be considered in the planning and resource allocation process. In addition, a number of institutions use the data from this ex-post evaluation process, such as the Parliament *Public Accounts Committee*, which monitors the results of the evaluations and uses them in its legislative work, and the *National Audit Office*, which monitors and verifies the evaluations made. The *Magenta Book* is a more practical guide on how to use evaluation methodologies at all stages of the public policy process—before, during and after. The “*Guidance for Conducting Regulatory Post Implementation Reviews*” is a companion document to the *Magenta Book*, explaining the most important approaches to conducting an ex-post analysis. It is noted in the book that, to generate a more substantial analysis using the evidence-based evaluation approach method<sup>2</sup>, the following will be necessary: i) impact evaluations; ii) process evaluations; and iii) economic evaluations. It should be noted that these books are guidance documents that are followed and developed based on practice and learning in the United Kingdom.

In the region, the case of Mexico is notable. The National Council for the Evaluation of Social Development Policy (CONEVAL, *Consejo Nacional de Evaluación de la Política de Desarrollo Social*) is an institution with technical and managerial autonomy with the competence to monitor and evaluate public policies using technical criteria. In performing its duties, CONEVAL prepares the impact evaluation to analyze the ex post impacts of a public policy. The proposal involves analyzing the effects of public policy by understanding what the situation of its beneficiaries would be like were it not implemented.

1- “5.26 Monitoring of costs and benefits during and after implementation is necessary for management, control and transparent accountability. Longer running programs and larger projects over several years should maintain regular monitoring against and updates of original projections. This is vital to managing the delivery of social value through benefit realization and cost control, providing information that supports the design of future interventions. 5.27 Public sector organizations responsible for public expenditure need to undertake cost monitoring, cost modelling and risk monitoring. Forecasting error and associated risks can be reduced by maintaining active cost monitoring systems and improving unit cost estimates by employing cost modelling techniques.” (Green Book, 2018).

2- The *Magenta Book* proposes that, in order to implement an ex-post analysis, three points should be analyzed: i) data monitoring; ii) stakeholder involvement; iii) evidence evaluation.

## 5. Including Sustainability Components in Infrastructure Planning, Prioritization, and Development

It is vital (to use this term accurately, especially when considering the long term) that the planning and prioritization process effectively integrates the components of sustainability and resilience, so that the estimated benefit can span generations, helping to meet the United Nations Sustainable Development Goals.

Infrastructure investment policies and decisions made now will determine whether or not we can limit global warming to 1.5 degrees (Bhattacharya et al., 2019). [Seventy percent](#) of projected increases in emissions in developing countries will come from infrastructure that has not yet been built. Therefore, promoting smart and sustainable development will be key to determining whether the Sustainable Development Goals and the Paris Agreement remain viable, or whether we will face a bleaker future. Here we find a direct and tangible space in which we can act to tackle climate change. Not taking advantage of it would be a missed opportunity.

In this sense, properly considering and planning the different dimensions of sustainability has a major impact on the successful development of infrastructure projects. In 2019, through the [“Sustainable Infrastructure Framework,”](#) the IDB proposed a more holistic view of sustainability categories, also encompassing financial and institutional sustainability in addition to the traditional environmental and social components. Financial sustainability enables an adequate vision of the project’s income flow, thus enabling its operation and maintenance throughout its life cycle, reducing the abandonment of assets due to lack of resources. This view also requires fiscal liabilities to be properly accounted for, an issue discussed in more depth in Topic 3 *“Integration between investment and budget cycles - integration between national public investment systems and PPP units.”* Institutional sustainability looks at the governance aspect, seeking to demonstrate the importance of institutions in clearly and transparently including sustainability criteria in prioritization. This criterion reinforces the need for trained agents with technical and engineering know-how, to properly monitor the development of sustainable projects.

The [Sustainable Infrastructure Framework](#) highlights the importance of considering these criteria comprehensively across the asset life cycle: design, construction, operation and decommissioning. Adhering to sustainability criteria from the outset increases the chance of the project completing its life cycle, avoiding cost overruns and delays in its development, and enabling a greater social cost-benefit.

- a. Effects of including sustainability criteria in infrastructure planning, prioritization, and development. Considering sustainability criteria during infrastructure planning and prioritization is fundamental and should be considered a **saving rather than a cost increase**. There are indeed costs involved in properly preparing a project, between 5 and 10% of the total investment in developing countries (*Global Infrastructure Hub*, 2019); however, ignoring sustainability criteria can generate cost overruns that can reach up to 68% of the total budget and lead to delays of up to 13 years (IDB, 2020). Therefore, it is clear that the benefits of a sustainable project far outweigh the costs associated with its planning. In addition, adding sustainability criteria to developing sustainable projects increases the efficiency and effectiveness of these projects, in the sense that sustainable projects are more likely to follow the initially estimated costs and implementation time and fully meet their life cycle.
- **Box 11: The tool for prioritizing sustainable public investment—Implemented in SHCP (Secretaría de Hacienda y Crédito Público [Ministry of Finance and Public Credit]) Mexico.**

In order to prioritize public investment towards sustainable investment programs and projects generating greater social and environmental multipliers for long-term sustainable economic growth, the IDB supported Mexico's Ministry of Finance and Public Credit in incorporating sustainability criteria into its Portfolio registration platform.

Today, agencies seeking public budgets for the construction/operation of infrastructure projects in various sectors such as electricity, transportation, communications, water and environment, social infrastructure, tourism or hydrocarbons, are required to conduct a socio-economic analysis that includes **quantitative indicators of sustainability** and climate change, in order to prioritize those projects with strategies for adapting to climate change, alleviating poverty, transparency and long-term economic and financial sustainability.

- b. Best practices in governance and examples of tools applied internationally. An effective way to add sustainability criteria to infrastructure project structuring from the planning stage is to develop tools enabling a systematic and homogeneous selection of the entire project portfolio using these criteria. These types of mechanisms, sequentially establishing criteria in a clear and homogeneous manner, which is easily replicable, can facilitate the work of public managers and, at the same time, add transparency and clarity to attract potential investors, clearly and concisely communicating to investors and various stakeholders the sustainability of their assets.

If public managers were less resistant to implementing and using such tools, it would be possible to systematically structure a portfolio of sustainable projects with regular and constant investment cycles. Creating infrastructure plans, as well as tender documents, including the sustainable dimension is key to establishing clear cycles and parameters.

- **Box 12: The Mexico Projects experience and the Project Portfolio Register**

In Mexico, the “Mexico Projects” initiative has developed a way of connecting long-term infrastructure projects with potential private investors. The proposal aims to consolidate a bank of investment projects to provide visibility and clear information about the portfolio of projects in Mexico in search of private capital.

Through this platform, the Mexican government promotes infrastructure projects in various sectors such as electricity, transportation, communications, water and environment, social infrastructure, tourism or hydrocarbons, to be funded by public or private institutions.

The “Mexico Projects” platform alone is already a worthy initiative for clearly and transparently setting out Mexico’s priority project portfolio; however, the initiative goes beyond that, as it has incorporated sustainability considerations [criteria] that must be reported in the projects that wish to appear.

The criteria consider the four sustainability categories of the IDB Sustainable Infrastructure Framework: economic and financial sustainability, institutional sustainability, environmental sustainability and climate resilience, and social sustainability. The four dimensions are subdivided into other criteria considering points relevant to Mexico’s reality, such as: transparency and anti-corruption (institutional category); natural disasters and resilience (environmental category); reducing poverty rates (social category); and asset maintenance and optimal use (economic-financial category). By including these criteria, when a project enters the Mexico Projects portfolio, it also has a sustainability file, which can be analyzed by potential investors. Currently, the platform has 350 projects with a sustainability file, originating from different infrastructure sectors such as roads, solid waste, hydrocarbons and electricity.

By clearly and transparently defining sustainability criteria, Mexico will be able to develop a consistent portfolio of sustainable projects that will be more attractive to potential private agents, sustainably closing its long-term infrastructure gap.

- c. Technical considerations on external factors, project discount rates and financial sector initiatives. One way to incentivize and prioritize sustainable projects is to involve the financial system, with initiatives ranging from differentiated discount rates for sustainable projects (see Topic 3) to the issuance of green bonds for sustainable infrastructure investment. Another way may be the use of differentiated discount rates for project evaluation. For example, in Peru, the National Public Investment System considers a social discount rate of 4% for projects “of environmental services to reduce or mitigate greenhouse gas emissions”, and of 9% for other projects.

- **Box 13: Green Bond Issuance in Chile**

Green bonds are important initiatives to drive investment in sustainable infrastructure. The issuance of green bonds was a relevant change in the way investors, governments and climate change experts relate to one other.

To meet its international commitments, such as the carbon reduction commitment, Chile signed the Green Deal in 2019. This agreement was a voluntary commitment signed between the financial sector, the Chilean government and regulators, to manage the risks and opportunities generated by climate change. The Agreement has specific principles and commitments for each of its signatories. More specifically, also in 2019, the Ministry of Finance, together with other sector ministries and with the support of the IDB, developed a Framework for green bonds, to promote the funding of projects according to sustainability parameters. This framework sets out the government's obligations as an issuer of green bonds, which already follow the other government bond issuance rules, namely Law no. 1263/1975 and no. 21.125/2018. With this Framework, the Chilean government must follow the points established therein for the issuance of these bonds.

The Green Bond Framework is clear in stating that eligible projects are expected to: i) promote Chile's transition to a low-carbon economy; ii) comply with the IDB Sustainable Infrastructure Framework. Six categories of expenses eligible for funding are included, each with specific requirements, namely: clean transport, energy efficiency, renewable energy, conservation of biodiversity and marine resources, water management and green buildings.

The Framework establishes a sequence for bond issuance, with a process of evaluation, selection of projects, assets and expenses. During this process, the Ministry of Finance will prepare an Allocation Report and an Impact Report for the green bonds issued. The Allocation Report outlines the allocation of the net resources of each green bond, until it is fully allocated, including other data of interest, such as: description of the projects and the amounts disbursed; percentage of income allocated per project or program; percentage of income allocated for funding and refunding (Republic of Chile, 2019). The Impact Report will be presented annually and, as soon as the green bond is effective, information on project implementation will be provided to investors. The information in this report may include project impact assessments, quantitative and qualitative performance indicators, among other data.

In 2019 and 2020, Chile issued green bonds in dollars and euros. In the first issuance, in 2019, the interest rate was 3.53% and green bonds were issued for USD 1.418 billion maturing in 2050.

- d. Impact of its components on the risk matrix. Mechanisms, methodologies and initiatives for promoting sustainable infrastructure development. Adding possible contingency scenario forecasts is essential for structuring a resilient infrastructure that is capable of surviving its entire life cycle. To this end, it is essential to build a comprehensive risk map, which will result in an adequate risk matrix, and therefore better structured contracts. Specifically, identifying and quantifying risks is a key element in generating PPPs, enabling an efficient and sustainable allocation of

responsibilities (risks). [Specific tools that can be practically applied to assess the risk of climate and natural disasters](#) are essential for the preparation of infrastructure projects. The recently published *toolkit for building resilient PPPs* offers different climate resilience considerations throughout the project development stages. However, applying solid and robust tools and considering resilience components when preparing and developing projects throughout the entire process requires the use of resources. These are normally public, although there may be recovery alternatives contingent on project development that enable the public sector to recover the costs incurred in preparation.

- **Box 14: Improving the resilience of PPP projects in Jamaica**

Small islands like Jamaica are constantly affected by the effects of climate change. This has consequences on the existing infrastructure, which affects the normal development of economic activity and has a negative effect on productivity. Therefore, developing resilient infrastructure is particularly important and requires public-private partnerships.

With this objective in mind, the Development Bank of Jamaica (DBJ) and the IDB worked on an analysis, diagnosis and recommendations on the treatment of climate-related risks in the country's PPP policy. As a result of this [analysis](#), a tool was developed to help governments understand and manage climate risk to design and implement resilient PPP projects, and a country-specific action plan was developed.

The approach used considered all phases of the PPP project life cycle and all climate risks that could affect the preparation and implementation of this type of project, with special emphasis on:

- inclusion of climate risk assessments in PPP policies;
- inclusion of climate resilience mechanisms from the selection, appraisal and procurement stage of PPP projects;
- improved project structuring and disaster risk allocation, especially in cases of force majeure;
- inclusion of risk mitigation mechanisms, such as insurance;
- evaluation of innovative remuneration and financing mechanisms that encourage resilient activities.



## 6. COVID-19 Impact on Infrastructure Planning and Prioritization: The Need for Better-Prepared Projects in the Face of a Double Flight to Quality

The new global reality imposed by the spread of COVID-19 puts the global economy in an unprecedented critical situation, which will require infrastructure development planning and prioritization strategies to be considered in a truly complex fiscal context. Following the health crisis, which is a top priority, world regions face very short-term economic challenges, as a result of the necessary measures imposed to stop economic activity to save lives and eliminate the virus. Latin America and the Caribbean face an uncertain future. The recently published [IDB 2020 Macroeconomic Report](#) shows how the region could experience falls of between 6.3% and 14.4% in GDP in the next three years, taking into account different scenarios. The region is set to face a crisis of a larger scale and with a greater potential impact than those experienced in recent decades.

In times of crisis in Latin America and the Caribbean, precedents indicate that economies may experience a sharp reduction in capital spending and, therefore, in infrastructure investment. Capital expenditures in the region are procyclical and suffer disproportionately large cuts when the economy experiences hard times ([IDB, 2018](#); [Ardanaz and Izquierdo, 2017](#)). For example, during the financial and fiscal crisis that hit the region in the late 1980s, much of the countries' fiscal relief was created by making drastic cuts to infrastructure investment ([Carranza, Daude and Melguizo, 2014](#)). During the 1990s, current expenditures grew dramatically in the region, a trend that continued throughout much of this century: between 2007 and 2014, total public spending in the region grew by 3.7% of GDP; however, 92% were directed to current expenditures, while only 8% went towards longer-term investments such as infrastructure ([Cavallo and Serebrisky, 2016](#)). In general terms, [Ardanaz and Izquierdo \(2017\)](#) show how, particularly in the region, current and capital expenditures react to the economic cycle differently: while the former increase in good times, but do not decrease in bad times, the opposite is true for real capital expenditure, which decreases in bad times, but does not recover in good times. Therefore, the region's history shows that a sharp contraction of public investment in infrastructure in the region is to be expected.

In the short and medium term, the health crisis provoked by COVID-19 will create the need to meet high demand for current expenditures in the areas of health care, assistance to vulnerable groups, and strengthening of the economic protection network. This will consequently deepen the economic crisis, since the opportunity cost of these resources will materialize by reducing investment levels and potential deterioration in the quality of infrastructure services. As [Izquierdo and Ardanaz \(2020\)](#) point out, *during the Great Recession of 2008, the average balance sheet in Latin America and the Caribbean was -0.4% of GDP, compared with -3% in 2019—a difference of 2.5% of GDP*. Moreover, the average public debt grew from 40% in 2008 to 62% of GDP last year,

pointing to a *clear deterioration in fiscal accounts, and are largely a consequence of poorly managed fiscal policies before, during and after the Great Recession of the past decade*. Fiscal space is therefore severely limited, and current short-term needs make it necessary to explore alternatives that alleviate this pressure, or that may even create space.

The particular impact of the crisis provoked by COVID-19 on the development of infrastructure projects can be categorized according to the specific project development stage: i) Projects in the construction phase (expressed in terms of delays and cost overruns related to interruptions in work development, as well as the additional costs imposed by the different precautionary and isolation measures imposed); ii) Projects in the operation and maintenance phases; and iii) portfolio of future projects.

The impact on projects currently in operation is notably exacerbated in those in which the operator assumes demand risk, particularly in the transport and energy sectors. The suspension of services in the first place, followed by measures to restrict permitted volumes to meet social distancing requirements, greatly affect the operators of these infrastructures, who see (and will see) changes in their revenue streams, leading them to a situation of financial stress that compromises their ability to continue operating critical infrastructures. Firstly, this situation may lead to the activation of guarantees (if any) on minimum guaranteed traffic (further exacerbating the fiscal situation of the economies), and, ultimately, to economic-financial imbalances in the contracts due to situations beyond the control of the parties involved and, therefore, to the activation of force majeure or act of God contractual clauses, which result in the termination of contracts and interruption of services. In particular, operators of roads, ports, or airports in the region are especially sensitive to this reality. On the other hand, for projects based on availability payment schemes, the main risk derived from the crisis is the counterparties' ability to meet the established payment commitments, which are at risk, given the context of an extremely severe recession.

The impact on the future infrastructure project portfolio is obviously uncertain, since the current crisis is unprecedented and there is huge uncertainty surrounding the sector's recovery time. How the contractual situation of projects in operation with an economic-financial imbalance is resolved will also have an impact on the private sector's appetite for participating in future projects, which will in turn lead to working on better-prepared payment, funding and financing, and risk-sharing schemes. Generally speaking, investors could react only by focusing on sound projects (socio-economically profitable and financially viable) in stable economies (*flight to quality*)<sup>12</sup>.

At this point, it is important to highlight the need to opt for temporary measures in the short term, since the degree of uncertainty is so high that making bold investment decisions affecting the long term may generate unforeseen consequences. As such, we are currently entering a transition

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<sup>12</sup> For more details on PPP experiences in different sectors see the series of Profiles of public-private partnerships in airports, ports, health and water and sanitation developed by the IDB: Suárez-Alemán, et al (2020a); Suárez-Alemán et al (2020b); Suárez-Alemán et al (2021); Castrosin et al (2021).

period that is dedicated to efficiently maintaining the existing infrastructure, where possible avoiding entering into renegotiations<sup>13</sup> or investment processes in new infrastructure, until we understand the “new normal” and how much the behavior patterns of the sector have changed (for example, transport demand).

On the other hand, attracting private participation to mitigate the expected drop in public investment in infrastructure in the region in the current crisis and future recession scenario will require two key elements: 1) improving the planning and preparation of socio-economically desirable projects that are bankable under the new financing scenario; and 2) developing mechanisms and instruments that mitigate the risks associated with infrastructure development (particularly on demand) and that, in this way, also improve project preparation and structuring.

With regard to the first of these points, the existing (and growing) investment needs, added to the tight fiscal situation that the economies of the region were already suffering, which has been further exacerbated by the new scenario generated by the crisis, demand a more efficient use of scarce resources, as well as an equally efficient tariff collection.<sup>14</sup> Better project preparation, transparency and competence in the selection and tendering processes are vital to make efficient use of available resources. In Latin America and the Caribbean, the lack of public sector capacity, experience and/or resources for project preparation is one of the main weaknesses in the infrastructure development process. In relative terms, it is much worse than the developed economies and much of the rest of the developing economy, with the exception of sub-Saharan Africa (EIU-IDB, 2019). Although project preparation is a complex activity, involving a multitude of agents, studies, stages, and processes that generally account for 5-10% of the total project investment in developing economies (GIH, 2018), it is critical for proper infrastructure development, especially now in times of crisis, where the scarcity of resources makes it even more necessary to make informed rigorous decisions about where to allocate them. Funds such as the structuring funds in Brazil, aimed at encouraging private participation in subnational projects (FEP, Brazil-IDB) or strategic infrastructure projects (IDB-BNDES-IFC), may be examples of programs designed to prepare and structure sound projects that efficiently attract private participation.

With regard to the second point, infrastructure planning and prioritization should also consider innovations to the contractual scheme and financial instruments enabling a better response to

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<sup>13</sup> Note that the financial situation of infrastructure operators may be critical and that, in many cases, Force Majeure or Act of God events have been configured, triggering the need for contract adaptation. Having recognized this situation, it is worth noting that, given the uncertainty as to what the new post-COVID-19 normality will be and when it will take place, we are led to believe that it might be appropriate to form transitional agreements until we have fully understood the scope of the new situation and then renegotiate the contracts appropriate to that new normality. This should be implemented through a tripartite agreement, as a minimum, between Operators, Funders, and the competent Public Authority, as a “*London Approach*” to these contracts, with a reasonable time frame.

<sup>14</sup> Among others, the electricity sector requires a tariff reform, since it is unsustainable for the countries of the region to continue funding losses close to 30%. On the other hand, in the road sector, tolls may help this collection process in a potentially progressive way. Likewise, the asset recycling processes mentioned above could also be useful in terms of taxation.

post-pandemic measures. The characteristics of the crisis generated by COVID-19 particularly affect sectors with high demand risk, such as toll roads, ports or airports, and lead to a contraction in energy demand for industrial use—highly correlated with economic growth. In this context, mechanisms to mitigate the set of risks associated with infrastructure development, operation and maintenance are particularly suitable for attracting the private sector to the provision of assets and services. Some examples are provided in the table below:

- **Box 15: Mechanisms and instruments that mitigate the risks associated with post-pandemic infrastructure development**

1. *Contractual Schemes - Consideration of the Least Present Value of Revenue (LPVR) Scheme for projects with high demand risk:* Chile's experience with LPVR road contracts may be useful for projects with high demand risk. As Engel, Fisher and Galetovic (2014) state, under this scheme, the duration of the concession is variable, and is automatically adjusted to the demand for the road. By allowing the duration of the concession to be demand-driven, LPVR bidding significantly reduces the risk faced by the concession holder. The mechanism is as follows: *the regulator sets the maximum and minimum value that the toll may take in each year of the concession. During the concession, the regulator may modify the toll within the above range. The firm requesting the lowest present value of toll revenues wins the concession. The concession ends when the present value of toll revenues requested by the concession holder is reached or when the maximum concession term is reached; whichever comes first* (Engel, Fisher, and Galetovic, 2016). This mechanism makes it possible to separate the tariff-setting process from the problem of funding and financing the concession, reduce demand risk, and reduce the likelihood of renegotiations (in addition to making existing renegotiations more transparent) or contract amendments. Moreover, as stated by the aforementioned authors, *since the winning bid will disclose the revenue that the concession holder will receive; (...) to the extent that it is not a white elephant, it should be easier to use the project as collateral, since the creditor will have a more accurate idea of the present value of the revenue streams.* Notwithstanding the foregoing, the mechanism has certain sensitive aspects that have been highlighted in the literature,<sup>15</sup> partly because the uncertainty of the contract duration could pose complications for debt financing conditions.
2. *Financial instruments - De-risking financing tools for development:* as reported by IDB (2019), some private investors are deterred by perceived investment risks and expected returns of projects. *De-risking financing tools seek to redistribute risk across a "layered" set of financing options. Options may include grants, blended finance, subordinated debt, and senior loans. Subordinated debt, while riskier than traditional debt, has a lower claim on assets; that is, it is repaid only after other, more "senior" debt is repaid. Similarly, blended finance can facilitate the effective and efficient use of concessional resources in private sector projects, while avoiding market distortion or crowding-out private capital. Guarantees may also play a role in de-risking a particular investment.*

<sup>15</sup> See, e.g., U.S. Department of Transportation (2016): "Revenue Risk Sharing for Highway Public-Private Partnership Concessions"; Vassallo, J.M. (2010): "Flexible-Term Highway Concessions. How Can They Work Better?", 89th Annual Meeting of the Transportation Research Board; y Vassallo, J.M. (2006): "Traffic risk mitigation in highway concession projects: the experience of Chile", *Journal of Transport Economics and Policy* 40 (3).

3. *Financial instruments - Guarantees to improve project financial conditions and promote private-sector investment:* IDB data show how guarantees mobilized USD 36 billion from the private sector globally between 2013 and 2015 alone. This type of mechanism can improve the credit quality of governments and projects particularly affected in times of crisis, obtaining the necessary funding and financing for the development of infrastructure projects by mitigating risks (IDB, 2019). Therefore, *guarantees are a valuable instrument for mobilizing private resources from institutional investors, investment funds, etc. For a fraction of the potential cost of the risk exposure undertaken, considerable liquid resources can be deployed for investments to improve lives. They can be used in a myriad of ways, such as i) backstopping financing for large-scale, multi-year infrastructure projects, ii) lengthening the maturities of loans to small enterprises, iii) providing liquidity during the construction phase, iv) enabling local banks to enter new markets through such means as microenterprise lending, or v) deepening capital markets by facilitating local-currency bond issues* (IDB, 2019).
4. *Financial instruments - green bonds to develop sustainable and resilient infrastructure after COVID-19:* as [Ferro and Frisari \(2020\)](#) state, *green bonds could be an important instrument to mobilize financial resources to support an economic recovery aligned with building net-zero emission and climate-resilient economies.* Although these bonds progressed significantly in 2019, reaching USD 14 billion in issuance, only around 3-5% of these globally are channeled into investments in the sector. In this regard, it is necessary to make progress in the definition and scope of regulatory frameworks in order to obtain the greatest benefit from these instruments for the development of sustainable infrastructure.

## 7. Final Conclusions and Recommendations: Good Practice Guidelines

This document reflects the outcome of a series of discussions about the infrastructure planning and prioritization process. Part of the structure of this discussion paper is in itself a logical sequencing approach to planning infrastructure development and the provision of its adequate services.

To conclude the discussion and best practices presented, a summary guide of the main key issues arising from the discussion is provided below. The aim is for infrastructure policy planning and development to comply with the principles of **efficiency, transparency, quality, sustainability, and competitiveness**.

1. A good **infrastructure plan** must not only reflect the needs (gaps) of the sector in the country, but must also clearly establish the objectives to be pursued and the resources available to do so. The plan's success lies in the virtuous triangle of **objectives, needs, and resources**.
2. The **prioritization strategy** is key to making a plan actionable and orderly. Infrastructure plans must include the **specific criteria that order the needs given the limited resources**, and how they meet the stated objectives.
3. Infrastructure plans do not end with the development of the asset: it is necessary to incorporate the **entire life cycle of the assets and services provided**, where the **operation** phase, and more specifically, the **infrastructure maintenance** requirements are key to ensuring its **optimal state**; in this way, they can continue to meet the needs of users with the highest quality.
4. Infrastructure planning must have a **dynamic component**, allowing for the **incorporation of new technologies** and **responding to new demands** or a reformulation of it (such as the needs imposed by the pandemic or natural disasters). It is vital to recognize the dynamic nature of plans, and the need to anticipate their necessary **review** and **update processes**.
5. **Investment processes** and **decisions** (which projects to carry out), the **choice of bidding modality** or scheme to carry them out (under which contract modality, traditional public works or through PPPs) and how they are consequently reflected in the **budget** must be considered as an **integral** and **sequential process**, perfectly integrated and **coordinated** at the **regulatory, institutional, and methodological** levels.

6. **Infrastructure maintenance** is as important, if not more important, than developing new infrastructure. Regardless of the contract modality chosen, the funds for this must be **ear-marked, ring-fenced, and guaranteed**. Failure to properly maintain infrastructure assets not only impacts the quality of the services they provide, but also has much more negative and costly consequences in terms of rehabilitation and higher spending needs. In times of crisis, this would also prevent current amounts not being deemed fungible, thereby not affecting the state of assets and services provided and therefore, not generating a negative impact on growth and equality.
7. Rigorous **cost-benefit** and **value-for-money analysis** exercises are vital to ensure **informed decision-making**, and always making the **best possible use of public resources**. Linking their outcomes, and a clear understanding of the processes, methodologies and assumptions used, is key to **ensuring transparency** in investment and procurement decision-making.
8. **Sustainable infrastructure development** must be ensured **from the outset** of planning, by developing and applying clear and precise methodologies to **quantify the benefits** of investing in resilient infrastructure. It is necessary to reinforce sustainability in infrastructure development from the time plans are made, incorporating it into the prioritization criteria, project preparation, and specific analysis methodologies.
9. Analyzing infrastructure projects is not only a matter of “before investment.” As important as generating information and evidence to enable optimal decision-making is the **process of oversight and monitoring throughout the life of contracts** with asset and service providers for all modalities. Project oversight and monitoring is an **essential tool** to ensuring that the **expected benefits** identified in the previous analysis **materialize**.
10. **Ex-post exercises** are key not only as an **evaluation** and **control tool** to ensure the **transparency** of processes, but also as a extremely valuable input for future projects. Ex post exercises are, therefore, **the best route to generate a continuous learning process to inform decision-making**. The exercise thereof should be promoted by public institutions, and the information derived from their outcomes should be incorporated into subsequent processes.

## References

APMG Internacional. (2016) PPP Guide. Chapter 7: Managing the Contract – Strategy, Delivery and Commissioning. Available in: <https://ppp-certification.com/ppp-certification-guide/41-governance-and-contract-management-team-establishment>

APMG Internacional. (2016) PPP Guide. Chapter 8: Managing the Contract – Operations and Hand-Back. Available in: <https://ppp-certification.com/ppp-certification-guide/41-governance-and-contract-management-team-establishment>

Australia, I. (feb. de 2016). Australian Infrastructure Plan. Priorities and reforms for our nation's future, p. 204.

Australia, I. (feb. de 2020). Infrastructure Priority List. Project and Initiatives Summary, p. 204.

Australia, I. (Jun de 2019). An Assessment of Australia's Future Infrastructure Needs. The Australian Infrastructure Audit 2019, p. 642.

Australia. (2008). Infrastructure Australia Act 2008. An Act to establish Infrastructure Australia, and for related purposes.

Banco Mundial., (2010). Performance Based Contracts in the Road Sector: Towards Improved Efficiency in the Management of Maintenance and Rehabilitation-Brazil's Experience.

Bhattacharya et al (2019). [https://wwwFOUNDATIONS-20.org/wp-content/uploads/2019/06/F20-report-to-the-G20-2019\\_Infraestructre-Investment.pdf](https://wwwFOUNDATIONS-20.org/wp-content/uploads/2019/06/F20-report-to-the-G20-2019_Infraestructre-Investment.pdf)

Bhattacharya, A., Contreras Casado, C., Jeong, M., Amin, A.-L., Watkins, G. G., & Silva Zuniga, M. C. (2019). Atributos y marco para la infraestructura sostenible. Inter-American Development Bank.

BID (2021). Oportunidades para un mayor crecimiento sostenible tras la pandemia. Informe macroeconómico de América Latina y el Caribe. Available in: <https://publications.iadb.org/publications/spanish/document/Informe-macroeconomico-de-America-Latina-y-el-Caribe-2021-Oportunidades-para-un-mayor-crecimiento-sostenible-tras-la-pandemia.pdf>

BID DIA (2020). De estructuras a servicios. El camino a una mejor infraestructura en América Latina y el Caribe. Desarrollo en las américas. Available in: <https://publications.iadb.org/publications/spanish/document/De-estructuras-a-servicios-El-camino-a-una-mejor-infraestructura-en-America-Latina-y-el-Caribe.pdf>

BID (2020). Política para combatir la pandemia. Informe macroeconómico de América Latina y el Caribe. Available in: <https://flagships.iadb.org/es/MacroReport2020/Politicass-para-combatir-la-pandemia>



BID (2019a). Construir oportunidades para crecer en un mundo desafiante. Informe macroeconómico de América Latina y el Caribe. Available in: [https://publications.iadb.org/publications/spanish/document/Informe\\_macroeconomico\\_de\\_America\\_Latina\\_y\\_el\\_Caribe\\_2019\\_Construir\\_oportunidades\\_para\\_crecer\\_en\\_un\\_mundo\\_desafiante.pdf](https://publications.iadb.org/publications/spanish/document/Informe_macroeconomico_de_America_Latina_y_el_Caribe_2019_Construir_oportunidades_para_crecer_en_un_mundo_desafiante.pdf)

BID, (2019b). Financiando el futuro con el Grupo BID

BID DIA (2018). Mejor gasto para mejores vidas. Cómo América Latina y el Caribe puede hacer más con menos. Desarrollo en las Américas. Available in: <https://publications.iadb.org/publications/spanish/document/Mejor-gasto-para-mejores-vidas-C%C3%B3mo-Am%C3%A9rica-Latina-y-el-Caribe-puede-hacer-m%C3%A1s-con-menos.pdf>

BID DIA (2016). Ahorrar para desarrollarse: Cómo América Latina y el Caribe puede ahorrar más y mejor. Desarrollo en las Américas (DIA). Available in: <https://publications.iadb.org/publications/spanish/document/Ahorrar-para-desarrollarse-C%C3%B3mo-Am%C3%A9rica-Latina-y-el-Caribe-puede-ahorrar-m%C3%A1s-y-mejor.pdf>

BRASIL. (2018). Aeroportos nas regiões Nordeste, Centro-Oeste e Sudeste -(12 Aeroportos). Fonte: Programa de Parcerias de Investimentos: <https://www.ppi.gov.br/aeroportos-nas-regioes-nordeste-centro-oeste-e-sudeste-14-aeroportos>

BRASIL. (abr. de 2015). Decreto nº 8.428, de 2 de abr. 2015. Dispõe sobre o Procedimento de Manifestação de Interesse a ser observado na apresentação de projetos, levantamentos, investigações ou estudos, por pessoa física ou jurídica de direito privado, a serem utilizados pela administração pública.

BRASIL. (fev. de 1995). Lei nº 8.987, de 13 de fev. de 1995. Dispõe sobre o regime de concessão e permissão da prestação de serviços públicos previsto no art. 175 da Constituição Federal, e dá outras providências.

Campos, N., Engel, E., Fischer, R., & Galetovic, A. (2020). Entrevistas a Agentes Clave en los Procesos de Provisión de Infraestructura Pública. Santiago, Chile: Espacio Público.

Campos, J., Serebrisky, T. and Suárez-Alemán, A., (2015). Porque el tiempo pasa: evolución teórica y práctica en la determinación de la tasa social de descuento. IDB Nota Técnica IDB-TN, 831.

Castrosin, M; Suárez-Alemán, A.; Astesiano, G.; Garcia Merino, L.; Berto, M. (2021). Perfil de las asociaciones público-privadas en activos y servicios de agua y saneamiento de América Latina y el Caribe: Principales cifras y tendencias del sector. BID

CHILE. (mar de 2018). Ley nº 21.082, de 24 de mar de 2018. Crea Sociedad Anónima del Estado Denominada "Fondo De Infraestructura S.A.

CHILE. (nov. de 2017). Lei nº 21.044, de 25 de nov. de 2017. Crea la Dirección General de Concesiones de Obras Públicas.

Chile., C. d. (2017). GUÍA METODOLÓGICA EVALUACIÓN DE INICIATIVAS PRIVADAS. Fuente: Dirección General de Concesiones. Ministerio de Obras Públicas. Chile.: [http://www.concesiones.cl/proyectos/iniciativasprivadas/Documents/2017/Guia\\_metodologica\\_de\\_evaluacion\\_de\\_iniciativas\\_privadas.pdf](http://www.concesiones.cl/proyectos/iniciativasprivadas/Documents/2017/Guia_metodologica_de_evaluacion_de_iniciativas_privadas.pdf)

Comisión Nacional de Productividad – Chile. Productividad en el sector de la construcción. Noviembre 2020. <https://www.comisiondeproductividad.cl/estudios/hallazgos-recomendaciones/construccion/>

Contreras, E, (2004). Evaluación social de inversiones públicas: enfoques alternativos y su aplicabilidad para Latinoamérica.

De Michele, R., Prats, J., Losada Revol, I. Efectos de la corrupción en los contratos de asociaciones público-privadas. Consecuencias de un enfoque de tolerancia cero. BID. 2018

De Rus, G. (2010). Introduction to Cost-Benefit Analysis.

DIRECTIVA GENERAL DEL SISTEMA NACIONAL DE INVERSIÓN PÚBLICA. (2014) PARÁMETROS DE EVALUACIÓN. Available in: [https://www.mef.gob.pe/contenidos/inv\\_publica/docs/anexos/2014/3.10\\_Anexo\\_SNIP\\_10-Paramtros\\_de\\_Evaluac.pdf](https://www.mef.gob.pe/contenidos/inv_publica/docs/anexos/2014/3.10_Anexo_SNIP_10-Paramtros_de_Evaluac.pdf)

Engel, E., Fisher, R.; Galetovic, A. (2014,2016). Economía de las asociaciones público-privadas. Una guía básica.

EPEC. (2014) Managing PPPs during their Contract life – Guidance for Sound Management. Available in: [https://www.eib.org/attachments/epec/epec\\_managing\\_ppps\\_en.pdf](https://www.eib.org/attachments/epec/epec_managing_ppps_en.pdf)

Frisari, G. L., Mills, A., Silva Zuniga, M. C., Ham, M., Donadi, E., Shepherd, C., & Pohl, I. (2020). Climate Resilient Public Private Partnerships: A Toolkit for Decision Makers. Inter-American Development Bank.

FUND, I. M. (2018). Brazil: Technical Assistance Report-Public Investment Management Assessment. Fonte: IMF Publications: [imf.org/en/Publications/CR/Issues/2018/11/29/Brazil-Technical-Assistance-Report-Public-Investment-Management-Assessment-46147](http://imf.org/en/Publications/CR/Issues/2018/11/29/Brazil-Technical-Assistance-Report-Public-Investment-Management-Assessment-46147)

García Canales, F; Guijarro de Vicente, F.; Llorente Galán, F.; Calandria García, L. (2021). Asignación de responsabilidades, herramientas y procesos de monitoreo óptimos para un adecuado desempeño y transparencia en asociaciones público-privadas. BID. Red APP.

Global Infrastructure Hub. (2019). FINANCING PROJECT PREPARATION. En G. I. Hub, Leading Practices in Governmental Processes Facilitating Infrastructure Project Preparation (p. 268). Global Infrastructure Hub.

Global Infrastructure Facility (2016) Making Infrastructure Rewarding.

GOBIERNO DE CHILE. (2019). Acuerdo Verde. Ministerio de Hacienda.

Hinojosa, S.; Mascle-Allemand, A.; Vieitez Martínez, D. (2020). Análisis costo-beneficio integral para evaluar la conveniencia de aplicar esquemas de asociaciones público-privadas en América Latina y el Caribe. Available in: <https://publications.iadb.org/es/analisis-costo-beneficio-integral-para-evaluar-la-conveniencia-de-aplicar-esquemas-de-asociaciones>.

HM Treasury. (2018) The Green Book. Available in: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/685903/The\\_Green\\_Book.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/685903/The_Green_Book.pdf)

HM Treasury. (2020) The Magenta Book. Available in: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/879438/HMT\\_Magenta\\_Book.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/879438/HMT_Magenta_Book.pdf)

HM Treasury. (2020) The Magenta Book. Supplementary Guide. Available in: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/879444/Magenta\\_Book\\_supplementary\\_guide.\\_Guidance\\_for\\_Conducting\\_Regulatory\\_Post\\_Implementation\\_Reviews.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/879444/Magenta_Book_supplementary_guide._Guidance_for_Conducting_Regulatory_Post_Implementation_Reviews.pdf)

HUB, G. I. (2019). Infrastructure Planning and Project Prioritization. Leading Practices in Governmental Processes Facilitating Infrastructure Project Preparation.

IPEA. (2018) Avaliação de Políticas Públicas Guia prático de análise ex post. Available in: [https://www.ipea.gov.br/portal/images/stories/PDFs/livros/livros/181218\\_avaliacao\\_de\\_politicas\\_publicas\\_vol2\\_guia\\_expost.pdf](https://www.ipea.gov.br/portal/images/stories/PDFs/livros/livros/181218_avaliacao_de_politicas_publicas_vol2_guia_expost.pdf)

MEF. (2019) PARÁMETROS DE EVALUACIÓN SOCIAL. Available in: [https://www.mef.gob.pe/contenidos/inv\\_publica/anexos/anexo11\\_directiva001\\_2019EF6301.pdf](https://www.mef.gob.pe/contenidos/inv_publica/anexos/anexo11_directiva001_2019EF6301.pdf)

MÉXICO, S. D. (s.d.). PLAN NACIONAL DE DESARROLLO 2019-2024. Fuente: Diario Oficial de la Federación: [https://www.dof.gob.mx/nota\\_detalle.php?codigo=5565599&fecha=12/07/2019](https://www.dof.gob.mx/nota_detalle.php?codigo=5565599&fecha=12/07/2019)

MÉXICO. (ene de 1983). Ley de Planeación, de 5 de ene de 1983.

Ministerio de Hacienda. (17 de junio de 2019). Chile obtiene tasa históricamente baja en exitosa emisión de su primer bono verde. Fuente: Ministerio de Hacienda. Gobierno de Chile. : <https://hacienda.cl/index.php/noticias-y-eventos/noticias/chile-obtiene-tasa-historicamente-baja-en-exitosa-emision-de-su-primer-bono-780939>

MINISTÉRIO DOS TRANSPORTES, P. E. (mar de 2018). Nota Técnica nº 10/2018/DPR/SAC-MTPA.

OCDE, & ITF. (2017). Strategic Infrastructure Planning. International Best Practice. Case-Specific Policy Analysis, p. 83.

OCDE. (2015) ANÁLISIS DE GOBERNANZA DE INFRAESTRUCTURA: CHILE. Available in: <https://www.oecd.org/gov/budgeting/brechas-y-estandares-de-gobernanza-de-la-infraestructura-publica-en-chile.pdf>

PERÚ, G. D. (2019). Plan Nacional de INFRAESTRUCTURA para la COMPETITIVIDAD.

PERÚ. (sep. de 2015). Decreto Legislativo nº 1224, de 25 de sep. de 2015. Marco de Promoción de la Inversión Privada Mediante Asociaciones Públicos Privadas y Proyectos en Activos.

PIAPPEM. (2015) Hacia un Análisis Costo-Beneficio Integral y Secuencial para evaluar la conveniencia de aplicar esquemas de Asociaciones Público-Privadas en América Latina. <https://pia-ppem.org/file.php?id=510>.

REPÚBLICA DE CHILE. (2019). Marco para Bonos Verdes.

Secretaría de Hacienda y Crédito Público de México. (2020). Proyectos México. Fuente: Proyectos México: Oportunidades de Inversión: <https://www.proyectosmexico.gob.mx/proyectos/>

Serebrisky, T., Suárez-Alemán, A., (2019) La provisión de servicios de infraestructura en América Latina y el Caribe: ¿Puede la región hacer más y hacerlo mejor? Monografía BID (758) <https://publications.iadb.org/es/la-provision-de-servicios-de-infraestructura-en-america-latina-y-el-caribe-puede-la-region-hacer>

Serebrisky, T., Suárez-Alemán, A., Pastor, C. and Wohlhueter, A., (2018). Descubriendo el Velo Sobre los Datos de Inversión en Infraestructura en América Latina y el Caribe. Nota técnica del BID, (1366).

Serebrisky, T., Suárez-Alemán, A., Pastor, C. and Wohlhueter, A., (2017). Increasing the efficiency of public infrastructure delivery: Evidence-based potential efficiency gains in public infrastructure spending in Latin America and the Caribbean. Inter-American Development Bank, Washington, DC.

Serebrisky, T., Suárez-Alemán, A., Margot, D. and Ramirez, M.C., (2015). Financing Infrastructure in Latin America and the Caribbean: How, how much and by whom. Washington, DC: Inter-American Development Bank.

Serebrisky, T. (2014). Infraestructura sostenible para la competitividad y el crecimiento inclusivo. BID

Suárez-Alemán, A.; Astorga, I.; Astesiano, G.; Ponce de León, O. (2021) Perfil de las asociaciones público-privadas en servicios e infraestructura de salud de América Latina y el Caribe: Principales cifras y tendencias del sector. BID

Suárez-Alemán, A., Astesiano, G., and Ponce de León, O. (2020a) "Perfil de las asociaciones público-privadas en puertos de América Latina y el Caribe: Principales cifras y tendencias del sector". Banco Interamericano de Desarrollo. IDB-MG-792.

Suárez-Alemán, A., Astesiano, G., and Ponce de León, O. (2020b) "Perfil de las asociaciones público-privadas en aeropuertos de América Latina y el Caribe: Principales cifras y tendencias del sector". Banco Interamericano de Desarrollo. IDB-MG-788.

Suárez-Alemán, A., Silva Zuniga, M. C., & Colombia, I. C. (2020). Hacia una preparación eficiente y sostenible de proyectos de infraestructura: Identificando mejoras de eficiencia en la preparación de los componentes ambientales, prediales, y sociales de las asociaciones público-privadas y obra pública tradicional en Am. Banco Interamericano de Desarrollo.

Suárez-Alemán, A., Serebrisky, T. and Perelman, S., (2019). Benchmarking economic infrastructure efficiency: How does the Latin America and Caribbean region compare?. *Utilities Policy*, 58, pp.1-15.

The Economist Intelligence Unit (2019). *Infrascopio 2019. Evaluando el entorno para las asociaciones público-privadas en América Latina y el Caribe.*

UNIVERSIDAD DEL PACÍFICO. (2018). *Consultoría: Balance de la implementación del Sistema Nacional de Programación Multianual y Gestión de Inversiones (Invierte.pe) en la fase de formulación y evaluación y Elaboración de propuesta metodológica para la evaluación de viabilidades y aprobación de inversiones. Mejoramiento de la Gestión de la Inversión Pública Territorial.*

Villalobos Carballo, F., (2017). Los conceptos de fondeo y financiamiento en el desarrollo de proyectos por medio de participación público-privada (PPP). *Infraestructura Vial*, 19(34), pág.10-17.

WALES, N. S. (feb de 2018). *Infrastructure planning, prioritization and delivery. Infrastructure NSW. State Infrastructure Strategy 2018-2038.*