



# Unraveling Public-Private Partnerships

A Guide for Governments in  
the Global South.

**Brazil** Edition



# RECOGNITIONS

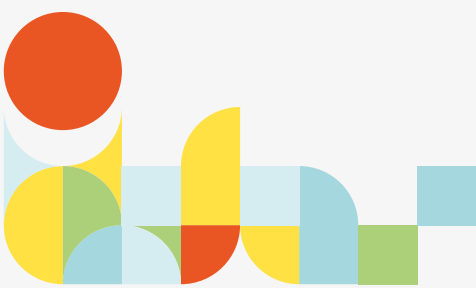


The development of this guide, *Unraveling Public-Private Partnerships: A Guide for Governments in the Global South. Brazil Edition*, was made possible thanks to the collaboration and commitment of several institutions and individuals, who dedicated their time and expertise to making it a practical and accessible tool for Brazilian local governments.

As a result of a partnership between ICLEI South America and the Institute for City Planning and Management (IPGC), this project can now take shape. The basis for this guide was built on the valuable work of ICLEI's Global Secretariat in developing the "Unlocking Public-Private Partnerships: A Toolkit for Local Governments", the content of which was adapted to the Brazilian and Global South realities.

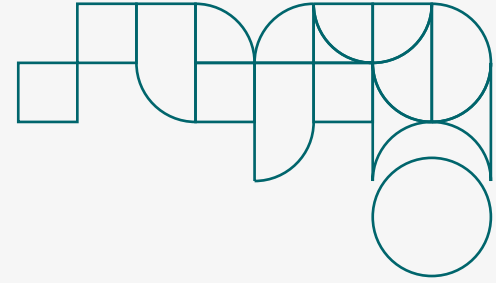
We would also like to thank the experts and partners who shared their insights and experiences throughout this process. Their contributions have enriched the depth and applicability of this guide, making it an indispensable reference source for public managers seeking to transform their cities through strategic partnerships with the private sector.

Finally, we would like to thank all the local governments that have worked with us over the years, contributing their experiences and challenges to the continuous improvement of Public-Private Partnership (PPP) practices in Brazil and throughout Latin America. This guide is dedicated to you and to the countless possibilities that these partnerships can bring to the sustainable and inclusive development of our cities.



# Technical Sheet

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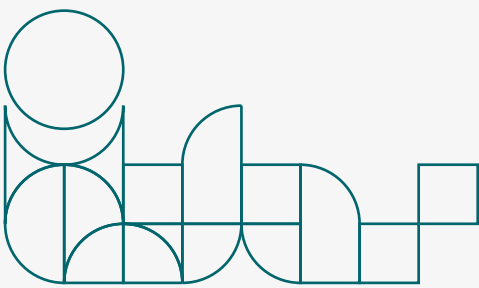
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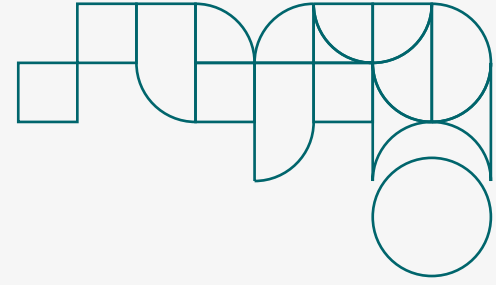
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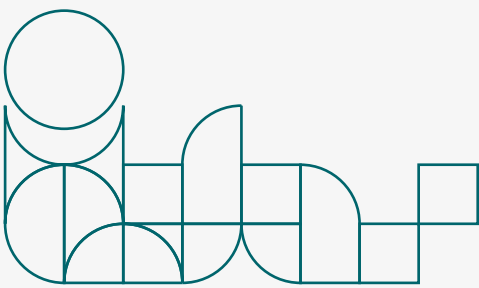
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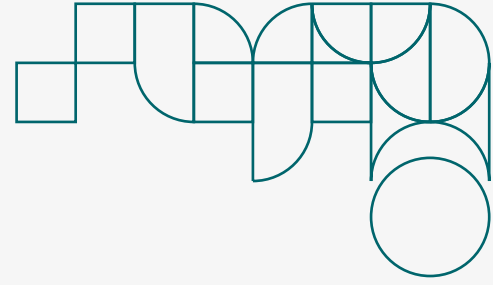
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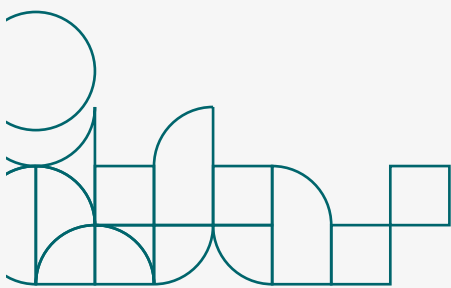
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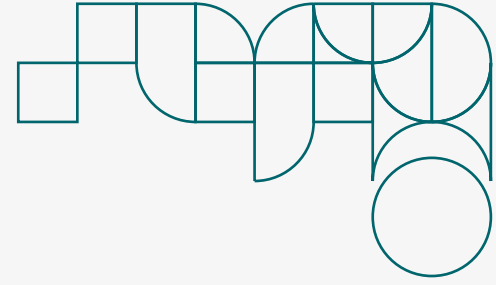
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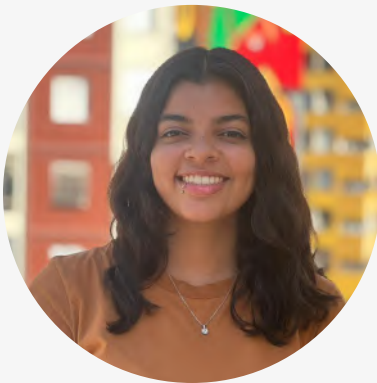
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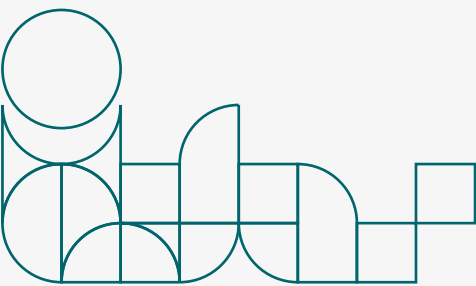
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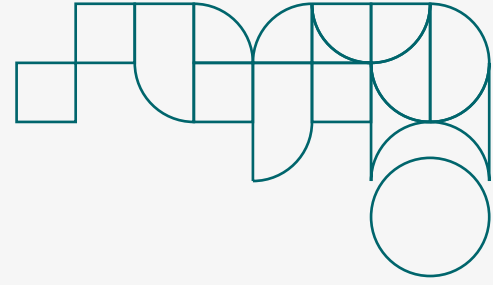
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# Technical Sheet

ICLEI Team



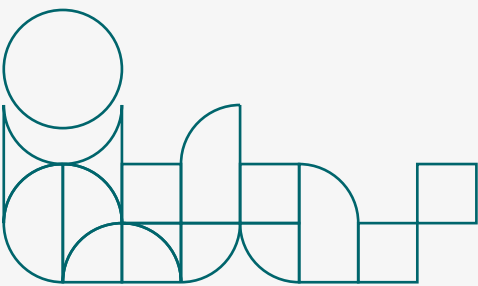
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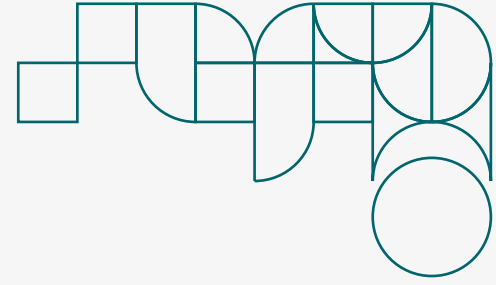
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# Technical Sheet

ICLEI Team



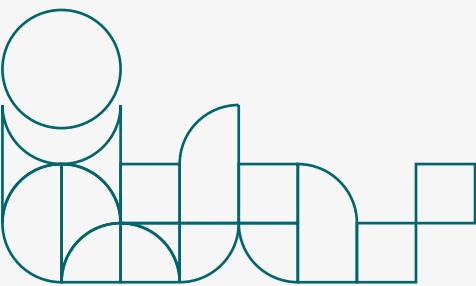
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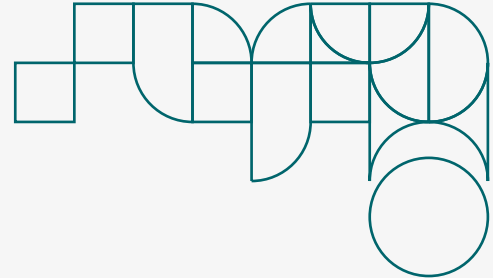
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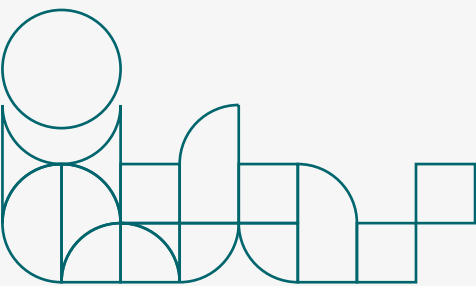
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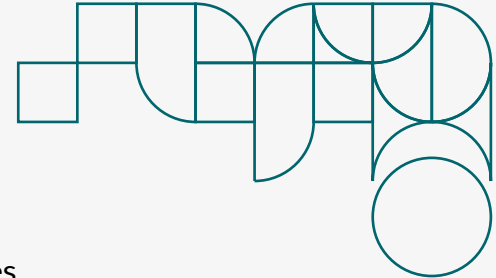
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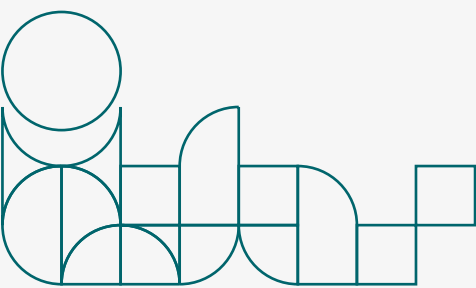
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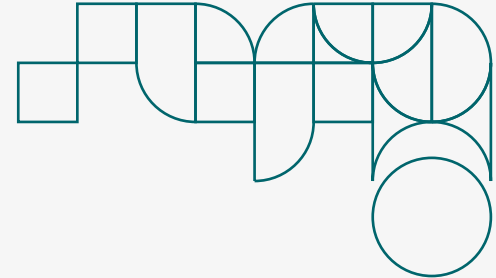
# LIST OF ABBREVIATIONS/ACRONYMS



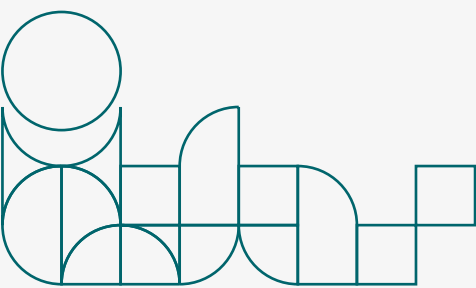
<b>ABDIB</b>	Brazilian Association of Infrastructure and Basic Industries
<b>ACB</b>	Cost-Benefit Analysis
<b>ACE</b>	Cost-Effectiveness Analysis
<b>ADB</b>	Association of Brazilian Diplomats
<b>IDB</b>	Inter-American Development Bank
<b>MDBs</b>	Multilateral Development Banks
<b>BNDES</b>	National Bank for Economic and Social Development
<b>BRDE</b>	Regional Development Bank of the Far South
<b>BRT</b>	Bus Rapid Transit
<b>CEPAC</b>	Certificate of Additional Construction Potential
<b>ECLAC</b>	Economic Commission for Latin America and the Caribbean
<b>COFIEX</b>	External Financing Commission
<b>CP<sup>3</sup>P</b>	Certified Public-Private Partnership
<b>ECLAC</b>	Economic Commission for Latin America and the Caribbean
<b>EPE</b>	Special Purpose Entity
<b>EVA</b>	Earned Value Analysis
<b>IMF</b>	International Monetary Fund
<b>GHG</b>	Greenhouse Gases
<b>GIZ</b>	Deutsche Gesellschaft für Internationale Zusammenarbeit
<b>HS2</b>	High Speed 2
<b>IBGE</b>	Brazilian Institute of Geography and Statistics
<b>ICLEI</b>	Local Governments for Sustainability
<b>ICMS</b>	Tax on the Circulation of Goods and Service
<b>IDS</b>	Democracy and Sustainability Institute
<b>IFIs</b>	International Financial Institutions
<b>IKI</b>	International Climate Initiative
<b>IPCC</b>	Intergovernmental Panel on Climate Change
<b>IPGC</b>	Institute of City Planning and Management
<b>KPIs</b>	Key Performance Indicators
<b>LRF</b>	Fiscal Responsibility Law
<b>LVC</b>	Land Value Capture
<b>M5D</b>	5 Dimension Model



# LIST OF ABBREVIATIONS/ACRONYMS



<b>MIP</b>	Private Expression of Interest
<b>SDGs</b>	Sustainable Development Goals
<b>OECD</b>	Organization for Economic Co-operation and Development
<b>UN</b>	United Nations
<b>OODC</b>	The Onerous Grant of the Right to Build
<b>PGFN</b>	Office of the Attorney General of the National Treasury
<b>GDP</b>	Gross Domestic Product
<b>PIERS</b>	Infrastructure Evaluation and Rating System
<b>PMI</b>	Expression of Interest Procedure
<b>PPI</b>	Investment Partnership Program
<b>PPPs</b>	Public-Private Partnerships
<b>PSA</b>	Payments for Environmental Services
<b>PSC</b>	Public Sector Comparator
<b>PUC</b>	Pontifical Catholic University
<b>SAIN/MF</b>	Secretariat for International Economic Affairs of the Ministry of Finance
<b>SBCE</b>	Brazilian Greenhouse Gas Emissions Trading System
<b>SEMIL</b>	State Secretariat for Environment, Infrastructure and Logistics
<b>SPE</b>	Specific Purpose Companies
<b>STN/MF</b>	National Treasury Secretariat of the Ministry of Finance
<b>TAP</b>	Transformative Actions Program
<b>TCU</b>	Federal Court of Auditors
<b>UNDP</b>	United Nations Development Program
<b>UNDRR</b>	United Nations International Strategy for Disaster Reduction
<b>UNECE</b>	United Nations Economic Commission for Europe
<b>VfM</b>	Value for Money
<b>VPE</b>	Special Purpose Vehicle
<b>WBG</b>	World Bank Group





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## 1 INTRODUCTION

To address the complex and interconnected challenges of the 21st century, such as climate change, social inequalities, and inadequate or lack of infrastructure, governments need to take an active and transformative role in the economy. The state should not be merely a market facilitator or a passive regulator, but rather an active agent in directing innovation and creating solutions that serve the collective well-being. In this way, governments should adopt a mission-driven approach, where the focus is on strategically investing in technologies and initiatives that promote long-term structural transformations<sup>1</sup>.

In this context, Public-Private Partnerships (PPPs) emerge as an essential instrument for the State to leverage resources and expertise from the private sector, directing these efforts to solve issues in infrastructure, clean energy, housing and transportation, among others. PPPs, if well-structured, allow governments and companies to work together to innovate and scale solutions, especially in areas that require large investments and where innovation can be catalyzed by collaboration between sectors. By adopting a bold and coordinated vision, the State can use PPPs not only to overcome immediate problems, but to foster sustainable and inclusive development, mobilizing resources and expertise to build a more resilient and fair future.

This toolkit is an adaptation of the Guide “*Unlocking Public-Private partnerships: A toolkit for local governments*” developed by the *Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) in partnership with the 100% Renewables Cities and Regions Roadmap Project*, implemented by ICLEI - Local Governments for Sustainability and funded by the International Climate Initiative (IKI).

The goals of this adaptation are to provide practical tools so that governments in the Global South, starting with Brazil, can more effectively address the challenges related to climate change, social inequalities and inadequate infrastructure. The idea is that, based on this first approach focused on Brazil, the model can be adapted and applied in other Latin American nations, allowing governments in these countries to have a basis of solutions to address their specific challenges and peculiarities, promoting sustainable development, innovation and social inclusion, through the framework of Public-Private Partnerships.

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<sup>1</sup>Mission Economy, 2021. Mariana Mazzucato.

## 1.1 Overview of the content and structure of the Practical Guide

The Toolkit is divided into five sections, providing public managers with practical guidance on:

I	The socioeconomic scenario of Latin America, the challenges posed by climate change and an overview of infrastructure
II	The fundamentals of a PPP, addressing its concept, differences in relation to other partnership models, essential requirements, international examples of development, and tools that assist in decision-making for its implementation
III	Case studies of PPPs in Brazil, highlighting lessons learned and good practices that can be applied in other contexts
IV	The various sources of financing, both national and international, in addition to financial resource models and structuring of green projects
V	Final considerations that offer reflections and final lessons learned from the application of PPPs

After exploring the Toolkit, public managers are expected to gain a clearer understanding of the concepts, opportunities and challenges related to Public-Private Partnerships and access to financing sources, especially when evaluating options such as the carbon market.

With this knowledge, they will be better prepared to decide whether these alternatives are suitable for their infrastructure and sustainability projects, contributing to the development of more effective solutions to climate and socioeconomic challenges.

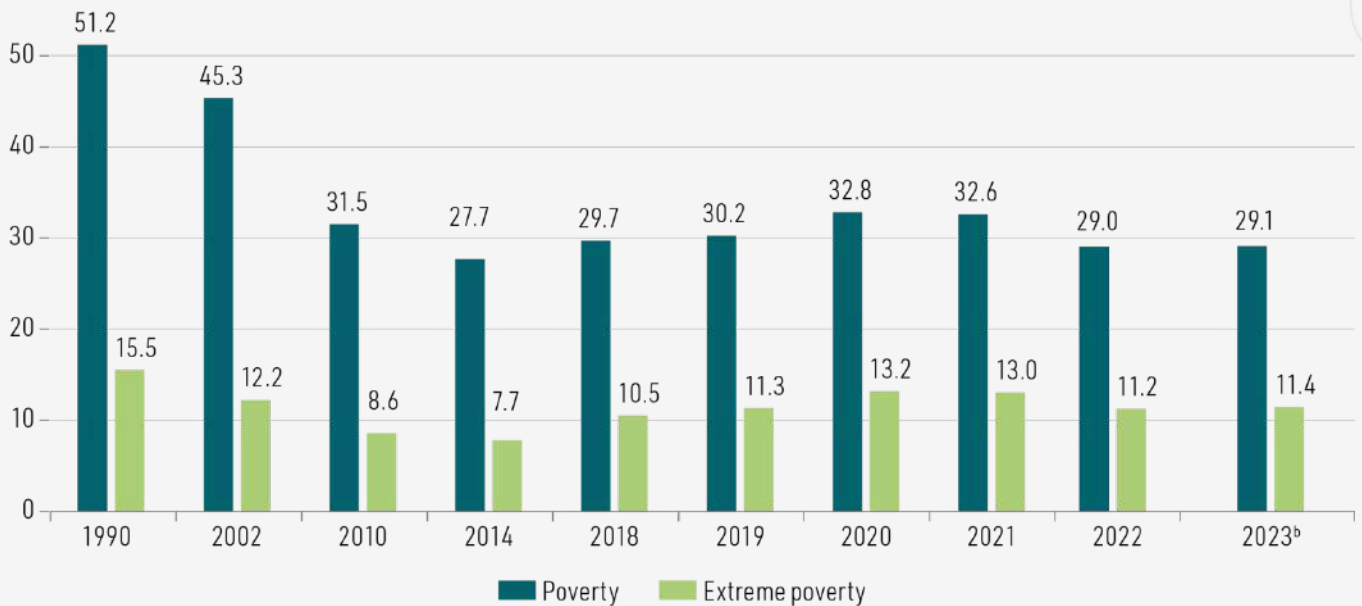
## 2 OVERVIEW OF LATIN AMERICA

### 2.1 Socioeconomic context of the region

The socioeconomic context in South American cities is marked by profound social inequalities and high poverty rates. Over the past few years, the region has seen slow improvements in poverty and inequality indicators, but these have suffered setbacks due to the consequences of the COVID-19 pandemic. In 2022, poverty levels in the region returned to pre-pandemic levels, although the numbers are still alarming. 181 million people, equivalent to 29% of the population, live in poverty (OECD et al., 2023). This percentage is 1.2% below the levels recorded just before the start of the pandemic. 11.2% of the Latin American population lives in extreme poverty, a level equivalent to 2019. In Brazil, in particular, the percentage of people living in poverty was 31.6% in 2022, higher than the regional average. Internal efforts to reduce extreme poverty, on the other hand, keep Brazilian rates below the Latin American average, 5.9% (IBGE, 2023).

The poverty levels in 2022 were similar to those measured at the beginning and end of the last decade, revealing insufficient progress towards achieving the poverty eradication goal (SDG 1) (ECLAC, 2023). In a regional context of low economic growth, marked inequalities, and high concentration of wealth, the prospects for changes in trends in the coming years are low. The trends for economic activity in Latin America and the Caribbean, in the next economic cycles, indicate a low growth trajectory, mainly due to the limited stimulus coming from the global economy and the fiscal and monetary policies adopted by the countries in the region. These, in turn, have led to an increase in public debt, although they have also controlled the growth of inflation (ECLAC, 2023). The Brazilian economy, despite being negatively influenced by the internal and external factors mentioned, has recently shown consistent positive results, with GDP growth of 2.9% in 2023 (IBGE, 2024a).

Chart 1 - Poverty and extreme poverty rates in Latin America, 1990-2022 and projections for 2023

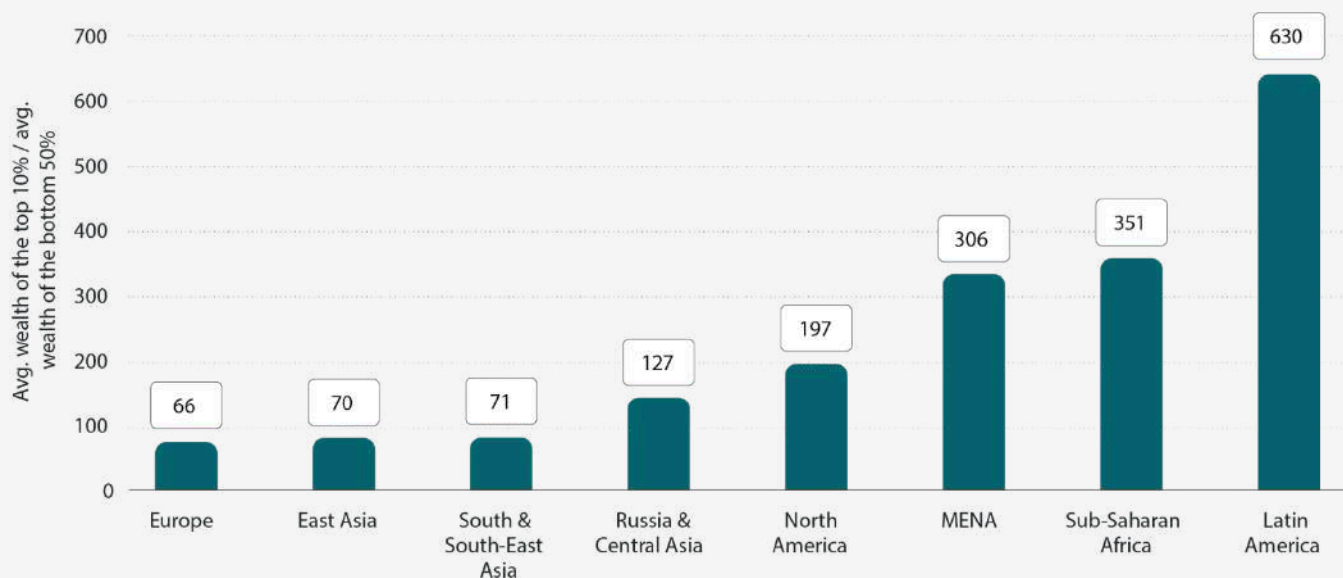


Source: ECLAC, 2023.

Even the large urban centers responsible for most of the revenue generation for Latin American countries present great inequalities, concentrating high-income groups and, at the same time, large contingents of people below the poverty line and without access to basic urban services. The difficulty in accessing services such as basic sanitation is still dramatic. More than a fifth of the Latin American population does not have access to water and sanitation services (UN, 2019). Around 20% of the urban population in the region lives in informal neighborhoods, equivalent to 125 million people, and less than 45% of urban residences have daily garbage collection. In Brazil, even state capitals present great disparities between them. The North and Northeast of the country, regions especially weakened by the lack of infrastructure, present the worst indicators of security, income and health, while the capitals of the South and Southeast regions present the best. The cities with the highest number of people below the poverty line, Recife (PE), Rio Branco (AC) and Salvador (BA), are also among those with the worst indicators of child malnutrition, unemployment rate and homicide rate (ICS, 2024)



Chart 2 - Capital concentration in Latin America: comparative perspective

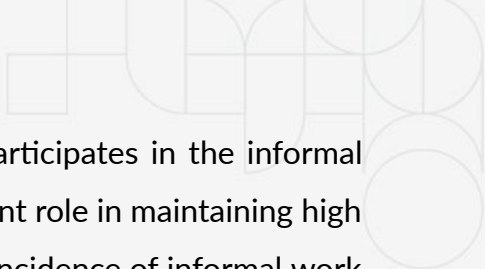


Source: Chancel, Lucas, 2022.

As the chart shows, the poorest 50% of Latin American households have 630 times less household wealth than the richest 10%. Household net wealth is equal to the sum of financial assets (e.g., stocks or bonds) and non-financial assets (e.g., real estate or land) owned by individuals, minus their debts.

The region also has high rates of gender inequality, manifested in social and economic aspects. In most countries in the region, the incidence of poverty and extreme poverty is higher among women. On average, 20.3% of men of prime age (20-59 years) participate in the labor market. Among women, this percentage is 23.9%. In addition, women receive proportionally lower pay than men, although there has been slow progress towards pay parity in Latin America over the last few decades (Chancel et al., 2022). In Brazil, women earn, on average, 19.4% less than men. Access to labor markets and education is also marked by inequalities: in 2022, 13.9% of the Latin American male population had no access to education, employment, or training. The percentage of women is almost double that of men: 26.9% (UN, 2023). Similarly, poverty rates also show inequalities in terms of race and ethnicity. In 2022, the poverty rate among indigenous populations (43.1%) was more than double the rate for non-indigenous and non-Afro-descendant people (21.4%).

The region has also faced high levels of informality in labor relations. The proportion of informal jobs in relation to the total in 2022 in Latin America was equivalent to 53.8%. The rate is similar to that of seven years ago, when the proportion was equivalent to 54.5%. Brazil has



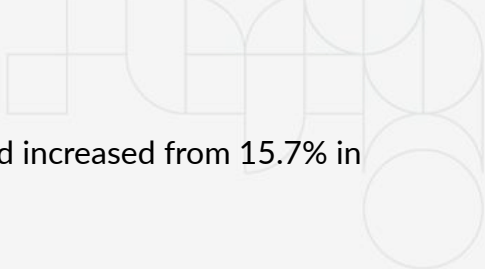
less adverse levels: 39.1% of the economically active population participates in the informal market (IBGE, 2024b). The effects of the pandemic played an important role in maintaining high rates of informality in the labor market. Before the health crisis, the incidence of informal work in Brazil, and also in Latin America in general, showed a progressive and slow decline. However, the consequences of the emergency resulted in the loss of formal jobs and the adoption of informal occupations. Globally, women were more affected by informality than men.

Latin American cities are highly vulnerable to climate change due to pre-existing socioeconomic weaknesses. Urban centers are the main drivers and impacts of climate change. Risks to cities are becoming more present and concrete, especially in small and medium-sized municipalities, which are growing rapidly in the region. More than half of cities in Latin America and the Caribbean with more than 500,000 inhabitants are highly vulnerable to at least one type of climate disaster (UNDRR, 2021).

This vulnerability is already exacerbating social and economic problems and deepening poverty and inequality in cities across the continent. Other local characteristics, such as high urban population density and dependence on natural resources for commodity production, make cities especially vulnerable. 80% of disaster losses in Latin America occur in cities, which are expanding at a rapid pace and without planning, exposing the most vulnerable families to the effects of climate change (World Bank, 2022). The rapid and continued expansion of Latin American urban centers is consuming land and natural resources in the process, occupying areas of high environmental vulnerability. Almost 5% of the region's GDP is expected to be impacted by climate change by 2050.

South America is considered by the IPCC to be a region highly exposed to and impacted by climate change. Its consequences are currently considered one of the main economic risk factors for Latin American countries, mainly due to climate disasters and the effects of El Niño, such as droughts and severe storms. Sectors such as agriculture, fishing and energy are considered the most vulnerable to extreme weather events (IPCC, 2022).

Changes in the frequency and intensity of precipitation, as well as the greater occurrence of periods of intense temperature, are already causing noticeable impacts on local agricultural production, impacting the food supply in urban centers. Climate change is also leading to an increase in cases of infectious diseases due to rising temperatures and changes in the natural cycles of ecosystems, deteriorating health conditions in the region. Latin America is one of the regions with the worst water resource use efficiency index, and also has land degradation rates



higher than the global average. The annual proportion of degraded land increased from 15.7% in 2015 to 21.9% in 2019 (UN, 2023).

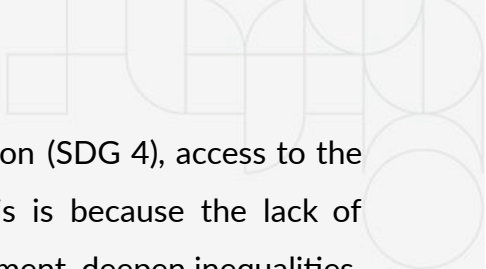
Climate imbalance also deepens gender inequalities, as it affects women more intensely and disproportionately than the rest of the population. The poorest populations, already in a state of multiple fragility, are more exposed to environmental risks in Latin America. Given the current situation, a contingent of 1.2 million climate refugees is expected to form each year in the region, mainly due to floods (UNDP, 2020).

Brazil has been particularly impacted by extreme weather events recently. In 2024 alone, Brazilian cities suffered from extreme droughts, heavy rains, and severe heat waves. Almost 500 municipalities in Rio Grande do Sul were affected by heavy rains in May, displacing families and making economic activity unviable in multiple sectors (Munhoz, 2024). In the Amazon, municipalities and communities were “isolated” due to the extreme drought that lowered river levels to the point of making navigation and commerce unviable, directly impacting more than 300,000 people in the state of Amazonas alone (G1 AM). Extreme heat has also affected the dynamics of cities and imposed challenges to public health. One study indicates that almost 50,000 people died in Brazil as a result of excessive heat from 2000 to 2018 (Monteiro dos Santos et al., 2024). Brazil has almost 2,000 municipalities at risk of environmental disasters (EBC, 2024).

## 2.2 Challenges and advances in urban infrastructure in Latin America

Latin American cities face multiple challenges regarding their infrastructure. Despite significant progress in recent years, deficiencies persist, limiting the economic development of cities and posing risks to the population. Climate change has exacerbated these risks and threatened recent progress, weakening urban infrastructure in the face of increasing extreme weather events.

Achieving the Sustainable Development Goals in Latin American cities depends on progress still to be made in local infrastructure (OECD et al., 2023). The points of contact between the search for better living conditions in the region's urban centers and the necessary improvements to infrastructure are mainly related to access to drinking water and sanitation (SDG 6) and clean energy (SDG 7), and also to the promotion of affordable and sustainable mobility (SDG 11.2). These goals can be considered facilitators of the others, especially in the

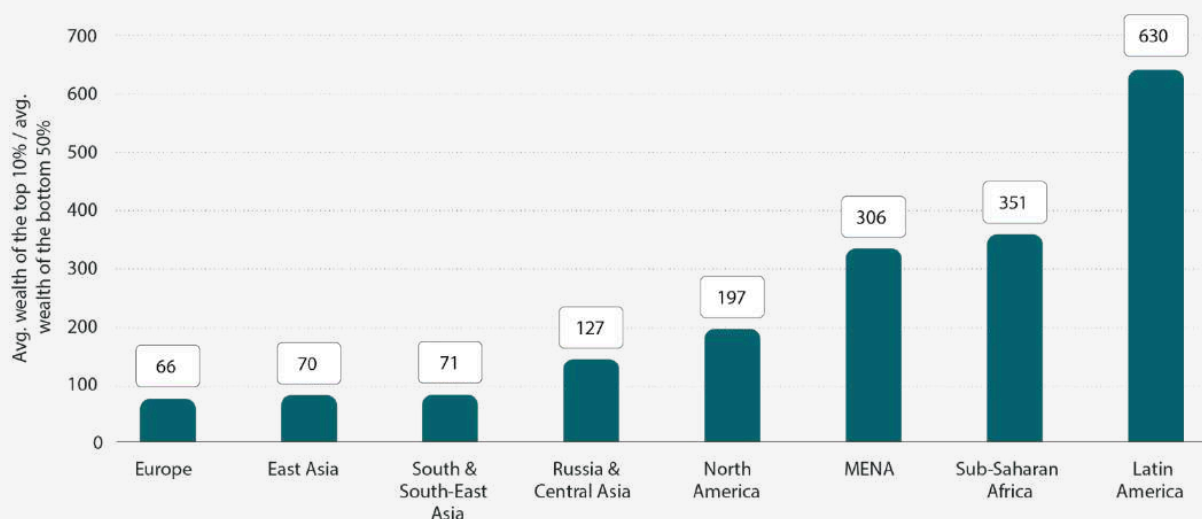


urban context, such as access to health (SDG 3) and quality education (SDG 4), access to the labor market (SDG 8), and reduction of inequalities (SDG 10). This is because the lack of infrastructure tends to compromise local economic and social development, deepen inequalities, and segregate vulnerable populations.

In recent years, the region has made considerable progress towards universal access to electricity. Around 98% of households in Latin America have access to electricity (UN, 2023). Despite this, solutions aimed at improving efficiency and cost recovery still need to be achieved. The energy sector in Latin America, based largely on hydroelectric sources, is the cleanest on the planet (The World Bank, 2017). However, climate imbalance, reflected in changes in rainfall patterns, imposes the need to diversify the energy matrix. Pressures against dams also increase the urgency of diversifying into other renewable energy sources. The current situation can serve as a competitive advantage for the region, considering the potential of wind and solar sources (OECD et al., 2023). Improving regional connectivity of electricity systems, as well as adopting decentralized models of energy production on a larger scale, are other potential solutions for the sector.

Sanitation infrastructure in Latin American cities, on the other hand, faces more significant challenges, and in some places it has reached emergency levels, given the risks it poses to human health. Although 94% of households have access to water, 17% of the Latin American population still does not have access to private sanitation facilities, and only one-third of wastewater is treated. Local legislation tends to hinder gradual improvements, leaving little room for modernizing systems in terms of treatment and reusing waste for other uses, such as electricity generation and agriculture (OECD et al., 2023). Water infrastructure receives the lowest percentage of infrastructure investment in the region.

Chart 3 - Investment gap in Latin America by sector - R\$ billions



Source: ABDIB, 2023.

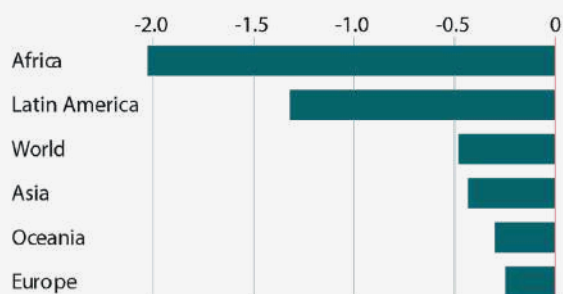
Mobility is another major challenge for the infrastructure sector in urban centers in Latin America. Despite representing the largest public investment in the region, there are still few connected transportation networks and little integration between the different modes. In cities, where 80% of the Latin American population lives, despite recent advances in the modernization of public urban transportation, there are still problems related to major congestion, causing difficulties in accessing services and also generating dependence on informal transportation services. The increase in the urban population, combined with the expansion of the middle class in recent decades, which has gained greater financial power to purchase durable goods, has led to a rapid growth in the number of cars on the streets. Latin American cities have adopted modern and well-reviewed BRT (Bus Rapid Transit) transportation systems. Subsidies targeted at socially vulnerable groups have proven effective in ensuring accessibility and have taken different forms in the region's metropolises. Despite this, only 33% of urban areas in the region are served by public transportation (OECD et al., 2023).

Despite recent advances, deficiencies in urban mobility and water and sanitation infrastructure are obstacles shared by most urban centers in the region, creating bottlenecks for local economic and social development. Most municipalities today face common challenges in achieving universal access to urban infrastructure services, such as disorderly occupation and the threat of climate change, which aggravate the structural deficiencies of cities.

Chart 4 - Latin America's investment gap is only smaller than Africa's

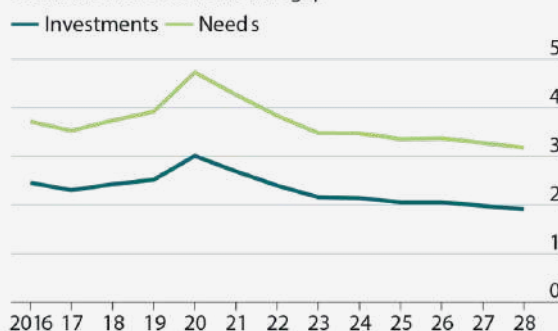
Latin America's infrast  
(% of GDP)

Gap between infrastructure investments and needs by region in 2023



Sources: Global Infrastructure Hub; EIU.

Latin America's infrastructure gap



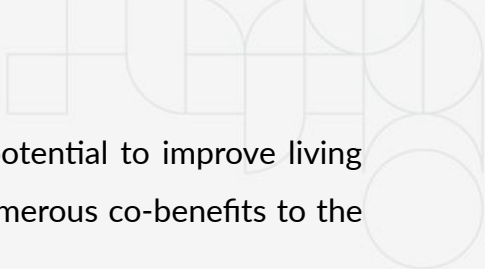
\*Note. Data for 2016-22 are actuals; value for 2023 is an estimate; values for 2024-28 are forecasts.

Source: Economist Intelligence Unit, 2024.

The irregular and disorderly occupation of the territory, a striking characteristic of Latin American urban centers, is a factor that makes it even more difficult to provide basic infrastructure coverage to the most vulnerable population. The lack of planning means that the population builds its own homes without the presence of the government to build infrastructure for common use. This results in a territory disconnected from the city, often without drinking water, sanitation, adequate waste disposal, and without health and education services. Such regions also tend to have low economic opportunities and high crime rates (Vera et al., 2022).

The increase in the occurrence of extreme weather events has also deepened the fragility of urban infrastructure and imposed the need to increase the resilience of public assets. Conventional urban infrastructure projects, or “gray infrastructure,” run the risk of perpetuating conditions of vulnerability to extreme weather events, in addition to contributing to the worsening of the crisis due to the greenhouse gas emissions associated with the sector. Investment in mobility infrastructure is an example of this: in most Latin American countries, more than half of infrastructure investments are directed towards the construction of highways, projects that encourage the circulation of vehicles powered by fossil fuels.

On the other hand, green infrastructure projects can help reduce environmental risks caused by extreme weather events and also help improve the social resilience of vulnerable areas (Economist Intelligence Unit, 2024). Green infrastructure has shown significant advantages in improving access to basic infrastructure services, in addition to increasing urban resilience in climate-risk areas. They include investments in actions that improve the social conditions of a city while promoting human, environmental and biodiversity well-being.



Nature-based solutions are associated with projects that have the potential to improve living conditions in cities by promoting a healthy environment, bringing numerous co-benefits to the population (ADB et al., 2019).

The gap between the region's infrastructure needs and investments made is estimated to be the second largest in the world, larger than the global average and better than only the African continent. Latin America will need around US\$250 billion per year in infrastructure investments between 2024 and 2028 to close this gap, but only US\$160 billion will actually be materialized (ADB et al., 2019).

Fiscal constraints tend to limit public investment in infrastructure, which means a greater need for private capital participation to achieve the expected level of investment to meet local needs. Latin American countries have adopted public-private partnership models, creating several opportunities for private investment in the region. PPPs have been adopted not only by national governments, but also increasingly by state and municipal governments (ADB et al., 2019). However, the political uncertainties that permeate the region, with difficulties in reaching consensus among governments, companies and local communities, can delay development even in countries with good experience and expertise with PPPs. Economic instability and the lack of adequate regulatory mechanisms are also factors that hinder investment flows.

In this context, it is necessary to analyze in more depth the reality of one of the main regional players, Brazil. The country faces specific challenges that partly reflect the Latin American scenario, but it also presents its own opportunities that can be explored. The Brazilian context will be addressed below, focusing on the challenges and opportunities that the country offers in the area of public-private partnerships and infrastructure investments.

### 3 FUNDAMENTALS OF PPPs IN LATIN AMERICA : THE BRAZILIAN CONTEXT

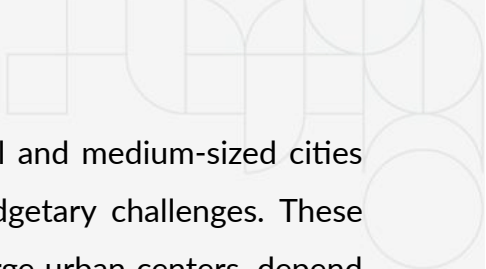
This chapter is dedicated to exploring the fundamentals of Public-Private Partnerships (PPPs) in Latin America, with a special focus on the Brazilian context, highlighting the relevance and challenges of this model of collaboration between the public and private sectors.

Topic 3.1	Definition and Types of PPPs, provides an introduction to the concepts and different types of public-private partnerships;
Subtopic 3.1.1	Roles and Participation of Stakeholders, discusses the roles and responsibilities of the various stakeholders involved in a PPP, from local governments to private investors.
Subtopic 3.1.2	Essential Steps in Structuring a PPP, describes the process required to create and develop a public-private partnership, including feasibility study and contractual modeling.
Subtopic 3.1.3	Special Purpose Entity, explores the functioning of Special Purpose Entities (SPE) and their role in the execution of PPP contracts.
Subtopic 3.1.4	Advantages and challenges of a PPP, presents the benefits and challenges involved in implementing PPPs, with emphasis on efficiency and risk sharing.
Subtopic 3.1.5	Regional challenges and opportunities for PPPs: the Brazilian context, analyzes the particularities of the Brazilian scenario and its opportunities in using PPPs to overcome infrastructure challenges.
Subtopic 3.2	Five Dimensions Model and PIERS, details the need to link PPPs to the Sustainable Development Goals (SDGs) and assesses the importance of frameworks
Subtopic 3.3	Chapter Summary
Tool 3.4	Tools for Structuring, Executing and Implementing PPPs, presents practical tools to support public managers in structuring and managing effective PPPs.

#### 3.1 Definition and Types of PPPs

Sustainable urban development is one of the greatest global challenges of the 21st century, especially in developing countries. With the rapid global urbanization process, more than 55% of the global population now lives in urban areas, and this number continues to grow. Urbanization, as a driver of economic growth, also brings with it a series of challenges, such as infrastructure overload, disorderly sprawl, social inequalities and environmental impacts. These problems are particularly evident in countries that face rapid urban population growth but lack the financial resources and institutional capacity to plan and manage this growth in a sustainable way, such as Brazil.





Brazil, with its 5,570 municipalities, the majority of which are small and medium-sized cities (populations between 20,000 and 100,000), faces considerable budgetary challenges. These cities, which have a much lower tax-raising capacity compared to large urban centers, depend heavily on federal transfers to fulfill their basic functions, such as ensuring adequate health, education, sanitation and infrastructure. However, these transfers are often insufficient to ensure the provision of public services with the necessary quality and to deal with the growing demands of the population.

In this scenario, PPPs offer a strategic solution to overcome financial constraints. Regulated by Federal Law No. 11,079/2004, PPPs allow the government to collaborate with the private sector in the development of large projects, covering infrastructure, housing, sanitation and public transportation. Since the implementation of the law, PPPs have been essential in making projects viable that the State, alone, would not be able to finance efficiently.

Brazil currently has around 4,600 PPP projects at different stages of development, according to the PPP Radar index. These projects cover essential areas such as sanitation, public lighting and highways, and could represent up to R\$4.5 trillion in investments over the next 30 years. This volume demonstrates the growing relevance of PPPs as a public policy instrument in the country.

In addition to mobilizing private capital, PPPs allow for a more efficient distribution of risks between the public and private sectors, promoting greater stability and viability for projects. PPPs also bring technological innovations and operational improvements, as seen in areas such as transportation and sanitation. In this way, even with financial challenges, Brazilian cities can develop in a more sustainable and inclusive way, leveraging the expertise of the private sector to meet the needs of the population.

This chapter will explore in depth the concept of Public-Private Partnerships (PPPs), highlighting their definitions, legal and operational foundations, in addition to examining the development and implementation flow of these projects. The main aspects involved in structuring PPPs will also be discussed, such as risk distribution, sources of financing, contractual modeling and the advantages and challenges that this type of partnership offers to the public and private sectors, especially in the context of solutions for urban infrastructure and public services.

A public-private partnership can be broadly defined as a contractual arrangement between the government or a government entity and a private company with the primary

purpose of financing, designing, implementing or operating infrastructure facilities and services that are traditionally provided by the public sector. The World Bank defines it as “a long-term contract between a private party and a government entity to provide a public asset or service, in which the private party assumes significant risk and management responsibility, and remuneration is linked to performance” (World Bank, 2022). In practice, a PPP is based on two main principles:

- (i) both parties invest financially in the project, whether through the acquisition of materials or allocation of labor, and in an expertise-related sense, exchanging knowledge and networks; and*
- (ii) the parties contribute to a social and often also commercial purpose. The partnership incorporates an optimal allocation of risks between the parties, allowing investments that the public partner could not make alone, while achieving development objectives.*

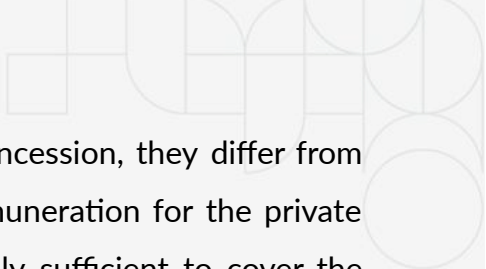
Therefore, PPPs present a framework that, by involving the private sector, recognizes the role of government in ensuring that social obligations are met, and necessary public investments are made. Private sector involvement generally requires a reasonable rate of return on its investment as a prerequisite for PPP projects (World Bank 2022b).

In Brazil, as previously mentioned, PPPs are regulated by Law No. 11,079 of December 30, 2004<sup>2</sup>, which establishes rules for collaboration between the public and private sectors in the execution of projects of public interest. The legislation regulates that a PPP is a contract between the government and a private company for the execution of works or the provision of services of public interest. This type of contract is mainly used in large-scale projects that involve the need for significant investments, and the participation of the private sector is seen as a way to optimize resources and increase the efficiency of services.

In this scenario, it is important not to confuse public-private partnerships (PPPs) with privatizations. Although both are part of the same movement to reform and modernize the State, privatizations involve the transfer of public assets to the private sector, while in PPPs the opposite occurs: at the end of the contract, the developed infrastructure is returned to the public sector.

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<sup>2</sup> [https://www.planalto.gov.br/ccivil\\_03/\\_ato2004-2006/2004/lei/111079.htm](https://www.planalto.gov.br/ccivil_03/_ato2004-2006/2004/lei/111079.htm)



Although Brazilian legislation classifies PPPs as a type of concession, they differ from traditional concessions, especially with regard to the sources of remuneration for the private partner. In conventional concessions, the collection of fees is usually sufficient to cover the investments. In the case of PPPs, however, there is the possibility of financial supplementation by the public sector, ensuring the viability of the project. When there is no collection of fees from users – or when the public authority itself is the direct or indirect user of the service – it is up to the government to bear the full payment for the provision of the service.

The legislation defines two main types of PPP: sponsored concession and administrative concession. A sponsored concession occurs when a private company charges a fee to users of the service, but also receives additional compensation from the government. A common example of a sponsored concession is the management of highways, where the concessionaire charges tolls to drivers, but also receives payments from the government to maintain the road infrastructure in good condition. An administrative concession, on the other hand, is characterized by the provision of services in which the government is the main or only user, remunerating the company directly. A typical example is the construction and management of public hospitals, where the private company builds the hospital and manages some of the services, while the government bears the costs, without charging direct fees to patients.

In order for a PPP to be established, certain principles and guidelines must be followed. The first is the efficient use of public resources, ensuring that the services provided are of high quality and meet the interests of society. Transparency is also a fundamental principle, and the entire process must be open to public monitoring, with clear information about each stage of the project. The division of risks between the parties is equally important, ensuring that both the government and the private company assume responsibilities according to their capabilities and the type of risk involved in the project. In addition, PPPs must be financially sustainable, that is, the project must be viable for both the public and private sectors.

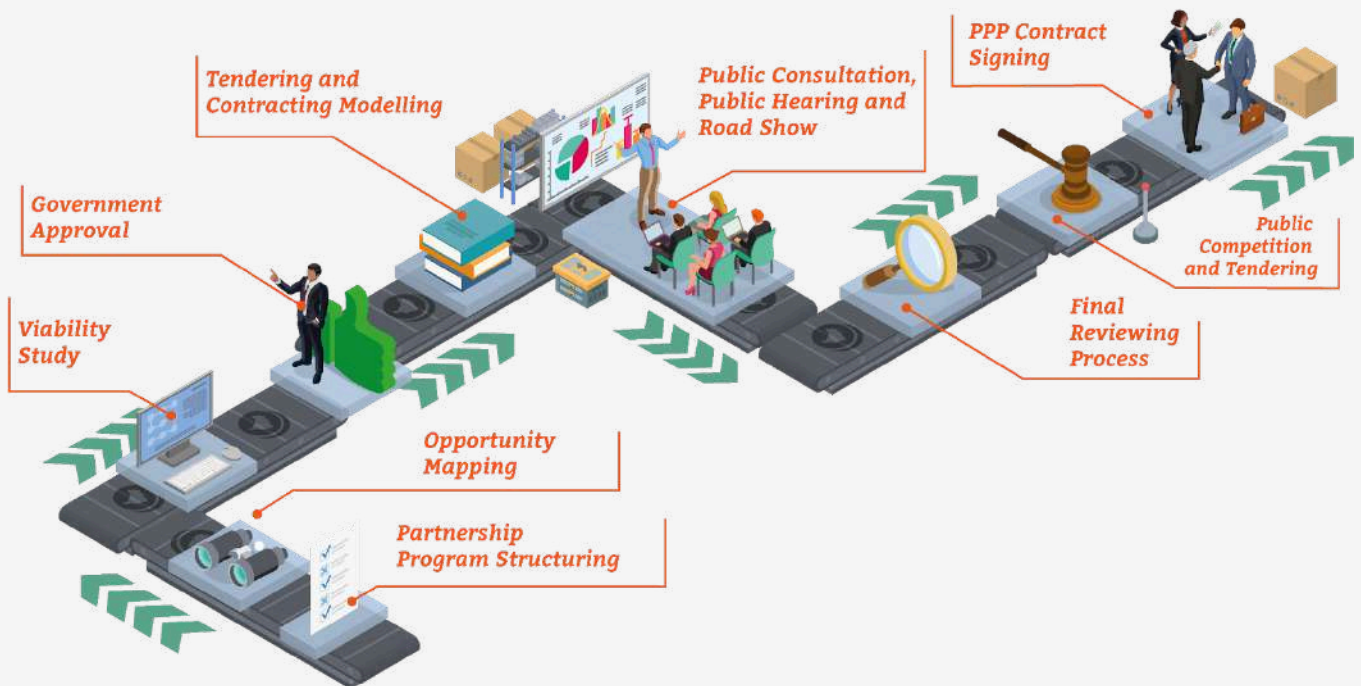
The legislation establishes some important limits. A PPP contract cannot be signed for projects whose value is less than R\$10 million. In addition, the minimum duration of the contract must be five years, while the maximum may be 35 years. It is also not permitted to use PPPs exclusively for the supply of labor, equipment or execution of isolated public works, without a clear provision of services involved.

The obligations of each party are also well-defined. The government has the duty to ensure compliance with the contract, make payments based on the company's performance and ensure

ongoing monitoring of the process, maintaining transparency in all its decisions. On the other hand, the private company is responsible for executing the works or providing the services within the established standards and for assuming most of the risks related to the project, such as financial or execution issues.

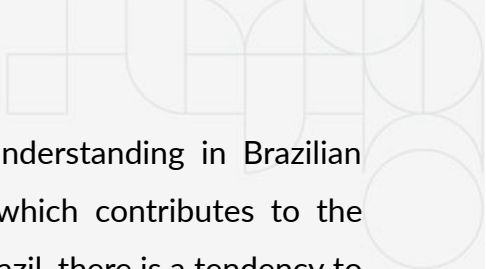
The process for establishing a PPP begins with a technical study that must demonstrate that the project is advantageous for the government and society. This study serves to justify the option for a public-private partnership instead of other forms of contracting. The proposal is then submitted to a public consultation, where society can analyze it and suggest adjustments. After this phase, the government opens a bidding process to select the company that will offer the best proposal, considering both cost and technical quality. Once the private partner is chosen, the contract is signed, establishing the responsibilities of each party, deadlines, performance evaluation criteria, and penalties in case of non-compliance.

Figure 1 - PPP Development Flowchart



Source: IPGC, 2024.

The PPP Law in Brazil creates a partnership model between the public and private sectors that aims to increase efficiency in the execution of highly relevant projects, always respecting the principles of transparency, efficiency and fair division of responsibilities. The process is structured to ensure that both the government and society obtain real benefits from these partnerships.



PPPs are a topic that often generates confusion and misunderstanding in Brazilian society. They are often mistakenly associated with privatization, which contributes to the formation of a negative public opinion on the subject. Culturally, in Brazil, there is a tendency to distance and distrust PPPs, reflecting a lack of knowledge about what the model really represents. The lack of understanding about the differences between privatization and PPP fuels the fear that the State is "selling" its assets, when, in fact, PPP is a distinct form of privatization, in which the government maintains an active and regulatory role. This lack of knowledge hinders the debate and prevents the population from realizing the potential benefits of this type of partnership, which can contribute to the improvement of public services without giving up State control.

Privatization is a process by which the State transfers responsibility for the provision of public services or the management of assets to the private sector. This process can occur in several ways, the best-known being privatization and concession. Within concession, there are specific models, such as the Public-Private Partnership, each with its own particular characteristics.

Privatization occurs when the State sells a state-owned company or its assets, definitively transferring control to the private sector. In this modality, the company ceases to belong to the State and becomes managed exclusively by private entities, with no expectation of returning to public control. Privatization is, therefore, an irreversible form of denationalization, where the public authority no longer maintains any control or participation in the operation.

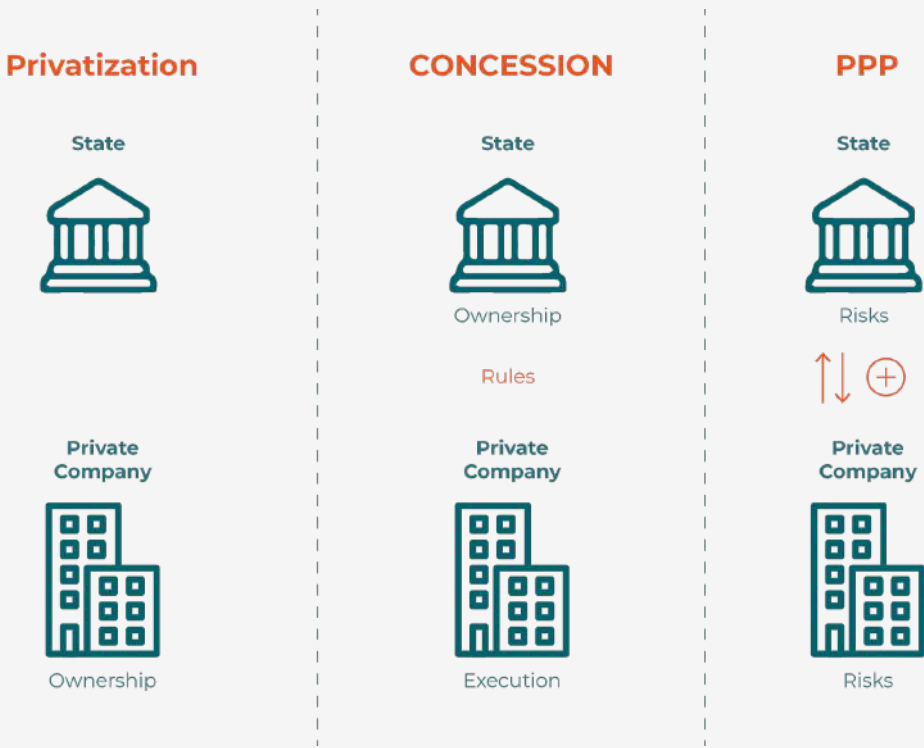
On the other hand, a Public-Private Partnership is not a privatization, but rather a form of concession. The fundamental difference is that, in PPPs, control over the service or asset is not fully transferred to the private sector on a permanent basis. In a PPP, the private partner assumes responsibility for providing a service or carrying out a project for a specific period of time, while the government continues to play an active role, whether in regulation, supervision or in paying part of the costs. At the end of the contract, the assets, in many cases, return to the control of the State, or the contract may be reassessed.

Therefore, unlike privatization, where the State permanently divests its assets, PPP is a more collaborative and temporary model of privatization. It allows the private sector to participate in the management of public services without the government giving up of complete control or ownership over these services. PPP is a viable solution when there is a need for large

investments and the government wants to ensure that services will continue to be provided efficiently, but without ceding absolute control to the private sector.

A PPP is not a privatization because it does not involve the outright sale of public assets, but rather a temporary service provision contract in which the government maintains a regulatory and financial role. This makes a PPP a form of privatization that, although it brings private initiative into the management of public services, does not remove the presence of the State in this process.

Figure 2 - Allocation of Titles



Source: IPGC, 2024.

**3.1.1 Roles and participation**

In a Public-Private Partnership (PPP) framework, tasks, obligations, and risks are optimally distributed between the public and private sectors, corresponding to their expertise and the benefits they can bring to the project. Public partners are typically government entities, including ministries, departments, municipalities, or state-owned enterprises. Private partners can be local or international companies, or investors with technical or financial expertise relevant to the intended project. Increasingly, PPPs can also include non-governmental

organizations and/or community-based organizations that represent stakeholders directly affected by the project—they are not considered private nor public partners (ADB 2008).

The public sector contributes to a PPP through means including the provision of part of the investment capital (available through tax revenues, among other sources) and the transfer of assets. Local and regional governments can also promote social responsibility, environmental awareness, local knowledge and mobilize political support.

The private sector aims to use its expertise in trade, management, operations and innovation to run the business efficiently. The private partner may also contribute investment capital, depending on the form of the contract. The level of private sector participation can range from short-term service contracts to full privatization (divestment). Table 1 illustrates the roles and influence of different stakeholders in a PPP.

**Table 1 - Roles of stakeholders in public-private partnerships**

<b>Stakeholder</b>	<b>Roles</b>
Political decision makers (local and national governments)	Establish and prioritize PPP objectives and communicate them to the public Approve criteria for PPP selection Approve recommended PPP options Approve regulatory and legal frameworks
Company management and staff	Identify the company's specific needs and goals for the PPP Provide company specific data Assist in the marketing and due diligence process Implement changes
Consumers	Communicate their ability and willingness to pay for services Express priorities for quality and level of service Identify existing strengths and deficiencies in the service
Investors	Provide feedback on the attractiveness of various PPP options Follow competitive bidding process rules and procedures Act through rigorous due diligence, resulting in a competitive and realistic bid
Strategic consultants	Provide unbiased assessment of PPP options Review the existing framework and propose changes Act as a facilitator for cooperation between stakeholders

Source: authors, 2024.

### 3.1.2 Essential Steps in Structuring a PPP

Structuring a Public-Private Partnership involves a detailed and meticulous process. Initially, the public entity that decides to follow the logic of partnerships must start by choosing the method for developing the studies necessary to make the project viable. The public actor

has at its disposal several contracting and/or partnership models to start producing a PPP project, the most widely used in Brazil being the Private Expression of Interest (MIP), Expression of Interest Procedure (PMI), Technical Cooperation and Internal Modeling. Each of these modalities offers a distinct approach, but all have the primary objective of developing a solid technical basis for the project.

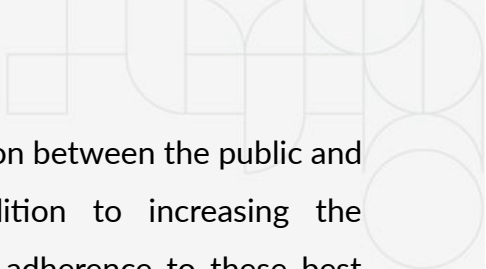
**Table 2 - Contracting and/or partnership models in PPP projects**

<b>Model</b>	<b>Description</b>
<b>PMI</b>	Also identified as MIP, this instrument is the Expression of Interest Procedure, a consultative administrative procedure through which the Public Administration grants the opportunity for individuals, at their own risk, to develop models with a view to structuring the delegation of public utilities.  More specifically, the Public Administration launches and conducts a public call notice so that potential interested parties are authorized to present specific studies and projects, according to predefined guidelines, which are useful for preparing the public bidding notice and the respective contract.
<b>Internal Modeling</b>	It involves using the public administration's own technical teams, such as city hall teams, to conduct the studies, which can be advantageous in some cases, since the local team generally has a more in-depth knowledge of the particularities of the region and the services that will be provided.
<b>Unenforceability</b>	Governed by Law 14,133/21, may be applied when the nature of the service demands technical specialization that makes competition unfeasible. The modeling of infrastructure projects involves complex feasibility studies, concessions and public-private partnerships (PPPs), which often require the hiring of companies or consultancies with a high degree of technical knowledge and proven experience in the sector. Notable specialization and specialized consultancy in PPPs and Concessions are considered for the procedure.

Source: authors, 2024.

Regardless of the method chosen to initiate the development of PPP studies, whether through technical cooperation, PMI, MIP or internal modeling, it is essential that all follow internationally recognized methodological standards. These standards ensure that best practices are implemented, bringing greater transparency, efficiency and objectivity to the process.





Several international guides offer guidelines that focus on collaboration between the public and private sectors for economic and social development, in addition to increasing the attractiveness of the project for international investors. Therefore, adherence to these best practices is essential to ensure that the project follows a model that can deliver effective results in both economic and social terms.

One of these important guidelines is the Five-Dimensional Model (5DM), which offers an objective and systematic method for evaluating projects, addressing five key areas: managerial, strategic, economic, financial and commercial. The model provides the necessary framework to consider the use of public resources in a manner that is proportional to the costs and risks involved, always considering the context in which the decision must be made. Furthermore, the Public-Private Partnership Knowledge Guide - CP<sup>3</sup>P, is another essential reference in this context. In addition to identifying fundamental principles and good practices, the guide also addresses crucial issues for the success of PPP projects. It assists in establishing PPP structures that are customizable and comprehensive, and ensures that projects can be adapted to the specificities of each local or sectoral context.

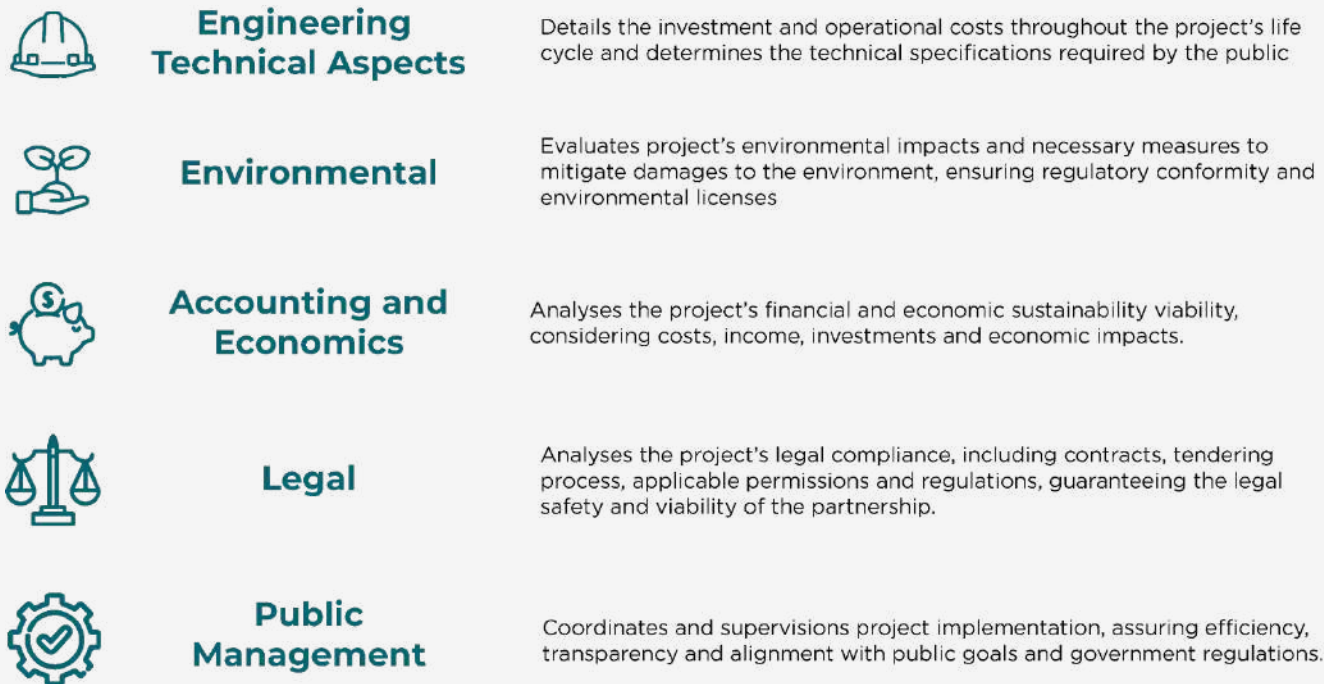
Another valuable resource is the International Guidebooks developed by multilateral development banks such as the World Bank, the Inter-American Development Bank (IDB) and others. These guidebooks provide detailed guidelines on how to structure and implement PPPs effectively, promoting collaboration between the public and private sectors. They also facilitate access to international investors, since compliance with such best practices increases the credibility and attractiveness of PPP programs.

These international sources are crucial to ensuring that PPP projects adhere to a standard of excellence. By using these resources, public managers ensure that their projects are aligned with global best practices, promoting good governance, efficient use of resources and collaboration between the public and private sectors. This not only improves the economic and social outcomes of projects, but also increases their attractiveness to investors, contributing to sustainable economic and social development.

For the development of a PPP to be successful, regardless of the project's purpose – be it the concession of parks, public lighting, highways, administrative centers or even hospitals – it is essential that a multidisciplinary team conducts the feasibility studies. This team must have expertise in several areas of knowledge, including engineering, economics, law, public management and the environment, to ensure that all relevant dimensions of the project are

considered and integrated. The main objective of this team is to develop a feasibility study that covers the technical, economic-financial, legal and environmental aspects, ensuring that the project is sustainable in the long term and meets the needs of the community.

Figure 3 - Multidisciplinary Analysis of PPP Projects



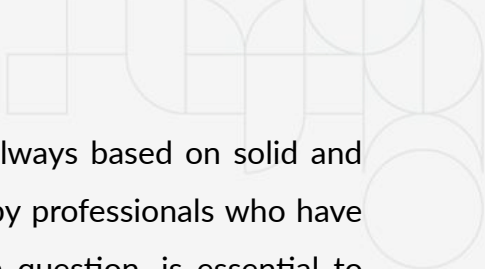
Source: authors, 2024.

The feasibility study is one of the most important parts of the PPP structuring process, as it provides a detailed situational diagnosis of the current service provision. This diagnosis identifies the bottlenecks that prevent the public service from operating efficiently and effectively. Based on this analysis, the team will be able to design the best solutions so that the service can be granted to the private sector, bringing improvements in both the provision and efficiency of the services. Thus, the feasibility study must be able to map the current reality and propose solutions that not only overcome the challenges identified, but also offer a clear prognostic vision of what is expected to be achieved with the concession.

The structuring of a PPP project follows a rigorous and well-defined flow, which aims to ensure efficiency and success in implementing the partnership. This process involves multiple phases, each of which is essential for the project to be properly aligned with public interests, legal and regulatory requirements, and to be financially viable. From mapping initial demands to defining performance indicators, each stage contributes to the creation of a robust and sustainable project.

The main phases that make up the ideal flow for structuring a PPP are described below, ensuring that all technical, legal, economic and operational aspects are adequately addressed:

- **Mapping demands and defining the project scope**  
Identify the project needs and clearly define its scope.
- **Regulatory and tax analysis**  
Assess the legal and financial viability of the project, ensuring compliance with regulations.
- **Adaptation of the legal framework**  
Adjust legislation and regulations to ensure that the project complies with current rules.
- **Preparation of work plan**  
Define goals, deliverables and deadlines for monitoring and executing the project.
- **Survey of the current reality**  
Analyse the current situation of the public entity and carry out a detailed diagnosis of the provision of services.
- **Prognosis of solutions**  
Based on the diagnosis, develop solutions and assess technical, economic and financial viability.
- **Closing the contract object**  
Clearly define the object of the contract and the obligations of both parties involved.
- **Risk sharing and responsibility matrix**  
Adequately distribute risks between parties and establish a responsibility matrix.
- **Definition of performance indicators**  
Establish evaluation criteria to ensure service quality.
- **Compliance with the standards of control bodies**  
Ensure that all stages of the project comply with the requirements of regulatory and inspection bodies.



It follows that this entire flow must be followed rigorously, always based on solid and accurate data collection. Monitoring by the public sector, especially by professionals who have in-depth knowledge of the day-to-day provision of the services in question, is essential to ensure that the studies that will support the future bidding process are extremely accurate. With this level of detail and precision, it will be possible to structure a PPP that meets the real needs of the population and offers a quality service, aligned with public interests and sustainable development.

### **3.1.3 Operation**

Public-Private Partnerships represent a significant shift in the way the public sector manages and executes infrastructure and service projects. Instead of directly taking on all phases of a project, the government opts for a collaborative approach, involving the private sector at various stages. This model seeks to combine the expertise and financial resources of the private sector with public objectives, promoting greater efficiency and innovation. The following explores the main differences between traditional operational flows and the changes introduced by PPPs, highlighting how this partnership redefines responsibilities and ownership in the context of public projects.

In terms of operations, PPPs change the typical framework and workflows of governments to manage projects. In traditional public procurement, the public sector is expected to take full responsibility for the implementation of the project. In a PPP, the government contracts with a private partner, who is then responsible for additional actions, and the responsibility, liability and ownership between the government and the private entity are defined by the terms and conditions of the PPP agreement.

In a public-private partnership, the government or public entity awards a contract to the private sector partner, who then sets up a company to operate the contract. This company is called a 'special purpose entity' (SPE) or 'special purpose entity' (SPE). This is a key factor in the implementation of many PPP models and is the element that differentiates PPPs from traditional public arrangements.

The SPE (Special Purpose Entity) is the legal entity that takes on a project, acting as the management and operating company. It is typically established as a mechanism through which funds are channeled, the financial model is implemented and subcontracts are managed,

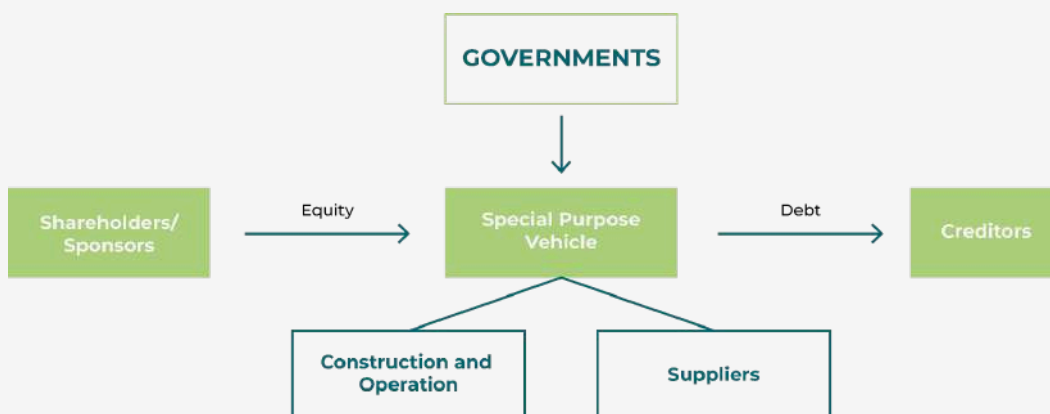
ensuring that risks are essentially isolated from the parent company. The SPE signs a contract with the government and negotiates all contractual arrangements between the various parties. It manages the subcontracts for construction, asset maintenance and service operation.

The choice of the SPE design and its main responsibilities will depend on the applicable legal and tax regulations of the host country, as well as the PPP contractual arrangements between the parties. The ownership structure of the SPE may be shared between the public and private partners, depending on the percentage that each side will cover.

The members of a PPP are typically the shareholders, along with additional shareholders such as external investors. SPEs do not have independent management or employees and are administered by a trustee who follows defined rules to manage the asset. The SPE raises financing through a combination of equity—provided by the aforementioned shareholders—and debt, provided by banks, or through bonds or other financial instruments. The financial structure is the combination of equity and debt, and the contractual relationships between equity holders and creditors (World Bank 2021).

Revenue can be obtained in two main ways. The public entity can offer a unitary payment to the VPE, which may be related to the performance of the private party's obligations included in the project results. Another alternative is to establish fees or tariffs for customers or end users. The private partner uses this fee to repay loans and distribute dividends to shareholders. This payment may take the form of an interest in the entity that may result in an investment. The following shows a simplified structure of the SPE and its relationship with the parties.

Figure 4 - Special Purpose Company Structure



Source: adapted from Infrastructure Asia.

The benefits of an SPE are:

### **Risk Mitigation**

Assets held in an SPE are financed by debt and equity investments, distributing the risk of the assets among many investors and limiting the risk for each investor. In addition, companies can isolate risks from the parent company. For example, if the assets suffer a substantial loss in value, this would not directly affect the parent company.

### **Specialized capability**

SPEs can bring the technical capability needed to perform tasks through well-trained employees who are guided by the VPE's purpose.

### **Special tax benefits**

Some SPE assets may be exempt from direct taxes, depending on their geographic location.

### **Ease of creation**

SPEs generally require very low cost and little or no government authorization to be established (Williams, 2021).

Special purpose vehicles also present risks that must be taken into account, such as:

### **Lack of transparency**

Some SPEs can be very complex, making it very difficult for the public sector to monitor and track the level of risk involved.

### **Lack of regulation**

The SPE may not be regulated by the same regulatory standards as public agencies or parent companies, which may pose an indirect risk.

### **Reputation and liquidity**

The performance of the SPE may compromise the reputation of the parent company, indirectly affecting the entire PPP. Furthermore, poor performance may also undermine the ability of the parent company to sell the assets back on the open market, creating a risk to the liquidity of the assets, also compromising the willingness of the private and public sectors to continue to engage in the partnership.

Table 3 - Best practices in implementing SPE

Practices	Partners	Objectives
Concession of basic sanitation service provision in the municipality of Palhoça (SC)	Aegea Consortium, formed by Aegea and Saneamento Consultoria SA	The full concession of public water supply services, as well as sewage collection and treatment, in the municipality of Palhoça, in Santa Catarina, part of the metropolitan region of Florianópolis. The project foresees investments over the 30 years of the contract, benefiting more than 220 thousand inhabitants. The new Aegea unit will be responsible for ensuring the universalization of these services, meeting the goals established by the regulatory framework for the basic sanitation sector.
Public Lighting PPP in São Paulo	Paulista Lighting Consortium SPE Ltda, formed by the companies CLD Construtora, Laços Detetores and Electronics Ltda., FM Rodrigues & Cia. Ltda.	Concession for the modernization, optimization, expansion, operation, maintenance and remote and real-time control of the public lighting network infrastructure of the Municipality of São Paulo.
Belo Horizonte Public Lighting PPP	IP Belo Horizonte Consortium, formed by the construction companies Barbosa Mello, Remo, Planova Planning Construction and Selt Engineering.	Concession for maintenance and operation of the municipal public lighting network in Belo Horizonte. The PPP also includes the modernization of the technology used in Belo Horizonte, using LED lamps.

Source: authors, 2024.

### 3.1.4 PPP's Advantages and challenges

The implementation of public-private partnerships (PPPs) presents advantages as well as challenges for local and regional governments. PPPs provide a useful *framework* under which the public and private sectors can pool and coordinate their financial and technological resources more efficiently, given the massive capital requirements for projects and the need for innovation (both in terms of technological solutions and financing structures). They offer the following advantages:

- **Efficient use of resources and capacities** : PPPs can ensure the provision of quality infrastructure services to more people due to the greater efficiency and stability they can provide in sectors such as energy, transport and health. Within this model, the public sector focuses on roles such as regulation and supervision, while the private partner manages performance.
- **Capital and risk allocation** : One of the main advantages of PPPs for the public sector is the involvement of the private partner in the necessary upfront investment. This allows public institutions to spread expenditures over a longer period, obtain the desired financing, and unlock additional external sources that would otherwise not be possible or accessible. When implemented in a balanced regulatory environment, PPPs can also lead to better risk allocation between public and private entities.
- **Increased public sector investment in priority sectors** : Since PPPs involve an upfront investment that is usually made by the private sector, this relieves the public budget, allowing local and regional governments to make infrastructure investments that would otherwise not be possible. This can lead to better budget allocation, improving the quality of services that the government can provide. In addition to improving public service delivery, PPPs can also support government investment priorities by promoting strategic projects for the private sector that attract risk-reduced financing for the public sector.
- **Innovation potential** : PPPs can bring innovation to public administration. The know-how shared by the private sector partner is disseminated among public officials, who can then use this knowledge in other sectors and projects. In addition, the public sector has the opportunity to access different types of technologies that companies bring, improving the use of these technologies in the delivery of public services.
- **Economic and social growth** : Because PPPs allow for direct private sector investment, they open up space for economic and social growth. Through robust projects, these arrangements can generate co-benefits such as job creation and improved quality of life for citizens. This can help address issues such as social inequality, climate change and, in some cases, gender disparities.
- **Faster implementation** : Financing a project through a public-private partnership can also allow a project to be implemented more quickly than if it relied solely on public sources and efforts.



However, PPPs can also encounter some challenges, such as:

- **High costs and risk allocation** : Since PPPs are typically designed for large-scale projects and include a higher interest cost from private companies, they involve higher costs when compared to traditional procurement solutions. In practice, these higher costs translate into higher risks. Furthermore, risk allocation can also be a challenge, as both the public and private sectors define and are impacted by risks differently. On the public sector side, risks are related to the financial side, including budget allocation. On the other hand, the private sector tends to place emphasis on operational and commercial risks.
- **Lack of appropriate regulations** : In some countries, additional challenges may arise due to the lack of specific legislation and regulations on PPPs, including laws affecting PPP contracts, decision-making processes and implementation procedures.
- **Uncertainty** : PPPs can lead to uncertainty in a number of ways. When one party feels that they are losing some degree of control, they may try to adopt more rules to regain that control, rather than working together. Since governments are heavily influenced by elections, a change in the political climate may establish different priorities than before, putting the PPP project at risk. Furthermore, PPPs usually cover a long-term period of service provision, and any agreement that covers such a long period in the future is naturally subject to uncertainty.
- **Technical and capacity constraints** : When dealing with the private sector, local and regional governments need to design projects that are investment-ready and attractive to the business sector. This involves creating innovative concepts that ensure service delivery and return on investment. However, local and regional governments often lack the technical expertise to develop such initiatives, which hinders their engagement in PPPs.

### 3.1.5 *Regional challenges and opportunities for PPPs: the Brazilian context*

Public-Private Partnerships (PPPs) are a fundamental strategic alternative to address the challenges of Brazilian infrastructure, especially in smaller municipalities, which have less capacity to develop public policies and make large-scale investments. According to the

Infrastructure Blue Book (2023 <sup>3</sup>, based on data acquired up to December 2023, Brazil faces a significant investment deficit in crucial sectors, such as transportation, basic sanitation, electricity and telecommunications, which totals approximately R\$462.3 billion per year. This amount represents 4.31% of GDP, while the country currently invests only 1.99%, resulting in an annual gap of approximately R\$248.9 billion. This scenario is aggravated by the urgent need to improve infrastructure in poorer and less developed areas, where public resources are even scarcer.

In 2023, the transportation sector will have one of the largest deficits, with R\$201 billion needed annually to modernize the road and rail networks, compared to current investments of only R\$41.4 billion, which is equivalent to 0.39% of GDP. This gap directly impacts the competitiveness of the economy and regional development, especially in smaller locations that depend heavily on efficient transportation networks to transport their production. These partnerships are also essential to reduce the deficit in basic sanitation, which is another critical area. Today, Brazil invests only 0.25% of GDP in the sector, when R\$48.3 billion would be needed annually<sup>4</sup>. This scenario directly affects the population's quality of life, especially in less developed regions.

Brazil, with its vast territory of over 8.5 million square kilometers, is a country of continental dimensions. This characteristic poses unique and complex challenges to the development of infrastructure, which varies significantly from region to region, both in terms of needs and growth potential. The planning and execution of infrastructure works, such as transportation, sanitation, energy and telecommunications, must take into account the geographic, economic and social differences of each area.

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<sup>3</sup> Livro Azul da Infraestrutura, 2023 - ABDIB  
<https://static.poder360.com.br/2024/01/Livro-Azul-da-Infraestrutura-Edicao-2023.pdf>

<sup>4</sup> Livro Azul da Infraestrutura, 2023 - ABDIB  
<https://static.poder360.com.br/2024/01/Livro-Azul-da-Infraestrutura-Edicao-2023.pdf>

**Chart 5 - Public and Private Investment in Infrastructure (in R\$ billions) - In constant 2023 values**

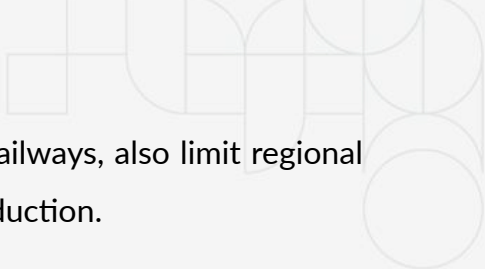
2023: Projection, updated by IPCA during the period (until September 2023)



Source: ADIB, 2023.

The Northern region, characterized by large areas of tropical forest and a low and dispersed population density, faces enormous difficulties in terms of connectivity. The road network, for example, is limited and in many cases precarious, which makes the transportation of goods more expensive and makes it difficult to transport the region's agricultural and mineral production. In addition, access to basic services, such as drinking water and sanitation, is a distant reality for many municipalities. The lack of investment in infrastructure directly affects the population's quality of life, especially in states such as Acre and Roraima, which have very low rates of coverage of these services.

The Northeast, a region with one of the largest population concentrations in the country, has a history of structural deficiencies that affect economic and social development. Although it has great potential for the development of renewable energy sources, such as solar and wind power, the energy generation and transmission infrastructure still need to be expanded and modernized. In addition, the basic sanitation deficit is one of the most severe in the country, with several states facing difficulties in guaranteeing access to treated water and adequate sewage, which compromises public health and the well-being of the population. Difficulties in



the transportation sector, such as the lack of quality highways and railways, also limit regional economic growth, hindering the flow of agricultural and industrial production.

In the Central-West, transportation infrastructure is also a bottleneck, especially for agribusiness, which is the region's economic engine. The region's agricultural and livestock production is vast, but its dependence on road transport, which is often in precarious conditions, increases logistics costs and limits competitiveness in the international market. Expanding the rail network and improving highways are crucial to improving the flow of grains and meat. In addition, urban infrastructure also needs to be improved to meet the population growth of regional capitals, such as Goiânia and Cuiabá, which have experienced rapid expansion in recent years.

In the Southeast, although it is the most developed region in the country, challenges persist. The urban and road network requires constant maintenance and modernization, especially in large centers such as São Paulo and Rio de Janeiro, where heavy traffic and the lack of adequate infrastructure for public transportation impact the quality of life. In addition, the pressure on sanitation systems and the need to ensure cleaner and safer energy sources to support the growing energy demand are challenges that the region faces. Finally, in the South of the country, the infrastructure is more consolidated, but there is a need for improvements, especially in rural areas and in the logistics sector. Highways, in many areas, are saturated, and the expansion of the rail network is necessary to optimize the transportation of industrial and agricultural products, essential for the region's economy<sup>5</sup>.

Each of these regions presents specific challenges, requiring customized solutions and strategic investments that consider their particularities. Brazil's continental size requires complex coordination between different levels of government and the private sector to ensure that development is balanced and inclusive. Public-Private Partnerships play a central role in this strategy, offering a sustainable and efficient investment path to meet critical infrastructure needs that vary significantly by region.

By allowing private sector participation, PPPs enable the execution of key infrastructure projects, offsetting the financial and technical limitations of the public sector. They not only provide an additional source of financing, but also encourage the introduction of new technologies, more efficient management and the provision of higher quality services. Therefore, PPPs are an indispensable tool for Brazil to overcome infrastructure challenges,

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<sup>5</sup> Livro Azul da Infraestrutura, 2023 - ABDIB  
<https://static.poder360.com.br/2024/01/Livro-Azul-da-Infraestrutura-Edicao-2023.pdf>

offering viable and sustainable solutions, particularly in smaller municipalities that lack capacity and resources. However, for this model to be fully successful, clear regulation and good governance are essential, ensuring the legal certainty necessary to attract investors.

The next topic will explore the definition and different types of public-private partnerships, their basic compositions and the Brazilian legislation governing this modality. In addition, a distinction will be made between PPPs and other formats of private sector participation, highlighting their specificities and advantages in public infrastructure projects.

### 3.2 Five Dimensions Model and PIERS:

#### Linking PPPs to the SDGs

Public management is constantly evolving, adapting and redefining its paradigms to meet the growing demands of a rapidly changing scenario. In response to these needs, numerous tools and methodologies have been developed to support the improvement of the management and execution of Public-Private Partnerships (PPPs) and infrastructure projects. These initiatives are essential to face current challenges and ensure the high level of adaptability required. Among them, the Fast Infra Label (IS Sustainable), the Five-Dimension Model (M5D) and the Viability Gap Fund Assistance stand out.

These tools are essential to guide the development of projects in an efficient, effective and efficient manner, positively impacting political agendas. In the toolkit we present, we will emphasize the Five Dimensions Model (5DM) and the PPP and Infrastructure Evaluation and Rating System (PIERS). The 5DM is a widely used framework, derived from the *Five Case Model* and adapted to the Brazilian context. It offers a robust structure for the development of infrastructure projects, targeting the entire Public Policy Cycle.

PIERS can be applied as a subsequent assessment to projects developed based on the M5D, ensuring coherence, alignment with international best practices for infrastructure projects, and compliance with the Sustainable Development Goals (SDGs). It is worth noting that these models are complementary: while the M5D provides detailed guidance for the development of infrastructure projects, PIERS incorporates international assessment criteria, ensuring a comprehensive and high-quality analysis.

The Five Dimensions model emerged in the United Kingdom as an approach to developing infrastructure projects in the country. Since the 1980s, the British government has

sought ways to reduce public debt and increase efficiency in the delivery of public services. The introduction of PPPs has enabled the private sector to finance, build and operate infrastructure projects, with the government retaining ultimate control and responsibility (Parker, 2009).

The Model was developed in the 2000s by the UK's HM Treasury as an ideal approach for creating business cases in the public sector. This model has become a recommended methodology for ensuring careful analysis of all aspects of an investment proposal, promoting uniformity and efficiency in project assessment and approval. The British government defines the Five Dimensions Model as:

*The Five Case Model is the framework needed to consider how public resources should be used in proportion to the costs and risks involved, and taking into account the context in which the decision is to be made. The five "cases" or dimensions are different ways of looking at the same proposal. The policy, analysis, business, finance and delivery professions in the public service must avoid working in silos and work together on proposals from the outset. The five dimensions cannot be developed or viewed in isolation; they must be developed together in an iterative process, as they are intimately interconnected (Green Book, 2022).*

In Brazil, the Five-Dimensional Model (5DM) has gained notoriety due to the growing demand for more efficient and sustainable infrastructure projects. This required the Brazilian government to recognize the importance of the Five-Dimensional Model, incorporating this methodology through CPPI Resolution No. 249, of September 20, 2022. This resolution determines that proposals for qualifying projects under the Investment Partnerships Program (PPI) must be accompanied by an Initial Investment Proposal prepared based on the 5DM. This incorporation demonstrates the State's strategic orientation towards greater efficiency and accountability in public management.

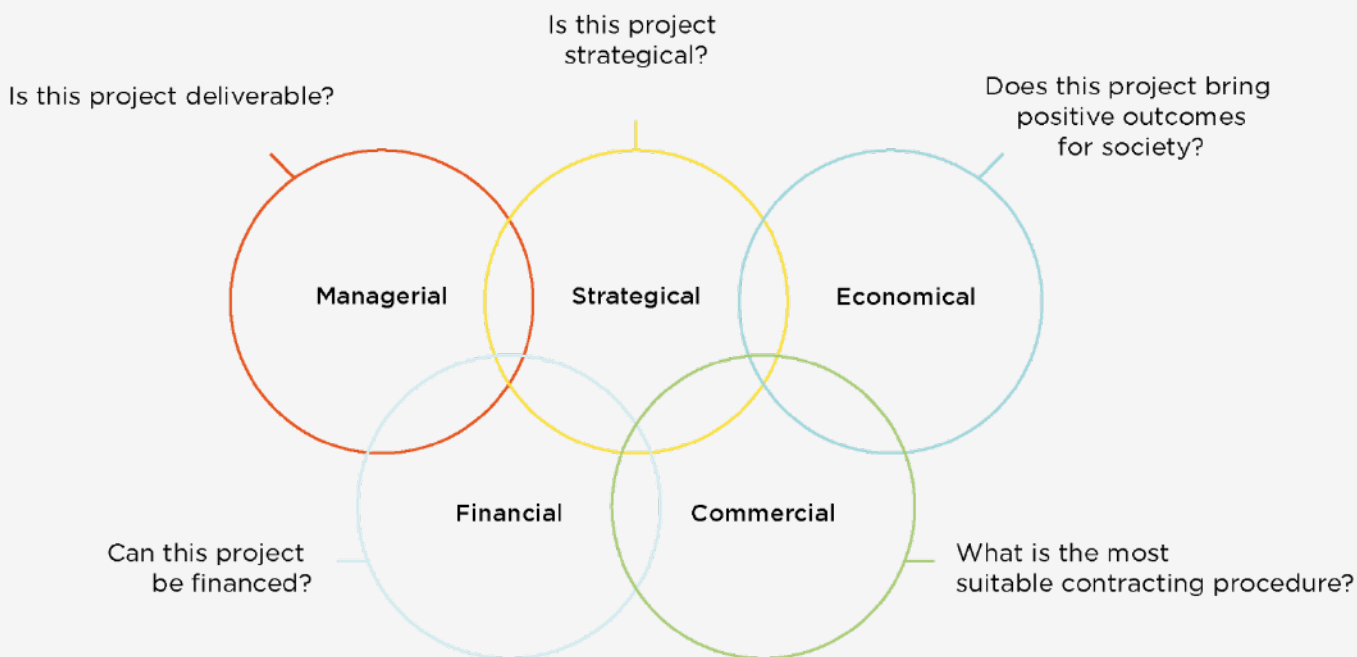
In line with the government, the Federal Court of Auditors (TCU) has begun to widely recommend the use of the Five-Dimensional Model as an excellent practice in the management of infrastructure projects. Ruling TC 013.771/2021-3 details and endorses the use of this methodology, emphasizing that its application will be positively evaluated by Brazil's main oversight body. It is noted that several entities, including consultancies and institutions, are in the process of adapting to the current scenario of infrastructure project development. This

movement is due to the requirement, by the federal government, that all designated projects follow this specific methodology for their structuring. This obligation reflects the growing demand for regulatory compliance and the incorporation of good practices in the scope of external control. For public managers, the adoption of this methodology becomes essential to ensure that infrastructure projects are aligned with international best practices, thus strengthening the effectiveness and legitimacy of government actions.

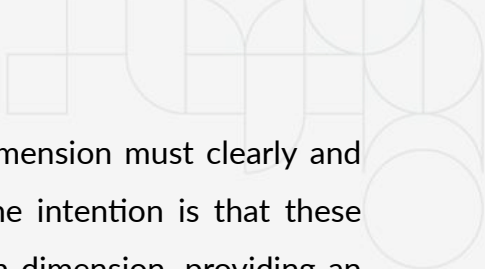
When we delve into the M5D, we see that it reflects the five fundamental perspectives from which a project is analyzed and developed. In other words, at each phase or moment of the project, the framework will be considering five dimensions: strategic, economic, financial, commercial and managerial. In addition to these, the M5D organizes the preparation of an Investment Proposal into three distinct phases: Initial, Intermediate and Complete. These phases represent important milestones in the project development process, ensuring a structured and well-founded evolution.

As mentioned above, the dimensions represent different perspectives that are essential for the development and execution of a project. Below, in Figure 5, it can be seen that these five dimensions are always associated with a key question.

Figure 5 - The 5 Dimensions Model



Source: Ministry of Economy, 2022.



Ultimately, the products and processes developed in each dimension must clearly and objectively answer the critical questions related to the project. The intention is that these answers allow us to identify how current processes align with each dimension, providing an integrated and multidisciplinary view of the project. As previously discussed, M5D organizes the preparation of an Investment Proposal into three distinct phases: Initial, Intermediate and Complete. Each of these stages corresponds to different levels of development and maturity of the strategic, economic, commercial, financial and managerial dimensions of the project.

The Initial Investment Proposal is the starting point in the project development process. At this stage, the emphasis is predominantly on the Strategic and Economic dimensions, which are essential to establishing the “strategic need” for the project and ensuring its alignment with the broader objectives of the government. The focus is on identifying a range of realistic options that meet these needs, accompanied by a preliminary analysis of the costs, benefits and risks involved. Although the Commercial, Financial and Managerial dimensions are considered at this stage, their treatment is more superficial, serving only as a basis for later, more detailed development. This approach allows decision-makers to have a clear view of the strategic and economic implications of the project from the outset, facilitating initial guidance and preparing the ground for subsequent stages.

Moving forward in the process, the Intermediate Investment Proposal expands on the analysis carried out in the initial phase, with a more detailed focus on the Economic and Commercial dimensions. At this stage, the previously identified options are evaluated more rigorously, considering the economic benefits, detailed costs and risks associated with each one. A distinctive feature of this phase is the inclusion of a qualitative assessment of the public risks and benefits, ensuring that decisions are informed by a deep understanding of the social and environmental implications of the project. In addition, the environmental and social assessments, together with the technical studies, are reviewed and updated to ensure that the most advantageous option is selected, while maintaining compliance with the required standards.

The Full Investment Proposal represents the final stage of development prior to project execution. At this stage, final adjustments are made, with particular focus on the aspects necessary for opening the procurement process. The Economic, Commercial, Financial and Management dimensions are all updated and refined to ensure that they are fully aligned with the previously established strategic objectives. Here, the contractual structure of the project is defined in detail, including the specifications of the procurement process and the plans for

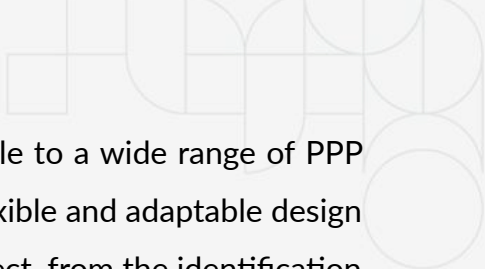


monitoring the expected public benefits. This phase culminates in the selection of the successful bidder, solidifying the provisions necessary for the effective execution and management of the project. In this way, the Full Investment Proposal ensures that all elements of the project are seamlessly integrated, ready for the transition from planning to implementation.

The success stories that have used the *Five Case Model* are widely recognized, notably the High Speed 2 project in the United Kingdom and the Vancouver International Airport Expansion Project. High Speed 2 (HS2) is one of the most ambitious high-speed rail projects in the United Kingdom, aiming to connect London to the North of England, transforming regional mobility and boosting economic development. Divided into two phases, HS2, scheduled for completion by 2040, covers more than 230 kilometers of track and foresees trains reaching an average speed of 330 km/h, radically changing transport in the region. Given its scale, HS2 generates significant impacts, both positive and negative, affecting the country as a whole and the local communities adjacent to the rail lines. The *Five Case Model* was essential in ensuring that these impacts were carefully analyzed before construction began. This methodology allowed the creation of robust mitigation plans for potential and unforeseen risks, ensuring the viability and sustainability of the project over time.

Another example is the Vancouver International Airport Expansion Project, Canada's second-largest airport, which aims to expand existing terminals and develop a strategic and sustainable system to meet the growing demand for air transportation. This project has attracted significant investment, including funding from the Canadian government and a \$9.9 million contribution from the Multilateral Development Banks (MDBs). For a project of this magnitude to be successful and secure, it is essential to demonstrate unequivocally its reliability, positive impact and ability to manage potential negative impacts. The *Five Case Model* was crucial in ensuring that all critical aspects of the project were rigorously analyzed and validated. From economic justification to technical and financial feasibility, risk assessment and strategic planning, the application of this methodology ensured the success and confidence needed to proceed with the project.

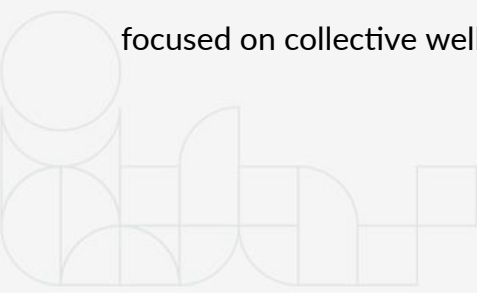
Returning to PIERS, this is an assessment method based on the Assessment and Rating of Public-Private Partnerships (PPP) and Infrastructure for the Sustainable Development Goals (SDGs) system, developed by the United Nations Economic Commission for Europe (UNECE). The model was designed to support a range of stakeholders, including governments, the private sector, civil society organizations, academia and international bodies, in assessing and improving

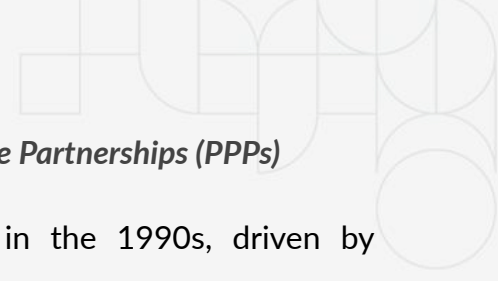


the results of PPPs in line with the SDGs. The PIERS tool is applicable to a wide range of PPP types, sizes and models, covering all sectors and global regions. Its flexible and adaptable design allows it to be used at different stages of the life cycle of a PPP project, from the identification phase to implementation. The five core aspects assessed by PIERS are: Access and Equity; Economic Efficiency and Fiscal Sustainability; Environmental Sustainability and Resilience; Replicability and Stakeholder Engagement.

The first axis considers whether the service provided by the project is essential, accessible, and committed to promoting equity in its provision and impacts. The second axis then focuses on the economic viability of the project, including transparency, anti-corruption and long-term fiscal sustainability. The third axis assesses the environmental sustainability and resilience of the project, highlighting its potential for long-term planning and its support for innovation and technology in local communities. The fourth aspect, replicability, examines the project's ability to be replicated in future initiatives. Finally, the stakeholder engagement axis assesses whether the project promotes full transparency, ensures fair and inclusive public participation, and guarantees that the information made available to the population is relevant and accessible.

Therefore, it can be concluded that the PIERS and M5D models are consonant and complementary tools that, when applied together, offer an integrated and holistic approach to the assessment and development of infrastructure projects. The M5D, with its robust foundation, provides a comprehensive and multidisciplinary analysis across the five dimensions, ensuring a solid basis for informed decision-making at each stage of the project. On the other hand, PIERS adds a critical dimension by integrating the assessment of essential factors, aligning projects with the Sustainable Development Goals (SDGs). Together, these models emerge as indispensable instruments for the formulation, implementation, evaluation and monitoring of public policies, offering public managers a strategic tool to maximize the effectiveness, transparency and sustainability of their actions. This synergy strengthens planning and execution capacity, ensuring that projects not only achieve their immediate objectives, but also promote sustainable and inclusive development, reflecting best practices in governance and public management. By adopting this integrated approach, municipal administrations will be better equipped to face the complex and dynamic challenges that characterize contemporary public management, ensuring that their projects and policies are effective, responsible and focused on collective well-being.





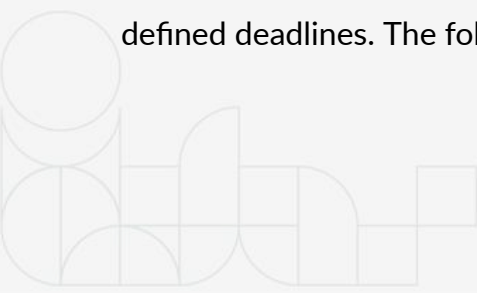
### 3.2.1 *Tools for Structuring, Executing and Implementing Public-Private Partnerships (PPPs)*

Public management reform in Brazil gained prominence in the 1990s, driven by challenges such as increasing investment in infrastructure, overcoming the fiscal crisis, and the need to combat administrative inefficiency. During this period, the country experienced economic liberalization, privatization processes, and a series of reforms guided by the New Public Management Model, also known as the managerial model (Drumond et al., 2014). This model introduced the idea that the public sector could benefit from the experience and efficiency of the private sector through strategic partnerships. The proposal to delegate public functions to the private sector was based on the premise that the latter had greater specialization, investment capacity, and the ability to provide services more economically and efficiently.

Consequently, Public-Private Partnerships (PPPs) have emerged as strategic instruments for carrying out infrastructure projects and public services, especially in contexts of budgetary constraints. This model has allowed the public and private sectors to collaborate in the delivery of essential services, with greater quality in risk management. However, it has also demonstrated challenges, such as contractual complexity, the need for solid governance and ensuring that public objectives are met. Therefore, the evaluation of these projects is essential to ensure that they fulfill their long-term function and provide value for public investment.

According to Grimsey and Lewis (2004), PPPs can integrate the financing, construction and operation stages, allowing for better management of the project life cycle, resulting in clearer incentives for the private sector. These incentives are linked to the efficient delivery of services, since payments depend on performance over time, creating an alignment of interests between the public and private sectors.

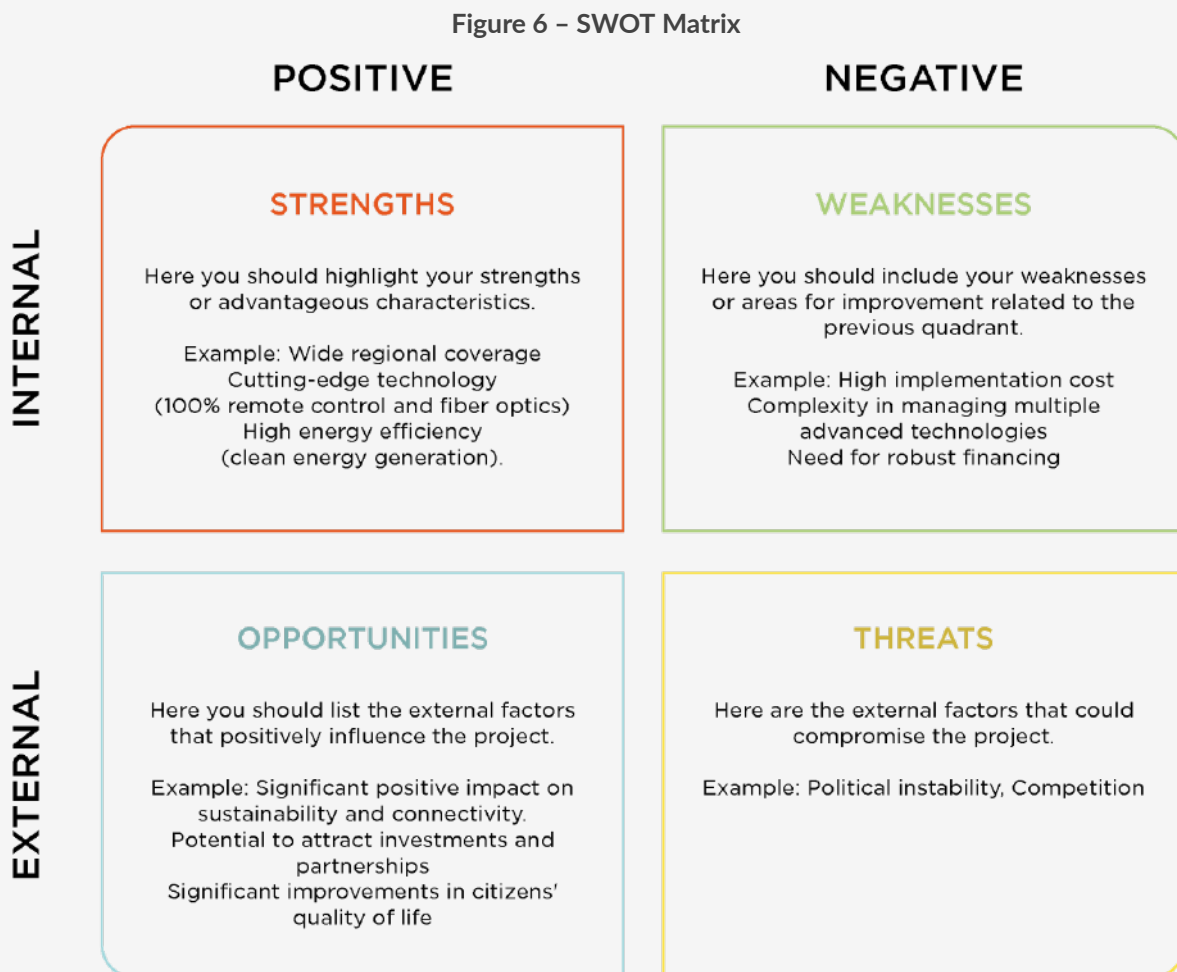
The successful implementation of a PPP requires a thorough analysis of several aspects, from the design to the implementation and operation of the project. The first point to be highlighted is the clear definition of the objectives to be achieved, which is essential to guide all subsequent stages of the partnership. It is recommended to apply the SMART technique, which ensures that the objectives are specific, measurable, achievable, relevant and time-bound. Specific objectives are detailed and clear; measurable, quantifiable and qualifiable; achievable, realistic and possible to achieve; relevant, aligned with public needs; and time-bound, with defined deadlines. The following example demonstrates how to apply the SMART technique.



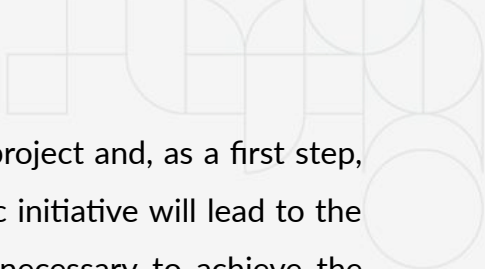
Objective: replace 100% of public lighting lamps with efficient LEDs by December 2026, aiming to reduce energy consumption by 40%.

- a) **Specific:** completely replace current lamps with efficient LEDs.
- b) **Measurable:** achieve a 40% reduction in energy consumption in the next two years.
- c) **Achievable:** carry out the replacement in phases, starting with the areas of greatest consumption.
- d) **Relevant:** contribute to the sustainability goals established by the city.
- e) **Temporal:** complete the entire replacement process by December 2026.

At the same time, SWOT Analysis helps identify the strengths, weaknesses, opportunities and threats related to the project, allowing for an in-depth understanding of the internal and external environment. These techniques constitute essential qualitative analyses for the idealization of the project. Below, Figure 6, shows the SWOT matrix:



Source: prepared by the authors, 2024.



In the quantitative approach, it is necessary to measure the project and, as a first step, build a Theory of Change. This tool describes how and why a specific initiative will lead to the expected results. By developing it, it is possible to map the steps necessary to achieve the established goals, facilitating the monitoring and evaluation of the project. In other words, it illustrates the logical path between the resources invested and the expected impacts, highlighting how the planned activities will lead to the desired results. By mapping this process, it becomes possible to effectively monitor and evaluate the progress of the project, ensuring that the established goals are achieved within the stipulated deadline. The Theory of Change for the objective of replacing 100% of street lighting lamps with efficient LEDs by December 2026, aiming to reduce energy consumption by 40%, can be structured as follows:

- a) Resources and Inputs:** allocation of financial investments for the acquisition of LED lamps; hiring of specialized technical teams; establishing partnerships with suppliers and installation companies; development of logistical infrastructure for distribution and installation.
- b) Activities:** detailed planning of the replacement schedule, prioritizing areas of greatest consumption; training of installation teams; execution of the replacement of lamps in phases; implementation of communication campaigns to raise public awareness of the benefits of the project.
- c) Products (Outputs):** complete replacement of conventional lamps with efficient LEDs throughout the public lighting network; obtaining initial data on the reduction of energy consumption in the areas served.
- d) Short-term Results (Outcomes):** immediate reduction in electricity consumption in the areas where the replacement occurred; reduction in operational costs with maintenance and energy consumption; improvement in the quality of public lighting.
- e) Long-term Impacts:** achieving the target of a 40% reduction in total energy consumption for public lighting over the next two years; significant contribution to the city's sustainability goals; reduction of greenhouse gas emissions; increased satisfaction and safety of the population due to improved lighting.

From this point on, it becomes feasible to carry out impact evaluations, which are essential to assess the effect of the project. As discussed in the World Bank handbook (World Bank, 2017), impact evaluation is essential to measure the effects of public policies and PPP

interventions. It involves comparing treated and untreated groups, using methodologies such as random selection, instrumental variables, and difference-in-differences, to ensure that the positive impacts are attributable to the partnership. This evaluation ensures that resources are allocated effectively, producing improvements in socioeconomic conditions, such as poverty reduction and infrastructure improvements.

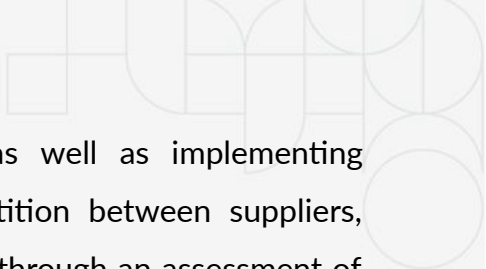
At the same time, it is necessary to carry out a feasibility analysis of the project. When carrying out this study, the project is evaluated in multiple dimensions: technical, economic, financial, commercial, legal and environmental. The technical dimension considers the capacity to execute the project; the economic dimension considers the cost-benefit ratio and economic impact; the financial dimension considers the availability of resources and expected return; the commercial dimension considers market demand and commercial sustainability; the legal dimension considers legal compliance and associated risks; and the environmental dimension considers environmental impacts and mitigating measures.

Another essential point to be highlighted is risk management, as described by Akintoye, Beck and Hardcastle (2003). The success of a PPP depends on the effective allocation of risks, ensuring that those with the greatest capacity to manage certain types of risks assume this responsibility. Financial risks, for example, tend to be transferred to the private sector, while political or public policy risks remain with the government. This balance is essential for PPPs to deliver services efficiently and sustainably over time. The use of the ISO 31000 standard (ABNT, 2018) is recommended, which provides guidelines for risk management, allowing a structured approach to identifying, assessing and treating them.

### **3.2.2 *Measuring PPP Performance***

Continuous evaluation in Public-Private Partnerships (PPPs) enables strategic and operational adjustments, ensuring the optimization of resources and the achievement of expected results. In this context, four main dimensions are used to evaluate the performance and effects of a PPP: economy, effectiveness, efficacy and efficiency.

Cost-effectiveness refers to the ability to acquire resources at the lowest possible cost without compromising the quality required for project execution. In PPPs, it is crucial that financial, material and human resources are used prudently, avoiding waste and ensuring the best cost-benefit ratio. This involves carrying out detailed analyses of the costs involved,

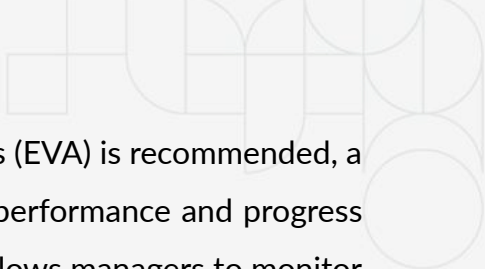


seeking opportunities for reduction without affecting quality, as well as implementing competitive procurement processes that promote healthy competition between suppliers, resulting in better prices and conditions. This analysis is carried out through an assessment of economic feasibility, using methods such as cost-benefit analysis (CBA), Value for Money (VfM), sensitivity analysis and Public Sector Comparator (PSC), among others.

Effectiveness measures the degree to which the strategic objectives of the project were achieved, assessing the real impact of the PPP in resolving identified problems and generating benefits for society. It involves verifying whether the results obtained are aligned with established public policies and government strategies. Defining and monitoring indicators that reflect the long-term effects of the project on the community and the sector involved are essential. Assessing the social, economic and environmental benefits resulting from the PPP, comparing them with the established goals, allows us to measure the project's effective contribution to socioeconomic development. Some of the techniques used to measure project effectiveness include calculating Public Value, socioeconomic impact analysis, monitoring and evaluation (M&E), cost-effectiveness analysis (CEA), user satisfaction, among others.

Effectiveness refers to the degree to which the planned results have actually been achieved, and is distinguished from effectiveness by focusing on the immediate and direct results of the project rather than its long-term impacts. Evaluating compliance with the goals set in the planning is essential, verifying the achievement of specific objectives and operational goals. Analyzing the quality of the products or services delivered is equally crucial to ensure that they meet the required standards. Measuring the effectiveness of a PPP project involves verifying whether the results achieved are in line with the proposed objectives, ensuring that the project meets the established goals in terms of concrete results and services provided. Tools such as cost-effectiveness analysis and ex-post impact assessment are essential in this process, allowing objective measurement of the correspondence between the expected results and those obtained.

Efficiency refers to the relationship between the resources used, and the results obtained, with a focus on process optimization. In a PPP, efficiency is expressed as the ability to maximize results with the least possible use of resources. Measuring productivity, that is, the amount of outputs generated per unit of input, is essential to improve this relationship. The adoption of practices and technologies that increase operational efficiency, reducing time and costs, is a crucial strategy to achieve this goal. The use of key performance indicators (KPIs) is essential to monitor the efficiency of processes, allowing the identification of areas that require



continuous improvement. In addition, the use of Earned Value Analysis (EVA) is recommended, a project management technique that comprehensively measures the performance and progress of the project, combining the variables of scope, time and cost. EVA allows managers to monitor the use of resources in relation to the planned schedule and budget, facilitating the identification of deviations and the making of corrective decisions, ensuring more efficient and assertive management.

The integration of these four dimensions is essential for a comprehensive assessment of the performance of a PPP. While economy ensures the rational acquisition of resources, effectiveness and efficacy ensure that objectives are achieved both in immediate and strategic terms. Efficiency promotes the continuous optimization of processes, contributing to the sustainability and long-term success of the project.

It is concluded that the implementation of a robust monitoring and evaluation system is essential. This system should include the clear definition of indicators for each performance dimension, establishing targets and reference standards. The development of mechanisms for the regular and accurate collection of relevant information enables periodic analyses of progress, identifying the need for adjustments.

Performance measurement is complemented by the tools and methodologies discussed above, such as Earned Value Analysis, which integrates scope, schedule and costs, providing a comprehensive view of project progress. In addition, methods such as PRINCE2, PMBOK, Agile Methodologies and the Five Dimensions Model provide frameworks for effective project management, ensuring that measurement practices are embedded in the management processes.

### **3.3 Chapter Summary**

In this chapter, we have seen a detailed overview of Public-Private Partnerships (PPPs), their fundamental concepts, the requirements needed for successful implementation, and the essential elements for efficient modeling. We have discussed the advantages and challenges of adopting PPPs, in addition to analyzing the regional scenario, especially in Brazil. To consolidate this theoretical knowledge and assist public managers in their practical decisions, we present below a set of tools and matrices. These tools were developed to simplify the planning process,



identify risks and responsibilities, and monitor results, making the structuring of PPPs clearer and more organized.

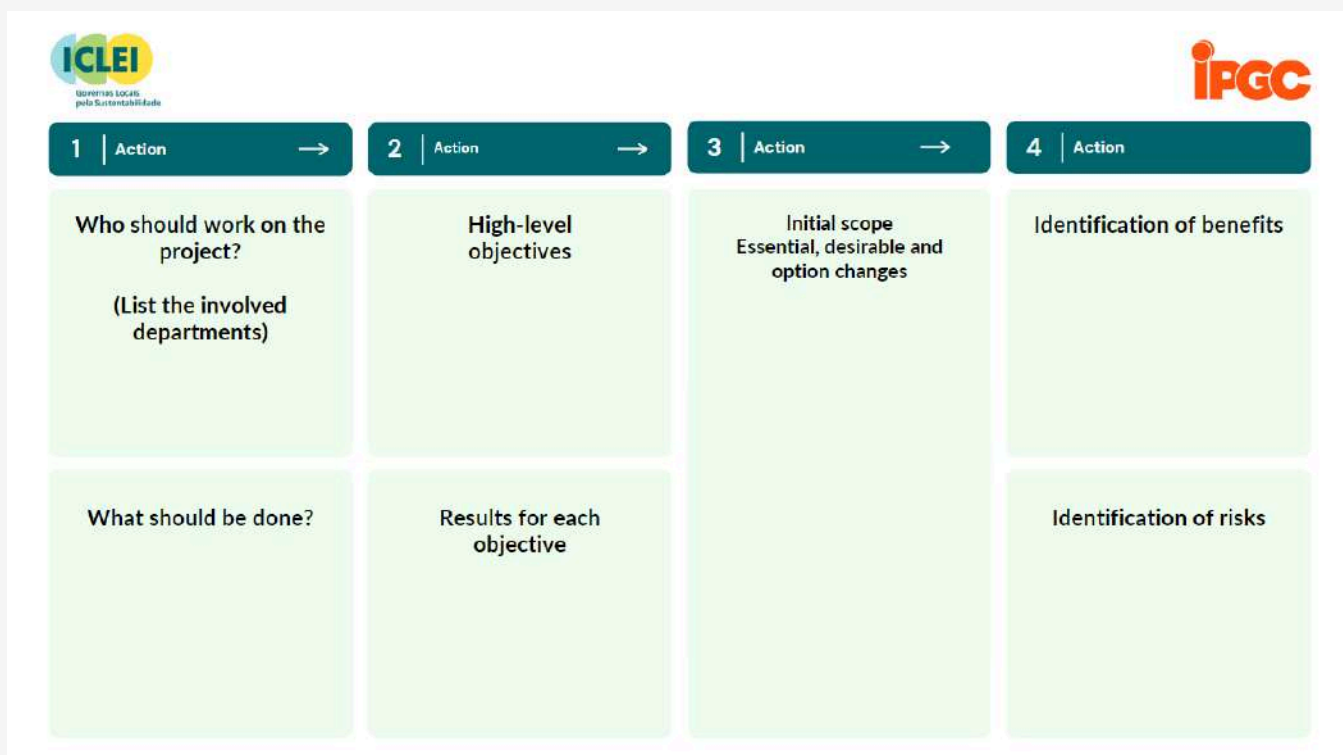
With these tools, managers will be able to apply the concepts discussed throughout the chapter in a practical and objective way, ensuring greater success in the implementation of infrastructure and service projects.

### 3.4 Tools for Structuring, Executing and Implementing PPPs

#### 3.4.1 Action Planning Matrix - 5 Dimensions Model

The matrix presented below is an essential tool for the initial planning of a PPP project. It helps to organize the main actions required for the development of the project, categorizing the stakeholders, the high-level objectives, the scope and the identification of risks and benefits. Each block of the matrix helps the manager to maintain focus on the responsibilities and crucial steps, promoting a clear and practical vision of the process.

Figure 7 - Action planning matrix: 5-dimensional model



Source: authors, 2024.

### 3.4.2 SWOT Matrix for PPP Context Analysis

The SWOT (Strengths, Weaknesses, Opportunities and Threats) matrix, as mentioned earlier, is a widely used tool to analyze the internal and external environment of a PPP project. It can help identify strengths and weaknesses that may influence the execution of the partnership, as well as explore opportunities and mitigate external threats.

Figure 8 - SWOT matrix for PPP context analysis



Source: the authors, 2024.

### 3.4.3 Risk and Responsibility Matrix

To ensure the success of a PPP, it is essential to carry out a detailed analysis of risks and responsibilities. This matrix helps to properly distribute risks between the public and private sectors, ensuring that the parties assume risks in accordance with their capabilities and expertise.

Figure 8 - Main elements



### Financial Risks

Who bears the costs in case of project failure or changes in the budget.



### Operational Risks

Who is responsible for the daily execution and meeting deadlines.



### Regulatory Risks

Who will be affected by changes in laws or regulations, and how to mitigate these threats.



### Responsibilities

Detailing the obligations of each party in the contract, ensuring clarity and efficiency in project management.

Source: the authors, 2024.

#### 3.4.4 Key Performance Indicators (KPIs) Model

The use of key performance indicators (KPIs) is essential to measure the progress and quality of a PPP. These indicators help assess whether the project is meeting its objectives and where adjustments may be needed.

Figure 9 - Examples of KPIs



Project execution time in relation to the schedule



Quality of services provided to the population



Efficiency in the allocation of financial resources



Satisfaction of end users and the government with the results achieved

Source: the authors, 2024.

## 4 PUBLIC-PRIVATE PARTNERSHIPS OVERCOMING CHALLENGES WITH COOPERATION

This toolkit presents a collection of Public-Private Partnership (PPP) case studies that demonstrate how different Brazilian municipalities have innovated in the management and implementation of projects essential for sustainable urban development. Through the experiences of Garopaba Inteligente, Palhoça and the Ananindeua Photovoltaic Plant, we explore initiatives that range from the modernization of urban infrastructure and improvement of public lighting services, to the universalization of basic sanitation and the adoption of renewable energy sources.

These cases provide valuable insights into the benefits of PPPs, including efficient resource allocation, promoting environmental and economic sustainability, and improving citizens' quality of life. The lessons learned highlight the importance of public-private collaboration to enable significant investments and implement advanced technological solutions that meet local needs.

## Case Study 1

### Smart Garopaba

#### Technical Sheet

### Garopaba - Santa Catarina

State	Total Area
<b>Santa Catarina</b>	<b>115,59 km<sup>2</sup></b>
Region	Population
<b>South of Brazil</b>	<b>23.174 inhabitants</b>

PIB per capita (2021)  
**R\$ 27.446,72**

Main Economic Sectors  
**Tourism, Fishing and Agriculture**



#### Project Overview

The Smart Garopaba project aims to modernize urban infrastructure with a focus on sustainability, cost-effectiveness and innovation. It proposes making public lighting more efficient, installing a photovoltaic plant to generate clean energy for public buildings and installing a telecommunications infrastructure, including fiber optics, public Wi-Fi and video surveillance. These efforts are aligned with the principles of Smart Cities, seeking to improve citizens' quality of life, reduce public costs and promote sustainable development in the municipality.

#### Characteristics of public-private partnership

The Garopaba PPP is characterized as an administrative concession model. In this arrangement, the private partner is responsible for the execution, operation and maintenance of the services, assuming part of the operational and financial risks, while the government guarantees payment for the provision of services throughout the contract. This model allows the municipality to have access to investments in infrastructure, operational efficiency and technological innovation, with costs diluted over time, contributing to financial sustainability and improving the quality of public services.

## Technical Composition

The project involves the modernization of 7,040 public lighting points, which will be replaced by LED technology luminaires, promoting greater energy efficiency. The project also foresees the installation of 89 km of fiber optics, connecting the main areas of the city, in addition to the installation of 9 public Wi-Fi points in strategic locations and 63 video surveillance points with a total of 171 cameras, to increase security in the city. The PPP also includes the construction of a photovoltaic plant with a capacity of 650 kWp, capable of serving 92 consumer units of the public administration.

## Benefits and lessons learned

Reduction of operating costs, promotion of energy and environmental sustainability, and improvement of public safety and digital connectivity. Through public-private partnerships, it was possible to modernize urban infrastructure with innovative and efficient solutions. Lessons learned include the effectiveness of the PPP model in enabling large investments, the importance of integrating smart technologies into urban projects, and the gains in sustainability, both financial and environmental, resulting in better quality public services and greater operational efficiency.



"The public-private partnership with IPGC was the first in Garopaba! We made history!"

This type of initiative is a great step forward for our administration, opening a new era for improvements in the Municipality. And that's what we believe in: a management that looks to the future, finding solutions in the present."

Junior de Abreu Bento  
Mayor of Garopaba/SC

## Case Study 2

### Palhoça - Basic Sanitation

#### Technical Sheet

### Palhoça - Santa Catarina

State  
**Santa Catarina**

Total Area  
**395,7 km<sup>2</sup>**

Region  
**South of Brazil**

Population  
**178.679 inhabitants**

PIB per capita (2021)  
**R\$ 34.124,19**

Main Economic Sectors  
**Tourism, Fishing and Agriculture**



#### Project Overview

The project aims to universalize and qualify the provision of water supply and sewage services in the concession area of the municipality of Palhoça, in line with the provisions of the New Legal Framework for Basic Sanitation (Federal Law No. 14,026/2020). The project proposes the implementation of collection units, treatment plants, pumping stations, adductors, interceptors, outfalls and networks. These efforts aim to guarantee adequate access to an essential and quality service for the population.

#### Concession Features

The project is characterized as a common concession model, an arrangement in which the private partner is responsible for making all investments necessary for the implementation, execution, operation and maintenance of the services, with the user fee as the payment mechanism. This model allows the municipality to have access to investments in infrastructure, universalization and improvement of services, contributing to the improvement of the quality of public services.

## Technical Composition

The project foresees the provision of 100% water supply and 90% sewage treatment for the concession area, which includes the urbanized areas of the Palhoça municipal headquarters and the towns of Pinheira, Praia de Fora and Enseada de Brito, by 2033. To expand the systems, more than 1,200 km of distribution networks, 28,750 m<sup>3</sup> of reservation centers, 1,300 km of collection networks and effluent treatment plants will be implemented, which will serve not only the resident population, but also the floating population, which is made up of tourists.

## Benefits and lessons learned

The concession will enable compliance with the legal obligations set forth in Federal Law No. 14,026, promoting environmental sustainability, particularly related to the proper treatment of effluents, in addition to improving public health and the population's quality of life. Through the concession, it was possible to modernize the sanitation infrastructure with efficient solutions that are appropriate to the municipal reality. Lessons learned include the effectiveness of the concession model in enabling large investments, the importance of integrating appropriate technologies for water and sewage systems, and gains in sustainability, both economic and environmental. This resulted in a more efficient and higher quality service provision for the population.



"We are making significant progress with the water and sewage concession process in Palhoça, an essential project to ensure modern, sustainable infrastructure that provides better health and quality of life for our population. This progress reinforces our commitment to the city's development, improving our sanitation services to enhance public health indicators and also providing better conditions for the maritime economy, a sector in which Palhoça stands out nationally and is expected to see even greater growth after the universalization of basic sanitation for the population.

Additionally, we are proud to be the first city in Brazil to install 100% LED public lighting on all streetlights through a Public-Private Partnership (PPP), showcasing our ability to innovate and bring sustainable solutions to the municipality. With these two projects, Palhoça stands out for having the largest concession and PPP projects in the State of Santa Catarina. Palhoça is building a better future, with efficiency, safety, and quality of life for all."

Eduardo Freccia  
Mayor of Palhoça/SC



## Case Study 3

### PPP of the Administrative Center of Maceió

#### Technical Sheet

## Maceió - Alagoas

State <b>Alagoas</b>	Total Area <b>510,655 km<sup>2</sup></b>
Region <b>Northeast of Brazil</b>	Population <b>1.013.773 inhabitants</b>
PIB per capita (2021) <b>R\$ 27.579,00</b>	
Main Economic Sectors <b>Commerce and Services, Construction and Industry</b>	



### Project Overview

The project consists of an administrative concession for the construction, operation, maintenance and management of the Administrative Complex of Maceió/AL. The objective is to consolidate a modern, efficient and sustainable Administrative Center, through a Public-Private Partnership (PPP), aiming at the improvement of public services, optimization of resources and sustainable urban development of the city of Maceió.

### Concession Features

The concession will be governed by the Public-Private Partnership (PPP) model in the administrative modality, with a duration of 30 years. The contract involves investments in civil works, sustainable technologies and operating systems, ensuring the energy efficiency and accessibility of the complex. The concessionaire will be remunerated based on the availability of services and may explore additional revenues, such as the leasing of commercial areas.

### Technical Composition

The concession includes the construction of three buildings totaling an area of 20,944.44 m<sup>2</sup>. The infrastructure incorporates sustainability technologies such as solar panels,

natural ventilation systems and a rainwater harvesting system. The structure was designed to be modular, flexible and easy to maintain, incorporating strict accessibility and energy efficiency criteria.

## Benefits and lessons learned

The main benefits include the modernization of the administrative services of the City of Maceió, the creation of an integrated and sustainable urban environment, and the improvement of the quality of public services. Among the lessons learned, it is important to integrate sustainable solutions from the beginning of the project, the use of parametric budgets to accurately forecast costs, and the creation of robust performance measurement mechanisms to ensure the continuous quality of services.



"We are beginning a new era for Maceió with the construction of the Administrative Complex, a project that combines modernity, sustainability and a commitment to revitalizing the city center.

Through a Public-Private Partnership, this strategic investment is part of the Novo Centro program, which not only modernizes public management, but also boosts the local economy, attracting new opportunities and promoting urban development. The complex centralizes our administration and reinforces our ability to offer agile and efficient services, while strengthening the revitalization of the central region. This is a milestone in the advancement of Maceió and a legacy that will benefit generations."

João Henrique Caldas  
Mayor of Maceió/AL

## 5 FINANCING SOURCES AND FUNDRAISING STRATEGIES

This chapter is dedicated to addressing the elements related to the financing of PPP projects from the perspective of local and regional governments, considering local needs and available innovative instruments.

Topic 5.1	<b>Financing a PPP Project</b> , provides an introduction to project financing for public-private partnerships.
Topic 5.2	<b>Financial Aspects of a VPE</b> , explains how VPEs are typically financed.
Tool 1	<b>Bankable Climate Projects</b> , provides tools to structure and design investment-ready projects that include climate criteria.
Tool 2	<b>Decision Tree for Climate Finance</b> , guides local and regional governments to help them select the most appropriate financing instruments.
Tool 3	<b>Minimizing Financial Risks in PPPs</b> , provides a simplified checklist of key factors that should be considered to avoid or mitigate financial risks in PPPs.

### 5.1 Financing a PPP project

Financing is a crucial part for local governments interested in engaging in PPP projects, especially considering that climate intervention projects often do not generate enough revenue to be financially attractive or to sustain their operation. Furthermore, the ability to develop viable and successful financing proposals for climate projects is limited by the lack of technical capacity of local governments, as well as the inability to retain credible project developers (CoM SSA, 2020).

As for financing sources, climate projects are largely financed by private sector developers and national governments. In the case of a PPP, the selection of the financial model will vary depending on the project and the type of agreement (see Resource 1.2), the risks and the revenue generation potential.

#### 5.1.1 Financing models for climate projects

There are many sources for financing and funding sustainable and climate-resilient urban infrastructure projects. These sources can be public and private, and may be national or

international in origin. These sources can therefore be understood within a diagram that relates these different levels (public vs. private and national vs. international) as shown in Figure 10.

Figure 10 - Climate finance architecture



Source: the authors, 2024.

It is important to emphasize, however, that these sources interact with each other, as is the case, for example, with the Resilient South Project, a financing line launched by the Regional Development Bank of the Far South (BRDE), with resources from the World Bank, to promote urban resilience through intersectoral actions in the city governments of the Southern Region of Brazil. Likewise, the advantages of using blended finance structures to achieve the SDGs and climate goals are increasingly being seen, which seeks precisely to leverage commercial capital through public or philanthropic resources, guaranteeing both impact on investments and financial return - a strategy already used by the BNDES. It is important to make it clear, therefore, that the different sources of financing eligible for a project are not exclusive, and that there must be a strategic mobilization of different types of resources, whether public and private, national and international, according to the characteristics and requirements of each project.

Public finance includes both national and international sources. At the international level, flows come from international financial institutions (IFIs) such as Multilateral Banks, United Nations financing mechanisms (including affiliated funds), Vertical Funds and other multi- and bilateral channels. Traditional sources of national public finance involve national/federal, state/provincial or municipal/local governments. They account for a significant share of the resources earmarked for climate projects.

As for private financing, there is a great diversity in both sources and mechanisms. Typical sources include commercial financial institutions, insurance companies, corporate actors, institutional investors, philanthropic entities and foundations. The participation of public and private actors can take different forms depending on the financing models adopted.

### 5.1.2 *Financing models in the public sector*

In a public sector financing model, the local government covers all costs associated with the project. As shown in Figure 10 above, there are different sources of public financing.

To do this, it is advisable to first assess the local governments' own sources of revenue, which include, but are not limited to:

- **“Intergovernmental fiscal transfer”**: refers to the sharing of financial resources between levels of government for public expenditure and service provision. These transfers may or may not be conditional on a specific purpose, or may be based on results.
  - In the Brazilian case, an interesting result-based tax transfer to be observed is the Green/Ecological/Environmental ICMS, which does not represent a new tax, but rather an alternative way of distributing ICMS resources from states to municipalities. The Ecological ICMS is the first major experiment in payments for environmental services (PES) instituted in Brazil. The inclusion of environmental criteria for this distribution is what is called Ecological ICMS. In Brazil, 16 states use environmental criteria to distribute ICMS resources among municipalities. These criteria vary significantly from state to state, but municipalities can usually receive Ecological ICMS resources due to the presence of conservation units, protected areas, water supply and sanitation.
- **“Pollution and environmental taxes and fines”**: Local governments are increasingly experimenting with the use of pollution and environmental taxes and fines, both to improve air and environmental quality and to generate additional revenues that help offset the costs associated with a broader range of activities. These taxes can take different forms, such as vehicle registration fees, water pollution fees and solid waste fees. They can be levied directly on fossil fuel emissions. In most countries, this taxation

is most common in the energy sector. In Brazil, however, environmental and pollution taxes are still rarely used.

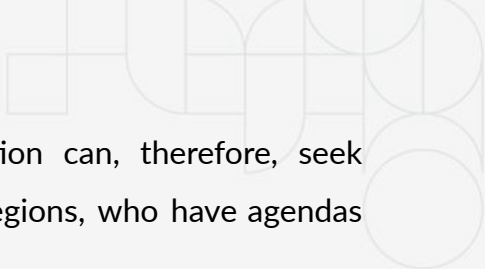
- In the state of São Paulo, the Nascentes Program aims to promote the conservation of water resources and regional biodiversity, and acts as a platform for the articulation of stakeholders involved in ecological restoration, including public and private companies, government and civil society. In addition to restoration actions, the program also allows the conversion of environmental fines into contracting for Shelf Projects, that is, projects registered on the platform that are ready for execution but need an agent to provide resources and execute them.
- **Land value capture (LVC)** is a financing tool that allows local governments to levy fees and taxes on developers and property owners to capture a portion of the increase in land value resulting from public or community investments. The revenue generated can then be reinvested in climate action. The tool is based on the principle that land is a resource whose value can be exploited by local governments to generate public investments for climate resilience. Investments in infrastructure, including green infrastructure such as parks and other green spaces, water management, green mobility and urban afforestation, increase the value of nearby land. LVC envisages the public sector appropriating part of the benefit generated by private actors from the public investments made in an area, which increase the value of nearby properties. This creates a cyclical dynamic in which the government makes investments in a region, captures part of the land value increase, and reinvests this value in further social and environmental benefits through new infrastructure. In Brazil, the most used LVC tools are: Improvement Contributions, Onerous Granting of the Right to Build and Exactions.
  - The city of São Paulo has financed several urban improvement projects through onerous grants. One example is the Faria Lima Urban Consortium Operation, which aimed to improve accessibility in the region, reorganize traffic flows, environmentally qualify public spaces, and improve housing conditions for communities living in irregular occupations in the surrounding area. Funds were raised through Onerous Grants for the Right to Build (OODC) and also through the Certificate of Additional Construction Potential (CEPAC), another instrument for charging for additional construction potential to generate investments in the city, with

the difference that it is a title for future investment. With the resources from these mechanisms, investments were made in the construction of new roads, bus terminals, bike paths, and the production of social housing.

- **Carbon Market**

- Currently, Brazil only has a voluntary carbon credit market. Even so, the volume generated in the country has shown exponential growth since 2020. The growth in the number of credits generated has occurred mainly through REDD+ forest conservation projects (which reveals broad national interest in Nature-Based Solutions), and, increasingly but still to a lesser extent, through energy production and conservation sectors.
- The process of generating and trading credits on the voluntary market involves the development stage, in which a potential GHG emissions-reducing activity is identified, followed by the selection of a methodology to quantify the removal/reduction of emissions from the atmosphere. Next, companies specialized in developing this type of project are usually contacted, which will work on mapping the activity's potential and demonstrating compliance with the requirements set forth by the certification standards. After the project is developed, it must be validated and monitored by the (DOEs), independent auditors accredited by the certification standards. Finally, after validation and certification using the established standards, carbon credits are issued and released in batches according to the volume expected to be emitted each year in the absence of the project.
- Today, in Brazil, there is an expectation that the national carbon market will be regulated by law. Currently, Bill No. 182 of 2024 is under consideration a substitute text that compiles four previous bills on the regulation of the carbon market in Brazil and proposes the creation of the Brazilian Greenhouse Gas Emissions Trading System (SBCE).

- Parliamentary amendments: municipalities can use parliamentary amendments from deputies (state and federal) and senators to allocate parliamentary amendments to finance climate projects. The use of parliamentary amendments can be a good solution for financing smaller urban projects, whose budget is not large enough to resort to large



national or international banks. The municipal administration can, therefore, seek parliamentarians from their own region or even from other regions, who have agendas associated with the theme of the project to be carried out.

- The project “Monitoring and generation of deforestation alerts in the water sources of the São Paulo Macrometropolis”, carried out by the Democracy and Sustainability Institute (IDS) in conjunction with the State Secretariat for the Environment, Infrastructure and Logistics of the State of São Paulo (Semil) was financed through a parliamentary amendment from a state deputy in the amount of R\$250 thousand reais. The objective was to map irregular deforestation in the seven territories of the water supply systems of the São Paulo macrometropolis through monitoring based on satellite images from the MapBiomas project, helping to preserve natural areas and ensure the health of watercourses.

Analysing these and other mechanisms is crucial to understanding whether there is sufficient funding in the capital investment budget to cover the costs of the design and installation project.

As own sources are often not sufficient, the second stage of the assessment should include information on the capacity of local governments to obtain funding from subsidies and/or grants from other public sources, such as national governments, development partners, climate funds or other sources.

In the Brazilian case, based on the Fiscal Responsibility Law (LRF), the Federal Senate stipulated, through Resolution No. 40 of 2001, that net consolidated debts may not exceed 200% of net current revenues, in the case of states, or 120%, in the case of municipalities, in a single fiscal year. According to the LRF, in order to carry out credit operations, the interested entity must formalize its request with the conditions of prior and express authorization for contracting, in the text of the budget law, for additional credits or a specific law. The resources arising from the operation must be included in the budget or in additional credits. The carrying out of credit operations may not exceed the amount of capital expenditures, unless they are authorized through supplementary or special credits with a specific purpose. The Law also prohibits the raising of resources as a contribution whose generating event has not yet occurred.



A third layer of assessment should focus on the borrowing capacity of local governments to borrow from development finance institutions.

It is important to highlight that in the case of external debt, public sector projects and programs that seek financing from multilateral and bilateral organizations must be examined and authorized by the External Financing Commission (COFIEX). External credit operations and non-reimbursable financial contributions from states and municipalities, their direct administrations, autonomous agencies and dependent state-owned companies must be submitted for analysis. The flowchart for seeking external financing is described below.

Figure 11 - External financing flowchart



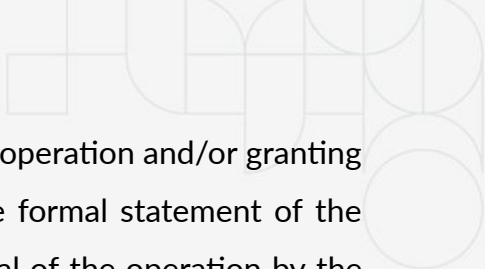
Source: Ministry of Planning and Budget, External Financing Commission - Cofex.

The process begins with the submission of the Financing Proposal to COFIEX, in the form of a letter of inquiry, for projects applying for external support of a reimbursable and non-reimbursable financial nature. The analysis of the letter, according to the Council's criteria, determines whether or not the process will continue. The evaluation criteria adopted are: (1) Payment Capacity, (2) Debt Trajectory, (3) Technical Analysis, (4) Strategic Areas (Environmental, Economic and Social Impacts) and (5) Human Development Index - HDI.

Details of the other COFIEX evaluation criteria and their respective weights are available in the appendix. [Resolution No. 17, of June 7, 2021.](#)

If the project is approved, the preparation process begins between the financing agent and the borrower. Once the preparation is complete, the financing agent prepares the contractual drafts and forwards them to the Secretariat for International Economic Affairs of the Ministry of Finance (SAIN/MF), which coordinates the negotiation process and, in turn, distributes them to the Secretariat of the National Treasury of the Ministry of Finance (STN/MF) and the Attorney General's Office of the National Treasury (PGFN).

Negotiation meetings are held to adapt the project and, as a result, the borrower must meet the requirements set by the Ministry of Finance to forward the process to the Federal



Senate, which in turn authorizes the contracting of the external credit operation and/or granting of the Union guarantee. With the final opinion of the STN/MF, the formal statement of the financing agent, the Resolution of the Federal Senate and the approval of the operation by the Executive Board of the financing agent, the PGFN/MF prepares the authorization of the MF for the contracting of the external credit operation.

Materials on COFIEX external financing, including the External Financing Manual and the tutorial on writing a letter of inquiry, can be found [at this link](#).

Once the details of the above points are clarified, it will be possible to understand whether public financing alone is adequate and sufficient for the planned investment, or whether additional assistance from external sources is required.

### 5.1.3 *Private sector financing model*

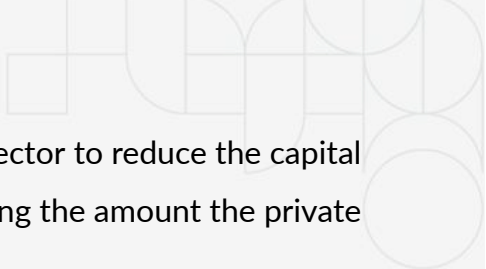
Projects financed through private sector models need to be structured to minimize risk and maximize profit.

Key success factors that local and regional governments will need to consider when assessing their ability to engage the private sector include (100%RE 2021):

- High levels of revenue certainty, resulting from government payment guarantees or long-term purchase agreements with third parties (such as electricity or biogas sales)
- A commercialized (known and tested) technological solution
- Predictable development and operating costs that are not subject to unacceptable currency exchange risks
- A local government with credit and transparency, which will pay the private sector in full and on time for services, and which additionally has institutional stability
- Investment costs that can be minimized by the use of local government land, other in-kind contributions and/or subsidies to reduce the cost of equipment and services

In terms of financing instruments, the private sector can offer a wide range of different sources, including (CoM-SSA 2020):

- 
- Equity and shareholder loans, where financing is provided by a company's shareholders or the parent company
  - Debt raised through the balance sheet of a private sector entity, known as corporate finance. The company raising the debt remains responsible for repaying it. Unless a company has a strong balance sheet and a high credit rating, it may not be able to raise significant amounts of debt in this way.
  - Project finance debt, which is debt raised for a specific project and secured by the project's cash flows. Due to the risks involved for lenders, the *due diligence process* is extensive and not always justified for smaller projects and loans
  - Blended finance from development finance institutions, which may include a combination of grants, concessional loans, guarantees and other risk mitigation measures structured to reduce the cost of financing. It addresses market failures by mitigating risks for private sector investors and/or improving returns. Blended finance can take different forms, such as (COM-SSA 2020):
    - An *interest rate subsidy* uses public resources to reduce a project's debt service payments.
    - *Concessional loans and/or subsidies* can reduce interest costs and offer longer terms than those offered by private banks, allowing annual payments to be reduced and spread over a longer period.
    - *Subordinated debt*, which is a form of debt that ranks behind "senior debt" (such as bank loans) but before equity capital providers. It can help protect senior debt investors from unacceptable risk and reduce the cost of capital in cases where equity capital is too expensive.
    - *First-loss equity*, which protects investors from financial losses up to a predefined amount, making it more attractive for the private sector to finance the remaining equity of the project.
    - *Guarantees* can mitigate several types of investment risks, including political, policy, regulatory, credit and technology risk.



- CAPEX grants: These are funds provided by the public sector to reduce the capital expenditure of the project, making it more affordable by reducing the amount the private sector needs to borrow.

- Pooled finance at the subnational level is one of the available models for mobilizing private finance for local climate projects. An initial assessment is needed to define the exact financial structure of the pooled mechanism, depending on the existing legal and institutional framework as well as the financial needs of the local government. The modular nature of climate projects can provide the basis for pooled development finance, as well as pooled finance facilities and pooled procurement. Some possibilities include:

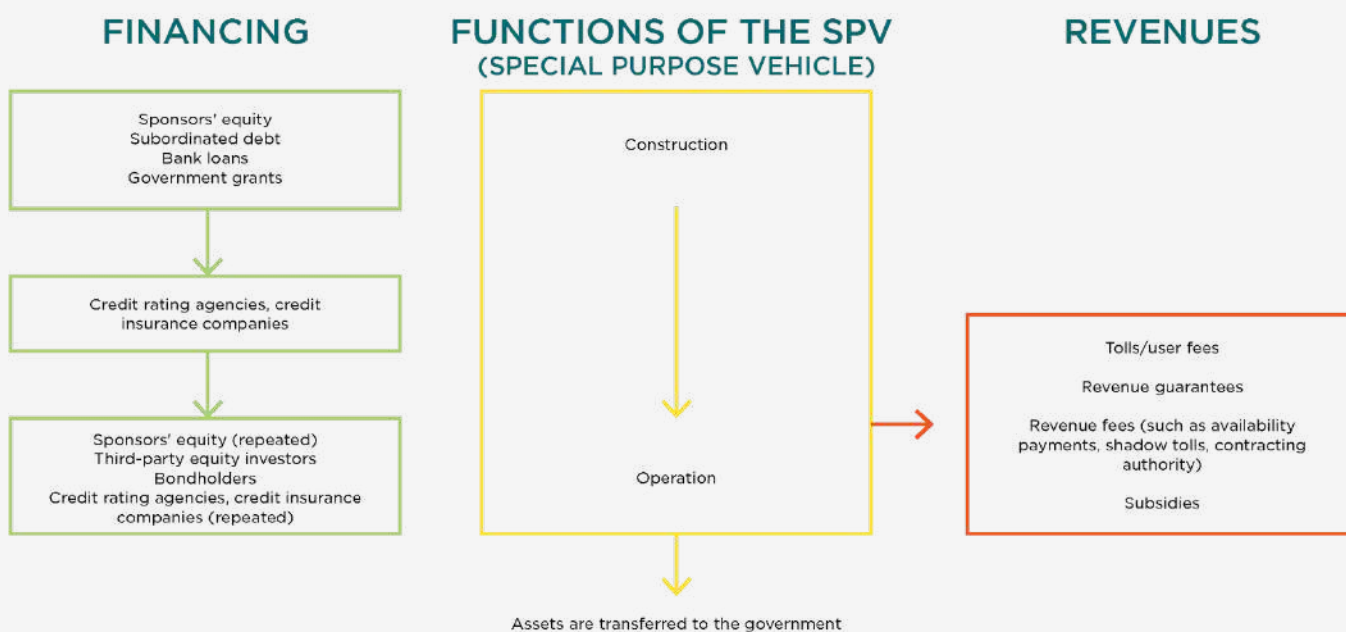
- Club deals: These are agreements in which local governments issue bonds together, and each is responsible for paying back its share of the borrowed capital, with interest. A special purpose vehicle (SPV) is not created, and the issuance can be organized by the association representing the group of issuers, which directly accesses the market (Inter-American Development Bank 2021).
- Aggregation platforms: In these cases, a VPE is created to act as an intermediary between municipalities and capital markets, and may be owned by the central government, subnational authorities, or even third parties such as a pension fund. The platform can aggregate portfolios, raise large amounts of capital, and help public borrowers diversify their funding sources and access cheaper financing. VPEs can also be equipped with technical expertise and improve risk management and financial soundness (Inter-American Development Bank 2021).
- Bond banks: Here, local governments can create entities to finance municipal projects. These financing vehicles make pooled bond issuances to local authorities, who will eventually repay the interest and principal loaned to the bank. Bond banks can offer lower cost loans, greater financial strength, diversification, risk reduction, and technical assistance (Inter-American Development Bank 2021).

## 5.2 Financial aspects of a VPE

A typical PPP project involves a large initial investment and a smaller portion to cover operation and maintenance costs, which are paid over the life of the project. Certain aspects of PPP projects influence the choice of the most appropriate financial model, which usually includes the VPE as the actor responsible for managing financial flows. These include revenue from user fees and government payments, as well as the allocation of capital for construction and ongoing expenses, mainly for maintenance and operations (World Bank 2021).

PPP projects are usually large enough to require independent management, and most steps can be subcontracted (Engel et al. 2014). Figure 12 below illustrates how PPPs can be financially originated and structured, starting with the establishment of a Special Purpose Vehicle (SPV), which is responsible for the construction and operation of the project.

Figure 12 - Financial cycle of a PPP project



Source: the authors, 2024.

The financial instruments employed in a PPP project are divided between the construction phase and the operation phase. During the construction phase, there is general uncertainty and constant changes in the project. Therefore, the equity of the sponsors is the main financial resource, combined with bank loans and subsidies provided by national governments. The sponsors are highly interested in the profitability of the project to offset their incurred costs. In the case of projects that include user fees, the initial contribution to the

investment is supplemented by government subsidies if the project revenues are insufficient to cover the costs (Engel et al 2014).

Once the construction phase is complete, credit rating agencies and credit insurance companies offer bonds, replacing loans and grants as a source of financing. Once operations begin, other options are available to mobilize resources, such as charging a user fee and grants, among others, depending on the local regulatory context of the project.

As shown in Figure 12 above, the most common financing model is a combination of equity and debt, with contractual relationships between equity holders and lenders. The initial shareholders or investors in the project are usually the members of the consortium that designs and establishes the PPP. This category may include project developers, construction companies, infrastructure management companies, and private equity funds. This group generally accepts high risk and therefore requires a higher return on their investment. On the other hand, lenders may include commercial banks, multilateral and bilateral development banks and financial institutions, and institutional investors such as pension funds and insurance companies (World Bank 2021).

## Financial benefits of an SPE

Special purpose entities (SPEs) offer multiple benefits both to investors, who have the opportunity to improve the financial aspect of PPP projects, and to the host government, which can verify its competence in financing such projects. The main benefits are listed below:

### Securitization

SPEs can ensure that investors will receive a return on their investment and facilitate securitization. Because investors' pooled assets are isolated from the parent company, the SPE has more control over these assets, leaving them less vulnerable to potential disruptions. It is also simpler and more cost-effective to sell a pool of securitized assets rather than selling the individual assets (Trade Finance Global 2022).

### Risk sharing

In some cases, a PPP project can be very risky due to its complexity and the multiple stakeholders involved. SPEs are used to reallocate financial risks, sharing them among multiple investors. Therefore, an SPE protects both the private and public sectors, and

neither entity would be affected by financial problems in the other. In practice, risk mitigation can give the SPE freedom to operate, since neither actor would be impacted by any burden that the project might create (Assure 2022).

## Attract investments

SPEs can be used to raise additional capital at more favorable lending rates. Solvency is determined by the collateral of the SPE, rather than the credit rating of the parent company. The investment amount is smaller in an SPE compared to other arrangements, which increases the pool of potential investors and lenders. Through this process, companies are able to reduce financing costs by isolating assets in an SPE.

## Financing without increasing debt

When an SPE is created to finance a project, the debt burden of the parent company will not be increased. In addition, PPP partners can raise funds for new businesses or acquisitions without increasing their debt (Trade Finance Global 2022).

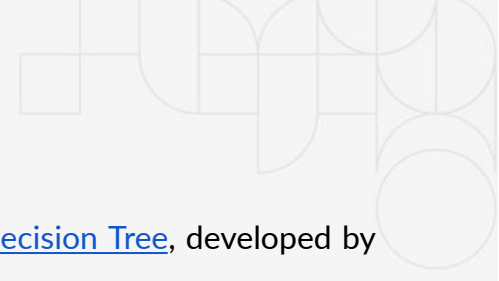
## 5.3 Tools

### 5.3.1 Tool 1: Bankable climate projects

The [Guide to Developing Bankable Climate Action Projects](#) is a tool developed by ICLEI South America for the Urban-LEDs project, and aims to provide instruments to improve the development processes of bankable projects, so that they meet the criteria and standards necessary to achieve the necessary financing.

Along with the guide, ICLEI South America also presents the [Climate Finance Glossary](#), to support local governments in understanding and appropriating terms frequently associated with the processes of project development, seeking sources of financing and building partnerships with financial and technical institutions.

More information on external financing, following COFIEX guidelines and guidance, including tools such as the [External Financing Manual](#) and the tutorial on preparing a letter of inquiry, can be found on the COFIEX website.



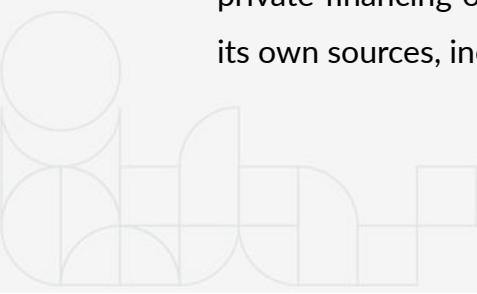
### 5.3.2 Tool 2: Decision Tree for Climate Finance

Through a series of guided questions, the [Climate Finance Decision Tree](#), developed by the Transformative Actions Program (TAP), helps local and regional governments determine which financing instrument is most appropriate to use when choosing between the various possibilities available, both internal and external. The tool also considers scenarios where local governments can opt for reimbursable or non-reimbursable sources, with or without private sector participation.

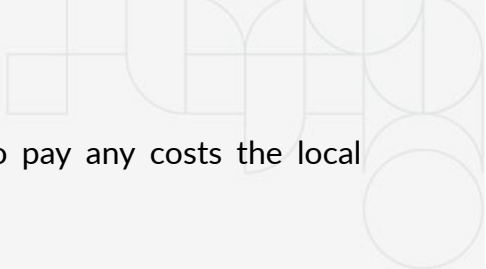
### 5.3.3 Tool 3: Minimizing the financial risks of PPPs

PPPs can provide a number of opportunities for local and regional governments to raise funds for projects that would otherwise not be possible. Particularly in infrastructure projects, an alliance with the private sector can help improve the efficiency of public investment, bringing innovation and high performance standards. However, PPP contracts have financial implications for governments, which come with risks. This tool provides a checklist to help you think through and avoid or minimize the financial risks when engaging in PPPs.

- Assess the fiscal implications of a PPP project/portfolio and integrate the costs into local government budgeting and planning. This will demonstrate government commitment and also help reduce uncertainty about the project.
- Involve the finance department in the project. As they work on regulating the fiscal balance of the local government, they can help assess fiscal costs and risks, verify fiscal sustainability, manage fiscal risks of PPPs, and report on PPP liabilities.
- Develop a fiscal risk assessment. This will allow you to assess the fiscal costs and risks arising from PPPs.
- Assess the value of the project for financing, which means checking whether the cost-benefit of the project is justified and proves that the PPP will provide better value than alternative modes of public procurement.
- Choose the most appropriate financial model after evaluating the public and private financing options available to the local government, such as its ability to draw on its own sources, incur debt, provide subsidies or receive international funds.





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- Make sure the money is appropriated and available to pay any costs the local government has agreed to bear under its PPP projects.
  - Prepare and publish periodic financial reports to enable other stakeholders, such as creditors, rating agencies and the public, to form an informed opinion on the government's public financial management performance, increasing confidence in the project and minimizing disengagement risks.
  - Assess the fiscal risk of PPPs using the [Fiscal Risk Assessment Model for Public-Private Partnerships](#), developed by the International Monetary Fund (IMF) and the World Bank Group (WBG). It is an analytical tool for assessing the fiscal costs and risks arising from public-private partnership projects. The Model requires certain information about the project, including contractual parameters, financing, asset details, service to be provided, costs, and guarantees.

Risks in infrastructure projects must also be minimized by identifying the different phases that make up their life cycle. The document [“Life cycle of infrastructure projects: from planning to feasibility”](#) prepared by the Climate Policy Initiative and the Pontifical Catholic University of Rio de Janeiro (PUC-Rio), details the planning and feasibility phases and discusses the importance of the pre-feasibility analysis phase of the project.

## 6 FINAL CONSIDERATIONS

The Toolkit presented here reflects the IPGC's commitment to supporting governments in the Global South, with an initial focus on Brazil, to more effectively address the challenges that threaten sustainable development. Climate change, social inequalities and inadequate infrastructure require robust and innovative solutions, and it is in this context that Public-Private Partnerships (PPPs) emerge as a key mechanism. The central objective of this toolkit is to provide the practical and methodological tools necessary for local and regional governments to plan and execute essential infrastructure and service projects more effectively, always with a focus on inclusive and sustainable development.

The proposed methodology goes beyond traditional approaches, being deeply anchored in the People First principles, which put people at the center of development. This concept is essential to ensure that PPP solutions generate direct and positive impacts, especially for the most vulnerable and small-scale communities. Sustainable development will only be truly achieved when everyone is included and benefits, and this is the basis of our approach. Putting people first is not only a matter of social justice, but also a strategy to ensure that projects are effective, long-lasting and adaptable to local realities.

In Brazil, this model becomes even more relevant, given the urgency of dealing with rapid urbanization, management challenges in smaller municipalities, and major social inequalities. The intelligent use of PPPs, combined with innovation and sustainable practices, will allow the country to advance in a more balanced manner, promoting economic growth while protecting the environment. This guide, however, is not limited to Brazil. It is designed to be adaptable and replicable in other Latin American countries, creating a flexible framework that can be adjusted to regional particularities, facilitating the addressing of the specific challenges of each nation.

Sustainability, one of the pillars of this methodology, is present at every stage of the process. The commitment to integrating climate and environmental solutions into each phase of planning and execution ensures that projects are aligned with the Sustainable Development Goals (SDGs). In addition to promoting specific improvements in infrastructure, this guide encourages the implementation of green technologies and innovative practices that can shape the future in a positive and inclusive way.

Ultimately, this guide is a strategic tool that supports the effective implementation of PPPs, while also highlighting the importance of collaboration between the public sector, the private sector and communities. People First is more than a slogan: it is the essence of the

transformation we want to see, and this guide provides the means to make it a reality. Governments across the region can use these methodologies to make informed and innovative decisions, thus building a more sustainable, inclusive and equitable future for all.

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**Rodrigo Perpétuo**

Vice President of IPGC Executive Director of ICLEI South America

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